Sprachkurs

Medical English

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unter Mitarbeit von
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5., überarbeitete und
erweiterte Auflage

Inkl. Audio-CD &
Mini-Wörterbuch

Stethoskop
stethoscope

Thieme

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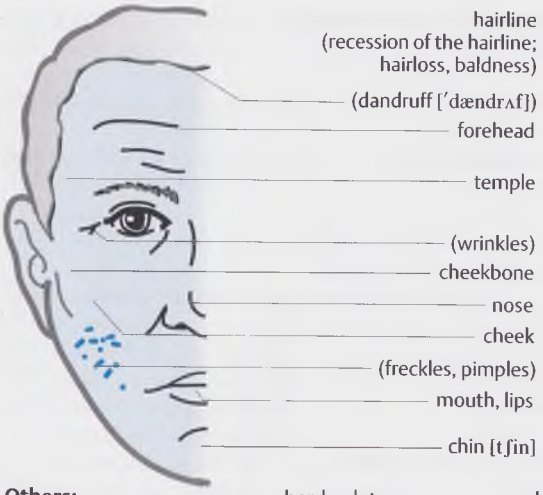
1 The Parts of the Body

In this chapter we will list the terminology used to describe the parts of the body. We will refer to strictly medical as well as to colloquial terms that are used by professionals. (Words in parentheses refer to pathological abnormalities in that area.)

The Head



Others:
muscles of mastication
gums
mandible
maxilla
mucous ['mju:kəs]
membranes of the mouth
hard palate
soft palate
palatine tonsil (hare-lip; cleft palate)
throat [θrout]
pharynx (hiccups)
uvula ['ju:vjələ]
submandibular gland
sublingual gland
parotid gland
saliva [sə'laivə]
tongue [tʌŋ]
beard [biəd]
moustache [mə'sta:ʃ]

Eye

Others:
orbit
vitreous ['vitriəs] body
lens
iris ['aiəris]
cornea
anterior chamber
eyeground; fundus
disc
lacrimal gland

The Head

the skull [skʌl]:

vertex
scalp

others:

back of the head
base of the skull
(burr hole)

the nose:

root of the nose
back of the nose
tip of the nose
nostrils

others:

nasal septum
(septal deviation)
meatus [miːˈeitəs]
of the nose
paranasal sinuses
[pærəˈneizl] [ˈsainəsəs]

the brain:

meninges [meˈninʤiːz]
frontal lobe of the brain
gyri [ˈʤairai] of the brain
sulci of the brain
pituitary stalk
pituitary gland
[piˈtjuitəri] [glænd]
basal ganglia [ˈgæŋgliə]/
brainstem

others:

cerebellum
ventricles
central nervous system
spinal fluid
[spainl] [ˈfluːid]

the ear:

auricle [ˈɔːrikl], pinna
external ear canal
earlobe

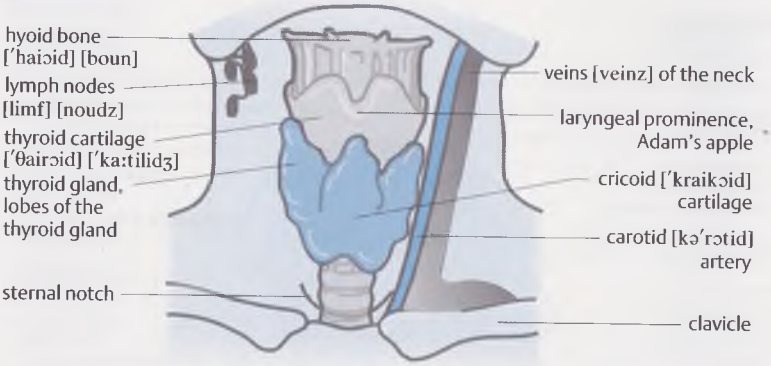
the teeth

mandible

incisors
canines [ˈkeinainz]
premolars
molars
deciduous dentition [diˈsidjuəs] [denˈtiʃən]
(20 milk teeth)
permanent dentition (32 teeth)
crown/neck/root
enamel [iˈnæml]/cementum/pulp
gingiva
(dentures [ˈdentʃəz])

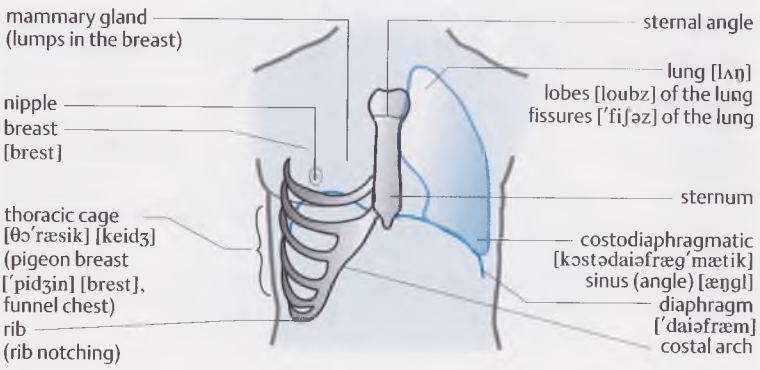
Others:
eardrum
middle ear
auditory ossicles [ˈɔːditəri] [ˈɔsiklz]
inner ear
semicircular canals
cochlea [ˈkɔkliə]

The Neck



Others:
back of the neck
branches of the carotid artery
tributaries of the neck veins
larynx, vocal cords, vocal ligaments
sheath [ʃi:θ] of the thyroid gland
esophagus [i'sɔfəgəs], pharynx
trachea [trə'kiə], tracheal rings

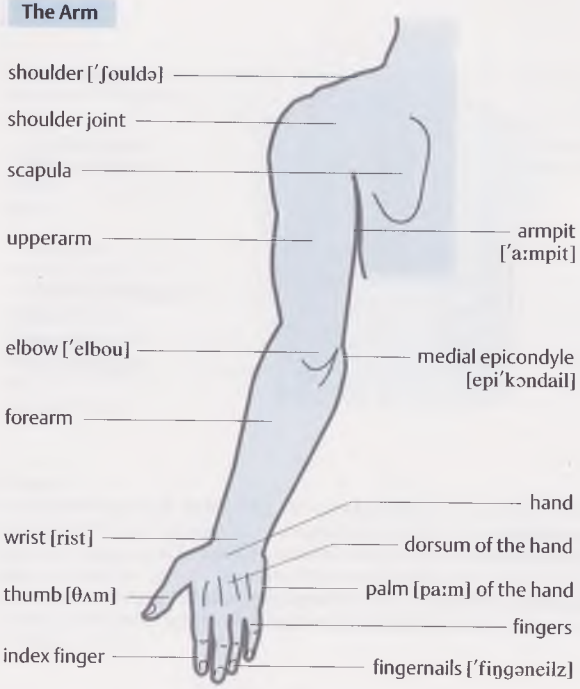
The Chest



Others:

trachea
right and left main bronchus
lobar and segmental bronchi
heart, pericardial sac
(pericardial effusion, cardiac tamponade)
cardiac chambers
coronary artery
left main coronary artery
cardiac valves [vælvz]
(ventricular aneurysm ['ænjuərizm],
ventricular thrombus ['θrɔmbəs])
cardiac conduction system
central blood vessels

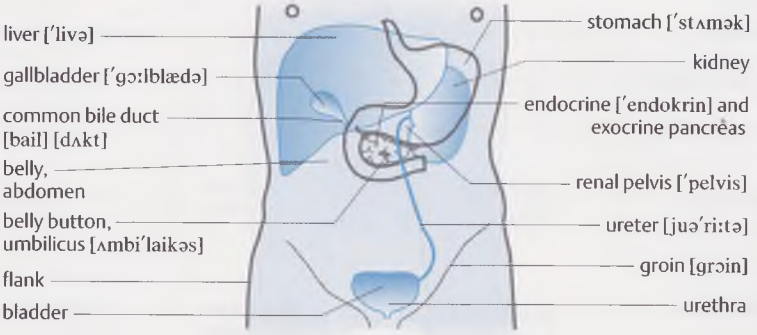
The Arm



Others:
cubital ['kju:bitl] fossa
joints of the fingers
thenar ['θi:na:r]/hypothenar of the hand
synovial bursae [si'nouviəl] ['bə:si:]
of the hand
synovial tendon sheaths
creases ['kri:səz] of the hand
knuckles [nʌklz] of the hand

bones of the wrist and hand:
carpals
metacarpals
phalanges

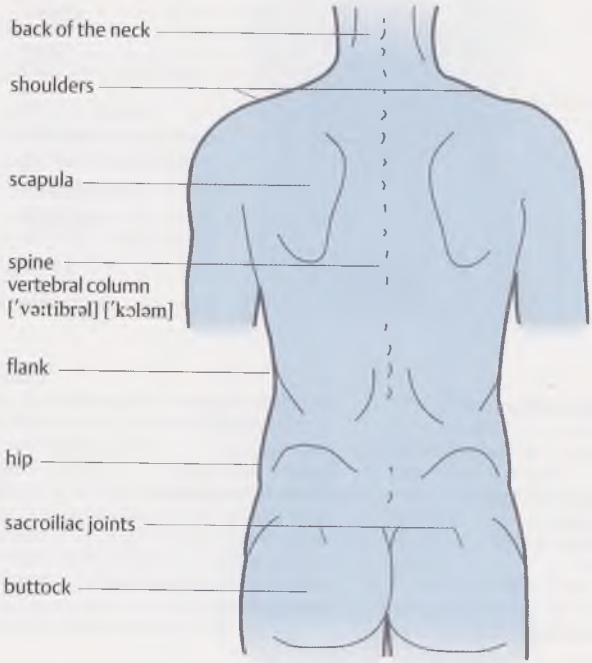
The Abdomen [æb'doumən]



Others:

the 4 quadrants of the abdomen
abdominal wall, peritoneal cavity
biliary system, bile
spleen [spli:n]
greater and lesser curvature of the stomach
the gut, large bowel, small bowel, duodenum [djuə'di:nəm], colon, rectum, sigmoid, anus ['einəs]
adrenal gland, kidney
(kidney stones; renal calculi ['kælkjuləs])
(congenital anomalies of the kidney)
(the horseshoe ['hɔ:sʃu:] kidney)
prostate gland
pelvic diaphragm
reproductive organs
ovary, uterine tubes ['ju:tərin] [tju:bz]
testicles
spermatic cords
uterus
external os of the uterus
the pouch [pautʃ] of Douglas
= rectouterine pouch

The Back

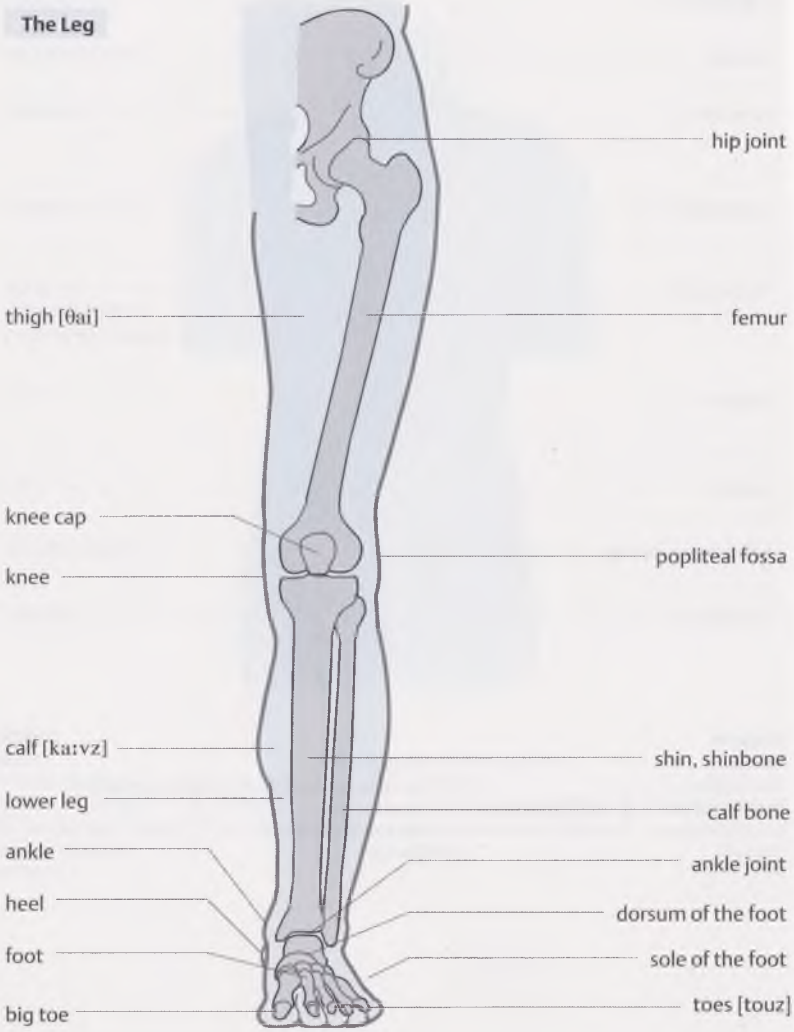


Others:

pelvis
cervical lordosis
thoracic kyphosis
[θɔ'ræsik] [kai'fousis]
lumbar lordosis
vertebra
} of the vertebral column

intervertebral disc
(sciatica)
cutaneous nerves [kju:'teiniəs] [nə:vz]
dermatomes of the back
trunk

The Leg



Others:

(varicose veins ['værikous] [veinz], bunion)
hipbone = ilium
pelvic girdle
(blister)
(verruca)
inguinal ligament
Achilles tendon
longitudinal arch of the foot

2 Equipment, Instruments, Lab Tests, and Medical Studies

The following is a short list of the equipment of a ward (floor unit), important materials for routine work, names of laboratory tests and of medical studies.

2.1 Equipment and Instruments

Equipment in the Patient's Room

Bed, mattress, bedsheet, blanket, bedcover, pillow, gown [gaun],
bedpan, urine bottle, diaper ['daiəpə],
heating blanket, heating pad,
the lights, the light switch,

the patient's side tray, locker, hanger, food tray,
TV-set, air conditioning, heating,
toilet, shower, wash-basin, water faucet, mirror, towel, paper towel, toothbrush, comb [koum],

wall picture (usually a hard board for potential resuscitation [risʌsi'teiʃən]),

electric outlet, plug, the oxygen outlet,
armchair, scale,
commode,
wastepaper basket, disposable plastic bag.

Doctor's equipment

White coat, name tag, ID card, pager (beeper, bell boy), the paging system, the overhead loudspeaker;
the doctor's bag contains:
stethoscope (bell, membrane, tubing, "earpiece"),

reflex hammer, tuning fork, tape measure,
neurological pin, calipers ['kælipə], ruler,
lamp, flashlight, clipboard,
otoscope c̄ specula, ophthalmoscope,

blood pressure cuff (sphygmomanometer, manometer, hand bulb), tourniquet ['tuənikei], head mirror (ENT surgeon);
notebook, pen, marker.

Working Materials

Syringe ['sirindʒ], vacutainer [vækjə'teinə] (needle holder),

tube, cap of the tube, label,
needle, needle dispenser, needle disposal/sharps bin (Brit.),
gauge [geidʒ] 18 needle, disposable needle,

a rubber glove [glʌv], a sterile gown [gaun], a sterile field,
face mask, disposable cap,
disinfectant, iodine ['aiədi:n], betadine, chlorhexidine,
a swab, an alcohol swab, a 4 × 4, a 2 × 2, a dressing,

a lubricant ['l(j)u:brikənt] (e.g. for the rectal examination),

a disposable cloth [klɔθ],
a glass slide,
an iv cannula, an indwelling catheter, a central line,
an O_2 face mask, an O_2 nasal cannula, the O_2 bottle,

a tongue blade [tʌŋ] [bleid], a tongue depressor, a cotton tip applicator (cotton wool buds),
a spinal needle,
a band-aid/plaster (Brit.), tape, bandage, dressing.

Other Important Equipment on the Ward

The chart, previous medical records,
iv bottle, iv pole/drip stand (Brit.), iv line, iv piggy-bag (iv PB),

iv pump,
pill, tablet, capsule ['kæpsju:l], powder, drops, ointment, lotion,

adapter, heparin lock,
ampule ['æmpjule], vial ['vaiəl],
tray (e.g. a rectoscopy tray),
nebulizer, refrigerator, freezer, ice machine,

graded/measuring (Brit.) cylinder ['silində], container,
the crash cart, the crutch, the walker (the walking frame), the wheelchair, the stretcher,
normal saline,
the pneumatic tube (or: postal) system, the telephone, an extension,
the water fountain.

The EKG/ECG (Brit.)

The EKG machine, the leads [li:dz], the suction cup for the chest leads, electrode jelly ['dʒeli],
EKG paper, EKG recorder, the channels,
defibrillator, defribrillator paddles, handles of the paddles,

discharge button, battery.

2.2 Laboratory Tests

The lab slip (pace card, print machine),

the hemogram (CBC = complete blood count, WBC = white blood count, differential WBC, platelets, polymorphonuclear leukocytes, hematocrit, erythrocyte sedimentation rate = ESR),

the urinalysis (specific gravity, osmolality, glucose, erythrocytes, albumin, protein, acetone, sediment, casts),
LFTs: Liver function tests (ALT, AST, AP, protein, albumin, bilirubin total + direct)

BUN (blood urea nitrogen), creatinine [kri'ætəni:n], electrolytes (sodium, potassium, chloride), uric acid ['juərik] ['æsid],
Chem-7 (sodium, potassium, chloride, HCO_3, BUN, creatinine, glucose)
TFTs: thyroid function tests (TSH, fT4),

arterial blood gases (ABG) (pH, pCO_2, HCO_3, pO_2),
lipids (cholesterol, triglycerides [trai'glisəraidz], HDL-cholesterol, LDL-cholesterol),
blood glucose (fasting, random, postprandial [poust'prændiəl]),
iron (serum iron, total serum iron binding capacity, iron ['aiən] saturation),

blood cultures (aerobic [eə'roubik]/anaerobic organisms),
Gram stain (e.g. of a sputum specimen), acid-fast stain,
gastrointestinal tests (e.g. gastroscopy),
pituitary [pi'tjuitəri] function tests (e.g. the TRF-TSH test),

PFTs: pulmonary function tests (e.g. forced expiratory volume in 1 s, forced vital capacity, maximal midexpiratory flow, functional residual capacity, dead space volume),

renal function tests (e.g. creatinine clearance, concentration and dilution tests),

Coags: coagulation [kouægu'leiʃən] tests (e.g. the bleeding time, prothrombin time = PT = Quick test, partial thromboplastin time = PTT, INR = International normalized ratio),

stool measurements (e.g. Sudan stain for fat, fecal leukocytes, C. difficile toxin, bulk, wet weight, dry weight, stool fat, occult blood, stool for O & P),

urinary measurements (e.g. titratable acidity, ketones ['ki:tounz]),

CSF: cerebrospinal fluid (e. g. Gram stain, bacterial antigens [bæk'tiəriəl] ['æntidʒən], oligoclonal bands [ɔligou'klounl] [bændz], cells, culture and sensitivity of bacteria, initial pressure, glucose and protein concentrations, pH),

electrocardiogram, EKG (e.g. sinus rhythm, arrhythmia, P wave, QRS complex, PR interval, T wave, ST interval, elevation or depression of any segment),

the lab report, the lab print-out, the central lab computer.

2.3 Special Studies, Procedures

Venipuncture,
spinal tap,
bone marrow aspiration, biopsy
bladder catheterization [kæθitərai'zeiʃn],

paracentesis [pærəsen'ti:sis] (e.g. of ascitic [ə'sitik] fluid), thoracentesis [θɔ:rasen'ti:sis], arthrocentesis,
skin test for tuberculosis [tjubəkju'lousis] (PPD),
the skin-, liver-, kidney-, muscle-biopsy,
the digital examination of the prostate gland,

the rectosigmoidoscopy, (rectoscope, the rectosigmoidoscopy tray),
endoscopy [en'dɔskəpi] (e.g. cystoscopy of the bladder, gastroscopy, colonoscopy),
ultrasound (e.g. cardiac, abdominal, uterine),

X-ray studies (e.g. chest X-ray, sinus films, UGI series, small bowel follow-through, barium enema, excretory urography, plain abdominal films, tomography, coronary angiography, myelography, arteriography, venography).

KUB (kidney, ureter, bladder) film,
CAT (computer assisted tomography) scan,
EBCT (electron beam computerized tomography),
MRI (magnetic resonance [mæg'netik] ['rezənəns] imaging),
MRA (magnetic resonance angiography),
MRCP (magnetic resonance cholangio-pancreaticography),

dialysis treatment,
the gastric lavage ['lævidʒ],
allergy testing of the skin,
the tracheostomy [treiki'ɔstəmi],
nerve conduction studies,
blood transfusion (PRBCs: packed red blood cells, whole blood, fresh frozen plasma/FFP).

3 The Medical Work-up

When a new patient is admitted to the hospital ward, his medical problems will be worked up by the ward team. The initial work-up will consist of the following: the patient's medical history, a complete physical examination, a documentation of this information in the patient's chart, an assessment of the patient's problems, a problem list and writing hospital orders. Thereafter, daily documentation includes: writing daily progress notes in the patient's chart, writing procedure notes, writing prescriptions and filling out flow sheets. All these items ['aitəm] will be explained in the following chapter.

3.1 Taking the Medical History and the Complete Physical Examination

For the write-up of the medical history and the complete physical examination most hospitals will provide sheets of blank white paper – rather than any preprinted forms with questions to be checked off. Therefore, the documentation of the history and the physical examination must stick to an accepted sequence. A widely recommended sequence ['si:kwəns] of documentation will be outlined in the following.

The Medical History (For an example: see page 36)

First give the patient's ID (patient identification including medical record number).

The *h*istory of the *p*resent *i*llness *(HPI)* begins with a statement of the patient's age, race, sex, occupation, and chief complaint [tʃi:f] [kəm'pleint]. For the latter use the patient's own words. (Races: White/Caucasian [kɔ:'keiʃən], Black, American Indian, Indian, Hispanic [his'pænik], Asian ['eiʃən].)

Next, describe when (prior to admission) the patient was last in his usual state of health. Then describe what complaints he developed thereafter. In your description, include the location, the intensity, the quality, the duration, any radiation, and any frequency of these complaints. Determine what seemed to precede the complaints, what exacerbated them, and what alleviated them. Ask about any associated symptoms. Also check for and document relevant negative symptoms.

State whether the patient ever had similar symptoms before and what diagnosis was made at that time. Inquire any contributory factors to the present

problems. Ask about the family history as well as about environmental [in'vairən'mentl] and social habits that might be of relevance to the chief complaint. Finally, document why the patient came to see you today.

Next, obtain and document the following *systematic data:*

1. Are there any known allergies to drugs or possibly to other materials?

2. What are the patient's habits with regard to: a) smoking (if positive, how many packs of cigarettes per day did he smoke for how many years?) b) alcohol, c) drugs or substances that the patient may be addicted to. Also list all medications presently being taken. Inquire [in'kwaiə] about taking the pill in a female patient. Include asking about over-the-counter drugs (e.g. painkillers).

3. Past medical history (PMH): find out about major acute and chronic illnesses that the patient has had; include operations, major injuries, unusual childhood illnesses (e.g. poliomyelitis ['poulioumaiə'laitis], rheumatic fever [ru:'mætik] ['fi:və]).
4. Family history (FH_X): ask about any chronic illnesses of the immediate family, report the circumstances surrounding the death of an immediate family member.
5. Social history (SH_X): determine the patient's marital status ['mæritl] ['steitəs], the number of children, his education, his present occupation.

Review of Systems (ROS)

In this part of the history, the physician asks a number of questions about all major organ systems to double-check any possibly forgotten problems or complaints. One should not repeat the chief complaint or any symptoms already mentioned above. Several important symptoms (which will appear in italics in the following) should always be mentioned even if negative.

General: ask about any recent weight change, fever, night sweats [nait] [swets], polydipsia [pɔli'dipsiə], bleeding from the vagina [və'dʒainə] or other bleeding, lumps or masses, syncope ['siŋkəpi], dizziness, pruritus [pruə'raitəs], rashes ['ræʃəz], intolerance for heat or cold.

Head: any visual changes, diplopia [di'ploupiə], loss of hearing, tinnitus [tin'aitəs], sore throats [sɔ:] [θrouts], or a hoarse [hɔ:s] voice.

Breast: any lumps in the breast, pain, or discharge.

Respiratory system (Resp): any *cough* [kɔf], sputum production, *shortness of breath (SOB), asthma* ['æs(θ)mə], *chest pain,* red blood in the sputum; known tuberculosis, chronic lung disease, and pulmonary emboli ['pʌlmənəri] ['embəlai] in the past.

Cardiovascular system (CVS): any *edema of the ankles* [iː'diːmə] [ɔv] [ðiː] [æŋklz], *claudication, angina pectoris* [æn'dʒainə] [ˈpektəris], *orthopnea* [ɔːr'θɔpniə], *paroxysmal nocturnal dyspnea* [pærək'sizməl] [nɔk'tɜːnl] [dis'pniə] *(PND),* palpitations, dizziness, dyspnea on exertion (DOE), blood clots; any history of rheumatic fever (RF), hypertension (HTN), or heart disease in the past.

Gastrointestinal system (GI): any *heartburn or indigestion, nausea/vomiting/diarrhea* [daiə'riə]*/constipation (N/V/D/C),* hematemesis [hiːmə'temәsis], *melena* [mə'liːnə], *abdominal pain,* change of appetite, food intolerance, jaundice and any known hepatitis, pancreatitis [pæŋkriə'taitis], or peptic ulcer disease (PUD) in the past.

Genitourinary [dʒenitou'juərinəri] **system (GU):** any increased *frequency of urination,* nocturia [nɔk'tuəriə], incontinence, change of stream, *polyuria, dysuria* [dis'juəriə], any history of urinary tract infections (UTI)/stones/venereal disease [vi'niəriəl] [di'ziːz] (VD) as well as any impotence and flank pains. In women you should ask about the regularity of menstruation, pregnancies, and contraception.

Central nervous system (CNS): any seizures ['siːʒəz], loss of consciousness, paralysis, numbness ['nʌmnis], tingling, tremor, and headaches.

Psychology: check the patient's sleep, any anxiety, depressions, fatigue, change of memory, and suicide attempts.

The Complete Physical Examination (PE)

In a complete physical examination you have to evaluate the following:

General aspects: whether the patient is comfortable or whether he is in *a*cute *d*istress [ə'kjuːt] [dis'tres] (AD) or diaphoretic [daiəfə'retik].

The patient's height, weight, and *v*ital ['vaitl] signs (VS) (temperature, respiratory rate, blood pressure and pulse), regularity of the pulse, orthostatic changes of blood pressure and pulse.

Whether the patient is *w*ell *n*ourished ['nʌriʃd] (WN) or not (e.g. emaciated), *w*ell *d*eveloped (WD) or not (e.g. thin; older than stated age; etc.) and *w*ell *h*ydrated (WH) or not (dehydrated).

Specific aspects: whether or not there is any icterus, cyanosis, clubbing or telangiectasia.

Head and eyes: whether or not the *p*upils are *e*qual, *r*ound, and *r*eactive to *l*ight and *a*ccommodation (PERRLA).

Whether or not the *e*xtra*o*cular *m*ovements are *i*ntact (EOMI).

Whether or not the sclerae/conjunctivae are clear, or otherwise.

Whether or not the fundi are unremarkable with flat discs and sharp margins of the disc; whether or not there are cataracts.

Head and ears: whether or not the head is of normal configuration, the external ear canals are clear, the *t*ympanic [tim'pænik] *m*embranes (TM) are pearly.
Nose: whether or not the nose is patent ['peitənt], the patient has a septal deviation or nasal congestion.

Throat: describe any erythema [erə'θi:mə] or exudates ['egzjudeits] on the tonsils.
Mouth: describe the condition of the mucous membranes (e.g. moist, dry), the tongue (dry, atrophic, furry ['fə:ri]), the teeth (edentulous [i'dentʃələs]?).

Neck: describe whether or not the neck is supple with a *f*ull *r*ange *o*f *m*otion (FROM), whether there is any presence of thyromegaly [θairou'megəli] (in this case measure its circumference), observe any elevation of the internal jugular ['dʒʌgjələ] venous pulse.
Skin: is the skin normal or is the skin turgor [skin] ['tə:dʒə] altered? Are there any rashes/lesions ['li:ʒən]/growths?

Lymph nodes: check for any palpable lymphadenopathy in the cervical, axillary, or inguinal region. Determine the quality of any lymphadenopathy [limfædi'nɔpəθi] (e.g. tender, hard/soft, mobile/fixed).
Breasts: test for the presence of any lumps, discharge, or tenderness.

Thorax and lungs: does the patient show any deformity of the thoracic spine or chest cage? (e.g. hunchback, barrel chest, etc.).
Is the expansion [igs'penʃən] of the chest normal?
Is the percussion note normal, increased, or decreased?
What is the quality of the breath sounds? (vesicular, bronchial ['brɔŋkjəl], reduced or absent).
Are there any wheezes ['wi:ziz], rales, rhonchi ['rɔŋkai]?
Is there any rub?
Is there any stridor ['straidə]?

Cardiovascular system (CVS):
are the peripheral pulses fully palpable [pælpəbl] (2 +) throughout?
Is there any *j*ugular *v*enous *d*istension (JVD) = is the jugular venous pressure (JVP) raised?
Is there any pitting pretibial edema [pri'ti:biəl] [i'di:mə] and to which level does it reach (calves [ka:vz], knees)?
Is there any presacral [pri'seikrəl] edema?
Where is the *p*oint of *m*aximal *i*ntensity (PMI)?
Is there any precordial lift or thrill?
Are the first (S_1) and second heart sounds (S_2) normal?
Are there any extra sounds (e. g. S_3, S_4)?
Are there any murmurs ['mə:məz]?
Is there a pericardial friction rub?

Abdomen: what is the frequency of the bowel sounds (increased, decreased, absent)?
Is there any rigidity [ri'dʒiditi] of the abdominal wall?

Is there any referred tenderness?
Is there any rebound tenderness?
Are there any organ enlargements, are there any masses?
Are there any herniae?
Are there any vascular bruits ['væskjulə] [bru:ts]?
Is there any shifting dullness?
Is there any ascites [ə'saiti:z]?
Is there any costovertebral angle tenderness (CVAT)?

Genital examination:
(in a female patient): what is the result of the pelvic examination? (appearance of the vagina, size of the uterus, presence of any enlargements/ tenderness of the ovarian [ou'veəriən] area);
(in a male patient): what is the condition of the testicles ['testikl], are there any inguinal herniae ['ingwinl] ['hə:nii:]?

Rectal examination:
are there any hemorrhoids ['hemərɔidz]? Are there any masses?
What is the rectal sphincter tone?
What is the condition of the prostate gland (in a male patient)?
Is the stool positive for hemoglobin?

Extremities: does the patient have any varicose veins?
Does he have any tender, atrophic [ə'troufik] or swollen muscles?

Neurological examination: is the patient alert and oriented in time, place, and person?
Does the patient have a normal mental status (memory, thought, mood)?
Does the patient have suicidal [s(j)u:i'saidl] intentions?
Are the cranial nerves intact?
Is the patient's motor strength normal? Is the muscle tone normal?
Is there any tremor or muscular ['mʌskjulə] rigidity?
Are the deep tendon reflexes equal and unremarkable on both sides?
Are there any pathological deep tendon reflexes?
Is the sensory function normal (sensitivity to light touch, pinprick, vibration)?
Does the patient have normal proprioception [proupriə'sepʃən]?
Does the patient show normal cerebellar [serə'belər] function (diadochokinesia [daiædəkouki'ni:ʒiə], heel/ shin test, finger/nose test, etc.)?

Psychiatric [saiki'ætrik] **examination (mini-mental state examination, MMSE, after Folstein):**
Name three objects. Ask the patient to repeat.
Ask the subject to count backward from 100 by seven.
Have the subject spell "world" backward (dlrow).
Ask the subject to recall the previously asked objects.

Point to a wrist-watch and a pencil. Ask the subject to name them.

Systemic Data

All: PEN (rash)
Habits: smokes (15 P-Y H_x)
2 whiskeys/night
meds: ASA 5–15 Tab/wk

PMH: "gastritis" 3 y ago.
Inj L leg (F_x) 15 y ago.
FH_x Father † 52 y o (COPD). Mother A/W.

1 brother HTN and DM.

SH_x: Divorced × 1;
2 grown-up children A/W.
Highschool graduate.

ROS (Review of Systems)

Gen: ∅ H_x: wt △/H_x dizziness
Resp: ∅ H_x: SOB/DOE/chest pain;

Some cough + sputum (grey) each a.m.

CVS: ∅ H_x: edema/orthopnea/PND/angina p.

(?) H_x claudication ® leg
GI: see HPI

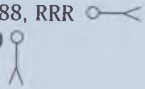
GU: ∅ H_x: frequency/dysuria
CNS, PSYCH, EXTREM } NAD

PE (Physical Examination)

46 y o white ♂, NAD, lookg. older than stated age.

VS:
BP: 140/90
110/95
Temp: 36⁷ °C ax, RR 20/min
WT 174 lbs, ht 5'8"

P: 88, RRR
110



WN, WD, WH
∅: C/C/E, ∅icterus
HEENT WNL, PERRLA, EOMI

MOUTH: dry + atrophic tongue, fetor ['fi:tər] ⊕
NECK: FROM
SKIN: turgor ↓
LN'S: WNL
LUNGS: thorax WNL
lungs clear to A & P

CVS: ∅ JVD
∅ dorsalis pedis pulse ®
PMI WNL; ∅ S_3/S_4;
II/VI syst. Ej. ⓜ precord, LSB.

ABD: soft
RUQ + epigastrium tender to deep palpation
BS ↑ ; ∅ masses
∅ CVAT
liver (?) ↑, 3 fgr. below RCM, (?) tender

RECTAL: WNL
prostate small + soft
stool heme ⊕
GENITAL: ∅ herniae; testes atrophic
EXT: WNL

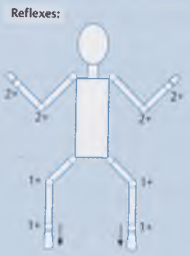
NEURO: A & O × 3

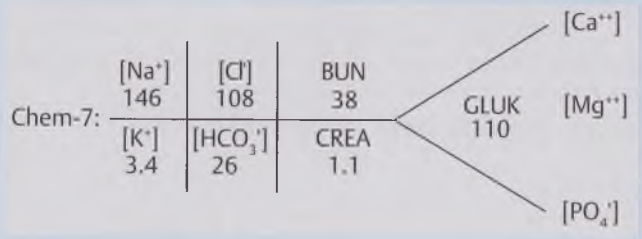
NL mental status
CN's WNL
sens & mot. WNL

Laboratory:

CXR WNL
Abdom. flat plate (plain film (Brit.))
EKG WNL (tachycardia)
CBC Hct = 12, WBC = 7400, Plats WNL

RBC: hypochromic [haipou'kroumik],
microcytic [maikrou'sitik].
UA WNL





Ass. (Assessment)

 # 1: Indigestion
Suspect PUD $^{B}/_{o}$ H_x (EtOH, ASA, stress, type of pain, PMH)

and $^{B}/_{o}$ findings (heme ⊕ stools, tender to deep palpatn., post. △'s, ↓ Hct)

plan: D_x: UGI or gastroscopy ASAP (a.m.)

R_x: antacids [ænt'æsidz] q 2 h for now, H_2-blockers
see my orders

 # 2: Possible PVD
$^{B}/_{o}$ poss. claudication ® leg + absent dorsalis [dɔː'sælis] pedis pulse, cardiac ⓜ also possibly related. Long H_x of smoking.

plan: D_x: plasma lipids: Doppler study;
R_x: consider diet, wt ↓, stop smoking; angioplasty [ændʒiou'plæsti]

 # 3: Allergy PEN

 # 4: Others:
4,A: Heavy smoker, should $^{D}/_{c}$ smoking
4,B: FH_x DM (BS WNL, observe)
4,C: FH_x HTN (observe)

3.3 The Problem List

Next, the examiner will establish a so-called problem list, which becomes the first page in the patient's chart. The problem list serves as an easy way of orientation during rounds. It helps the physician to keep all the patient's problems in mind.

In the patient described above the problem list might look as follows:

Problem Number	Onset/ Duration	Active Problems	Inactive Problems
# 1	2 mo	Peptic ulcer disease	
# 1,A		Iron deficiency anemia	
# 1,B		Tachycardia, postural changes	
# 2	yrs.		Peripheral vascular disease [pə'rifərəl] ['væskjulə] [di'zi:z]
# 2,A	15 yrs.		Heavy smoker
# 3	yrs.	Allergic to penicillin	
# 4			Family H_x of Diabetes mellitus and hypertension [haipə'tenʃən]

3.4 Hospital Orders

The R. N.s will only give to a patient those treatments that have been specified ['spesifaid] and signed by the physician [fi'ziʃən] in the order book.

In the case under discussion (Mr. Brown) the hospital admission orders might look as follows:

Admit Note
5/11/93, 7 pm

1. Admit Mr. Brown to Internal Medicine, 6 W
2. D_x: peptic ulcer disease
3. Condition: fair
4. Allergic to Penicillin! Mark on chart!
5. Nursing: VS q 2 h first 24 h

thereafter VS q shift
I & O for now
weigh: on admission only
Report ↓ BP or ↑ pulse > 10% from previous ['pri:viəs] value

Check all stools for heme, report ⊕ results.

6. Activity: complete bed rest first 36 h

7. Diet: NPO first 24 h (excpt. fluids)
   thereafter bland [blænd] diet,
   frequent small feedings
8. Treatments: iv 0.9% NaCl c̄ 80 mM KCl/500 cc TKO
   oral: Maalox susp., 10 cc q 2 h

   Omeprazole 40 mg iv bid
9. Lab: CBC q a.m. × 3

3.5 The Progress Note (also called SOAP note) (SOAP: Subjective, Objective, Assessment, Plan)

About once a day the house officer is expected to write a progress note on most of his patients, listing any new developments and the present status of the patient's problems. The sequence is as follows:

Subjective (what the patient had to say, how he feels, what happened over night, may cite his own words)
Objective (vital signs, oximeter reading, weight, input and output (I/Os), respirator settings, labs, studies, physical exam (PE))
Assessment (either by problem list 1,2,3,4 or by organ systems HEENT, Resp, CVS, GI, GU)
Plan (comment on all items in assessment)

Example: Progress note (Mr. Brown) – 5/13/04, 6 pm
S: Persistence of epigastric pain, worse after meals (vinegar [ˈvinigə], pepper)

O: Stools heme negative, CBC stable, no vomiting
A: Gastritis? Helicobacter pylori?
P: Gastroscopy (tomorrow) with biopsy

3.6 The Procedure Note

All procedures must be documented thoroughly in the patient's chart (date, physician, indication, consent [kɔnˈsent], details of the procedure, results, and condition following procedure).

3.7 Writing Prescriptions

In a prescription generic [dʒəˈnerik] names are generally used. The prescription has to specify how frequently the patient is to take the drug, it has to list the total

number of doses to be dispensed, and whether or not any refills of this prescription may be made. At the bottom the physician has to sign and give this license ['laisəns] number.

Outpatient prescription

Physician's name: W.R. Smith, M.D.
Address: 101 Eudora Street,
Philadelphia, PA
Tel: 303 412 2665
License #: 21465

Date: 5/22/93
Patient's name: William Brown
Address: 4110 East 9th Ave.
Philadelphia, PA
Tel: –

Age: 63 Weight: 61 kg
Rx: Nifedipine 30 MG TAB EXTENDED-RELEASE # 30 (THIRTY)
SIG: SWALLOW ONE TAB DAILY FOR HYPERTENSION
REFILL × 2
LABEL: x

3.8 The Flow Sheet

Because of the known difficulties in keeping track of a large number of laboratory results, they are usually summarized on a flow sheet. It is a tabulation of the 20 or 30 most important laboratory parameters, listing their sequential results.

4 Case Histories

To make "medical English" come alive we want to present to our readers a number of informative case descriptions the way they will be presented in actuality, e.g. during attending rounds. This includes question-and-answer sections. To make these cases interesting reading and to provide an opportunity for professional terminology we chose cases that were complicated and unusual. To broaden the reader's exposure to specific terminology of a given field, each case description will be followed by a short section of colloquial terms often heard from patients and a section listing professional medical terms in that field.

4.1 A Complicated Delivery

The patient was a 25 year old white woman during her first pregnancy. She had been followed by her obstetrician since the 12th week of gestation. Initially, she had been well and the pregnancy proceeded normally. However, in the 26th week of gestation the patient noticed drooping of her eyelids. She also complained of undue fatiguability and occasional difficulty swallowing. In the course of her neurologic work-up she was given a neostigmine test and experienced dramatic improvement of her condition. Thereafter, she was placed on pyridostigmine 100 mg daily and did well.

Although she had gained 13.2 kg by the 33rd week of gestation, she remained normotensive and had neither pitting edema nor proteinuria. Serial ultrasound examinations after the 31st week of gestation showed normal fetal growth. Ten days before the estimated day of confinement amniocentesis was performed. It indicated fetal maturity.

She was 4 days beyond her estimated date of confinement when she entered active labor. At that time the uterine fundal height was consistent with the period of gestation, the lie was longitudinal, the presentation was cephalic, and the fetal heart sounds were heard. Her blood pressure was found to be 220/120 mmHg and she had to be given antihypertensive medication. Thereafter, dilatation of her cervix progressed from 5 cm to complete over 2 h, when she suddenly became remarkably weak, descent stopped and uterine contractions diminished. She was given an extra dose of neostigmine and thereafter had a rapid delivery of a 3500 g infant under epidural anesthesia. A midline episiotomy had been made and was sutured. The placenta was delivered spontaneously, there was an estimated total blood loss of 300 cc and no obvious lacerations were noticed. The infant's Apgar scores were 9 and 9 at 1 and 5 min.

Approximately 14 h after delivery the patient developed rectal pressure and was found to have bright red vaginal bleeding. Examination under anesthesia revealed a vaginal side-wall laceration overlying a 10 cm hematoma of the peri-

vaginal tissues. There was no bleeding from the uterus und there were no cervical lacerations.

The perivaginal hematoma was evacuated, the laceration was sutured, the vagina was packed with gauze, and the patient received 8 units of blood to replace an estimated blood loss of 2200 cc.

After 4 h of stability, rapid vaginal bleeding recurred. This time the patient had to undergo laparotomy. It was only after a hysterectomy and an additional transfusion of 12 units of blood that her bleeding condition was finally controlled. At no time did she experience bleeding in any other part of her body.

Ten days after this complicated delivery, she was discharged home in good condition.

Questions

1. What was the patient's condition in the 26th week of gestation [dʒes'teiʃən]?
2. What do you call and how do you explain the increase in the patient's blood pressure at the onset of labor?
3. Do you expect postpartum [poust'pa:təm] complications in this newborn?
4. What possible causes of the postpartum hemorrhage ['heməridʒ] should have been considered?
5. What operation might you recommend to the mother after discharge from the hospital to improve her associated illness?

Answers

1. Myasthenia gravis [maiəs'θi:niə] ['grævis].
2. This was most likely a sign of moderate pre-eclampsia [prii'klæmpsiə], a condition that has an increased incidence in the presence of associated illnesses.
3. The newborn is at risk of an initial episode of myasthenia gravis.

4. Abnormal uterine contraction;
   uterine fibromyomata ['ju:tərin] ['faibroumai'oumətə];
   disseminated intravascular coagulation [di'semineitid] [intrə'væskjulər] [kouægu'leiʃən] (not very likely in the absence of other sites of bleeding);
   periuterine [peri'ju:tərin] pelvic hematomas.
   (The patient suffered from periuterine pelvic hematomas, a disturbance that may be extremely difficult to control.)
5. Thymectomy [θai'mektəmi] is often beneficial to patients with myasthenia gravis.

Language Used by Patients with Obstetric and Gynecological Illnesses

to be irritable
to be depressed
to be angry
to feel breast tenderness
to feel bloated

to miss one's menstrual period
to have excessive bleeding
to bleed 5 pads a day
to have blood clots on the pad
to have spotting

to undergo the "change of life"
to have a discharge from the vagina
to have itching of the female parts
to have low back pain
to have hot flushes

miscarriage [mis'kæridʒ]
to have sex, sexual intercourse
sexual desire
an aphrodisiac [æfro'diziæk]
marital status

to be gay, to be bisexual
the contraceptive [kɔntrə'septiv]
the condom [kʌndəm]
the pill
the IUD (intrauterine [intrə'ju:tərin] device)

to have trouble urinating
to have no control over one's water
the crotch; the female parts

Language Used by Patients that Have a Surgical Condition

a shot
to numb an area
a boil
a bruise
to crack a bone

to throw up
my pain first started 3 days ago
I passed blood with the bowel movements

to live on tea and toast
milk takes away my burning feeling

to be fixed up by the surgeon
I go to the bathroom five times
my urine is dribbling out
I have to strain to pass my water

I bumped into something
I felt a lump in my breast
I could not stand the pain
a bout of pain

Specific Medical Terms in Obstetric and Gynecological Illnesses

the fetal attitude [fi:tl] ['ætitju:d] (flexion, extension of the legs)
the fetal lie (longitudinal or transverse)
the fetal presentation (cephalic or podalic)
the presenting part (vertex, face, brow, breech, shoulder)

the fetal position:
in vertex presentation:

left (right) occipitotransverse	(LOT, ROT)
left (right) occipitoanterior	(LOA, ROA)
left (right) occipitoposterior	(LOP, ROP)

in face presentation:

left (right) mentotransverse	(LMT, RMT)
left (right) mentoanterior	(LMA, RMA)
left (right) mentoposterior	(LMP, RMP)

in breech presentation:

left (right) sacroanterior ['seikrouæn'tiəriər]	(LSA, RSA)
left (right) sacroposterior	(LSP, RSP)

spontaneous [spɔn'teiniəs] delivery
vacuum extraction
cesarian [si'zɛəriən] section
abortion
ectopic pregnancy

engagement of the presenting part
dilatation [dailei'teiʃən] of the uterine os
the forceps, the blades of the forceps
the pendulous belly, the tight belly
the four maneuvers of the abdominal palpation

the primigravid [praimi'grævid] patient
multiple pregnancy (twins, ...)

hyperemesis gravidarum [haipə'eməsis] [grævi'dærəm]
the confinement
labor and delivery

the premenstrual syndrome
dilatation and curettage [kjuə'retidʒ]
cervical and vaginal [və'dʒainəl] smears
the uterine sound
the teenage pregnancy

Specific Medical Terms of Surgical Conditions

suture, stitch, removal of stitches, stitch removal set
needle, needle holder, silk
scissors, forceps, scalpel
an injection into a joint
a local anesthetic, a general anesthetic

sterile field
plaster cast
tape
surgical drainage
I & D (incision and drainage) of an abscess

antiseptic
laceration, cut, injury
blunt trauma
fracture, basal skull fracture
subcutaneous hemorrhage

muscle tear, muscle rupture
a sinus track
a suppurating wound, an infected wound
polypectomy

referred tenderness

a boardlike abdominal wall
voluntary guarding, involuntary guarding

gastric suction by NG tube (*n*asogastric tube)
herniorhaphy
adhesions
to consent to surgery, to give consent
to rule out a diagnosis

to use traction on a fracture
PMNs (*poly*morpho*nuclear* leukocytes)

left shift of the WBC (*w*hite *b*lood *c*ount)
T & C (*t*ype and *c*ross match/group & cross match (Brit.)) of blood

4.2 A Youngster with Abnormal Behavior

A 14 y o white boy was admitted to the hospital because of "difficulties at school and at home".

The patient was the second child of his mother who had been 29 years old when he was born. The pregnancy had been uneventful, except for nausea and vomiting during the 2nd month of gestation; the mother had also had dysuria from a urinary tract infection in the 6th month of gestation.

Labor and delivery, weight and length and the baby's Apgar score of 8 had been entirely normal. There were no physical deformities of the newborn. Early motor, behavioral, and mental development (head raising, sitting alone, talking words, walking alone) had been unremarkable. The child was easy to get along with. He related well to other children. His mother had given up her job as a secretary when he was born and cared for him. He was easy to nurse and later ate well. He did not receive vitamin supplements. He had regular immunizations and the usual medical tests without any untoward results. He did not contract any particular contagious diseases. There were no sleep disturbances or unusual habits during infancy and childhood.

He did well at school, earning As and Bs until the age of 10. At that time his performance began to deteriorate. He did not feel well enough to participate in sports. His legs and his arms appeared to stiffen occasionally. He complained of headache and inability to concentrate at school. He barely passed the 7th grade. He had to repeat the 8th grade, even though he was receiving instruction from a tutor at that time. He often appeared to have no interest or motivation to do anything. He became progressively withdrawn. He broke off relationships with all his friends. He spent most of the time sitting at home and watching TV. He did not seem to care what he saw. He became occasionally incontinent of feces. His affect became flat and inappropriate; he would occasionally break out in sudden unfounded bursts of shouting. He also had episodes when he suddenly turned his head to the side, protruding his jaw. He did not have paranoid or suicidal tendencies. His appetite increased and he became overweight. He occasionally stored food in his cheeks and then did not swallow it for several hours. At other times he had trouble swallowing: he apparently got food in his windpipe, then coughed for a while and sometimes even threw up. – There was no history of violent behavior, insomnia, drowsiness, visual impairment, or muscle weakness in the patient; there was no family history of brain or psychiatric disorders.

Questions

1. What are the particular abnormalities in the history of this patient?
2. What diagnoses would you consider and what would you do to work them up?

Answers

1. Flat affect, lack of interest, lack of persistence, inappropriate behavior; hyperphagia; abnormalities of movement and swallowing.

2. Some of the abnormalities mentioned would be compatible with frontal dementia. In addition when dealing with this set of changes the following diagnoses should be considered:
   A) a psychiatric disorder (depression, sociopathy [sou'siəpəθi]);
   B) a neurological disorder (temporal lobe epilepsy; hydrocephalus; chronic subdural hematoma; Wilsons's disease; subacute sclerosing panencephalitis [pænensefə'laitis].)

Further work-up: a thorough neurological and psychiatric evaluation; a lumbar puncture, a CT (computerized tomography), an EEG and potentially other tests.

Physical examination: The patient was an alert but inattentive, overweight 14 y o boy. During the evaluation he repeatedly rose from the stretcher, walked stiffly to the door, stared at it for seconds, and then returned to his stretcher without any comment.

Vital signs: the temperature was 36.8 °C, the blood pressure was 95/65 mmHg, the pulse was 106/min, the respiratory rate was 22/min. He had no dysmorphic features. The head, neck, and lungs appeared normal, as did his heart, abdomen, and extremities. However, his conjunctivae had a yellowish tinge [tindʒ].

The neurological examination showed the following: the cranial nerves were normal; the speech varied: he appeared to stutter at times, then he would speak rather clearly although in a scanning rhythm. At other times some words would be completely unintelligible. The gait was stiff; it looked as if he was trying to walk on his toes. The reflex activity was generally increased but symmetric. The muscle mass was normal, the muscle tone was increased. Sensation appeared intact. The Babinski reflexes were pathologic. The Rorschach test and the MMPI (Minnesota multiphasic personality inventory test) were unremarkable. He repeated 5 digits forward and 3 digits backward. He was oriented to time, place, and his own person. He could not describe however how he got from his home to the next supermarket. He recalled 2 digits out of 2 at 5 and 15 min. Stereognosis [stiəriə'gnousis] was normal.

A lumbar puncture yielded clear colorless CSF (cerebrospinal fluid) at normal pressure. The CSF contained no cells, but the protein concentration was mildly elevated. The CSF grew out no bacteria. A CT scan showed decreased tissue absorption around the white matter of the frontal lobes. The lateral ventricles and the 3rd and 4th ventricles were of normal size. An EEG (awake) showed continuous irregular slowing over both hemispheres, frequent paroxysmal runs of sharp slowing, and spike-and-wave activity.

A therapeutic trial of anticonvulsants [æntikən'vʌlsənt] was unsuccessful.

Questions

In view of this information what might be a good diagnostic [daiəg'nɔstik] possibility at this time?

Answers

A Kayser-Fleischer ring was searched for and found. There were also abnormal liver function tests, an elevated bilirubin, very low plasma ceruloplasmin levels, and elevated concentrations of copper in urine, plasma, and skin. Therefore, the child was diagnosed as suffering Wilsons's disease, presenting primarily c̄ (with) frontal dementia ['frʌntəl] [di'menʃ(i)ə].

Expressions Used by Patients and Relatives in Pediatrics

a chubby child; a thin, skinny child
a shy child; a friendly child; an extrovert child
a sibling, a twin (e.g. a twin brother)
an independent, submissive [səb'misiv], or difficult child
a child that is clinging to his mother

temper tantrums ['tæntrəmz]
nail biting, thumb sucking
bed wetting, snoring, nightmares
a food dislike
a mother's lap

to nurse a child (breast feeding, breast pump)
to bottlefeed
formula
weaning
the playground, the toys

the lollipop, the pacifier ['pæsifaiə]
a sugar nipple
the teddy, the doll, the pet
the special blanket
the pyjamas

the diaper
(during the physical examination:)
to squint
fear of the instruments
to become chilled

to frown, to smile
to gag
to have wax in the ears
"Pant like a puppy!" (during pulmonary evaluation)
bowlegs, knock-knees

flat feet
a tuft of hair, a spot, a birthmark
a child's feelings of modesty
a disagreeable examination

Specific Medical Terms in Pediatrics

an apprehensive child
to restrain a child
to place a child prone [proun]
to examine a child erect
the head circumference

nature of cry
stance
the degree of prostration
head molding
the Mongolian slant [sla:nt]

strabismus
a grunting voice
low set ears
the child's inability to support its own head
webbing of the child's neck

dimpling of the dorsum of the hand
the Simian crease ['simiən] [kri:s]
congenital malformations
failure to grow/unusual growth
the Mongolian spot

the nevus ['ni:vəs]
the bulging fontanelle/depressed fontanelle
the harelip; the cleft palate ['pælit]
the clubfoot
palsy ['pɔ:lzi]

the neonate (the newborn), the premature baby
genetic counseling
Down's syndrome
hereditary [hi'reditəri] conditions
teratogenic [terətou'dʒenik] agents

the sequelae [si'kweli:] of an illness
thrush
scarlet fever
typhoid ['taifɔid] fever
bacillary dysentery [bəsiləri] ['disəntri]

whooping cough ['hu:piŋ] [kɔf]
measles
rubella
chicken-pox
worms

4.3 A breathtaking problem

A 65-year old white man was referred to pulmonary outpatients because of unexplained dyspnea [dis'niə] on exertion [ig'zə:ʃən] (DOE) getting worse. The dyspnea troubled him most when walking up. Recently he was surprised that the shortness of breath caused him to stop after one flight of stairs. There were no problems with his sleep at night. He did not report any nocturia [nɔk'tuəriə]. He did not have a fever. He did complain of a dry cough [kɔf] which had worsened steadily over the last six months.

He worked as a truck driver for an oil company. He had been married for 31 years and he had two healthy children. Six years ago he suddenly sustained a myocardial [maiə'ka:diəl] infarction (MI). The left anterior [æn'tiəriə] descending (coronary artery; LAD) had to be dilated [dai'leitid] and was stented ['stentid]. It turned out that he had two risk factors for coronary artery disease (CAD): mild primary hypertension of unknown duration and a 12 packyear history of smoking (cigarettes). After the MI he had been given ramipril 2.5 mg b.i.d., metoprolol 100 mg q.d., hydrochlorothiazide 25 mg q.d. and acetylsalicylic acid, 100 mg q.d.. He also gave up smoking. On this regimen he did well.

As for his hobbies he liked to go hiking ['haikiŋ] including in the mountains. Over the preceding ten months or so he often felt a weakness during those hikes.

The weakness was associated with shortness of breath and this would start whenever the trail was leading upwards. He would then have to pause [pɔːz] and wait for his strength and breath to return – usually within a few minutes. Often this shortness of breath came together with a dry hacking ['hækiŋ] cough, which troubled him a lot. His wife had insisted that he ought to see their family-physician for the cough and the weakness. When the patient finally did go the doctor performed cardiac ultrasound. He documented normal findings and no changes since the year before. He pointed out that the shortness of breath and the other problems did not seem to be cardiac in origin. He therefore referred the patient to a pulmonary specialist.

After obtaining the history as described above the pulmonologist asked questions about the patient's environment. He learned that the patient's family had a cat, but there were no other pets in the household. In addition the patient mentioned having worked many times in an old shed that was quite damp; however the patient denied any direct association between his complaints and being in the shed.

Next the pulmonologist proceeded to the physical examination.

Questions

1. At this point what aspects of the physical examination would you be most interested in?
2. What would be your differential diagnosis based on the information provided so far?
3. Which further tests would you consider to clarify the diagnosis (based on (2.))?

Answers

1. Given the past and present history (MI six years ago, hypertension; DOE, weakness and cough), congestive cardiac failure is high on the list of differential diagnoses. Admittedly, the absence of nocturnal discomfort (orthopnea [ɔːr'θɔpniə], paroxysmal nocturnal dyspnea) and the reportedly normal cardiac ultrasound by the family-physician argue against congestive cardiac failure. None the less in the physical examination attention should be paid to subtle [sʌtl] degrees of pitting ankle or pretibial [pri'tiːbiəl] edema, jugular ['dʒʌgjələ] venous distension, any irregularities of the pulse and the presence or absence of bibasilar symmetric rales over the bases of both lungs.

   In addition I would focus on any possible indications of lung disease, such as cyanosis of the lips and fingers and an abnormal respiratory rate; I would listen to the patient coughing (dry or moist), I would ask him to do a maximal

inhalation and then blow out the air as fast as possible against my hand (held in front of his mouth) and of course I would concentrate on percussion and auscultation [ɔːskəl'teiʃən] (Rhonchi [rɔŋ'kai]? Wheezes ['wiːzəz]? Rales? Crackles? Diminished breath sounds? Increased or decreased percussion note?)

Furthermore I would check the patient's neck (any masses?), I would exclude the presence of a high grade stridor, as well as that of major hoarseness ['hɔːsnis] ; I would wonder about any signs of major anemia [ə'niːmiə] (pallor of the skin, mucous ['mjuːkəs] membranes and the palm); and I would test the legs, especially the lower legs for any palpable cords.

2. a) Congestive cardiac failure
   b) Pulmonary disease, e. g. asthma, COPD, recurrent pulmonary embolism, exogenic allergic alveolitis, infiltrative diseases such as sarcoidosis and pleural disease with chronic effusion.

   c) Paralysis of the vocal cord; large goiter ['gɔitə]; anemia from any cause; lower leg thrombophlebitis [θrɔmbouflə'baitis] with recurrent pulmonary emboli ['embəlai].
3. Complete blood count (CBC);
   arterial blood gases on room air at rest and after exercise;
   chest X-ray; EKG; perhaps echocardiogram [ekou'kaːdiəgræm] under stress;
   pulmonary function studies; perhaps a high-resolution pulmonary CT study.

Continuation of the case: The physical examination showed a patient with moderate cyanosis of the lips, the tongue and the fingers, together with a mild degree of clubbing. There was no acute distress (NAD), but he exhibited [ig'zibitid] a respiratory rate of 26/min. Otherwise he was a normal appearing man of 65 years of age, weighing 63 kg at a height of 1.78 m. The blood pressure was 145/90 mm Hg and he was borderline tachycardic at 102 beats/min. He had no peripheral edema. There was no jugular venous distention. He did not have any stridor.

The pulmonary examination showed an increased percussion note and there were rales and rhonchi audible over all lung fields; there were no wheezes though. The force of maximal expiration was reduced. The examination of the neck was normal, there was no goiter nor any lymphadenopathy. All peripheral pulses were felt normally. The abdominal examination was entirely normal. There were no changes of the neurological exam.

Laboratory results: The CBC was normal.

Arterial blood gases: PaO_2 8.1 kPa (normal range: 10.7 – 13.3)
$PaCO_2$ 4.1 kPa (4.7 – 6.0)
HCO_3 22 mmol/L (23 – 32)
pH 7.44 (7.40 – 7.45)
Arterial blood gases after 5 min of bicycle ergometry (40 Watt, 60 Watt), which had to be discontinued due to dyspnea: PaO_2 6.4 kPa, $PaCO_2$ 3.7 kPa.

Chest X-ray: Normal sized and normal appearing cardiac shadow. Bilateratelly symmetric increase of interstitial markings (punctate infiltrates and fine horizontal lines). In the lower lung fields bilaterally moderate cystic changes. In the left upper lung field there was an infiltration that was suggestive of atelectasis.

Pulmonary function studies: Vital capacity (VC): 2.7 L (expected 4.35)
FEV1: 2.3 L (expected 4.18)
TLCO/VA: 0.93 mmol/min/kPa/L (expected 1.48)
Additional tests for CMV infection (pp 65 antigen), sarcoidosis (ACE), SLE (ANA) and Wegener's granulomatosis (cANCA, PR-3 ANCA) were all negative.
A high resolution thoracic CT demonstrated increased interstitial markings primarily over the middle and lower lung fields bilaterally. There were honeycomb ['hʌnikoum] abnormalities in the lower lung fields. It failed to show changes of lymphatic [lim'fætik] tissues.

Questions

1. What is the abnormality in the patient's blood gases?
2. Considering the lab results what is your diagnosis of the patient's lung disease?
3. What would you do to definitively prove the patient's diagnosis?
4. How should the patient be treated?

Answers and continuation of the case

1. Hyperventilation [haipəventi'leiʃən] (mild respiratory alkalosis), probably due to hypoxia.
2. Taken together, the history, the physical examination and the lab results suggest a diagnosis of pulmonary fibrosis [fai'brousis] (arterial blood gases, at baseline and after ergometry; chest X-ray; pulmonary function tests; CT). However there was no obvious cause of pulmonary fibrosis, in other words we may be dealing with primary pulmonary fibrosis.
3. Lung biopsy; bronchoscopy [brɔŋ'kɔskəpi] and broncho-alveolar lavage ['lævidʒ] (BAL).
4. The BAL was done and excluded infectious etiologies of the patient's pulmonary problem. An open lung biopsy was performed on the left side in the OR

(operating room). It showed an advanced degree of interstitial fibrosis without any indication of the etiology. The final diagnosis therefore was: usual interstitial pneumonitis (UIP).

The patient was given glucocorticoids [glu:koukɔ:təkɔidz] (prednisolone, 1 mg/kg p.o. and q.d. for 4 weeks initially, followed by stepwise reduction of the prednisolone to 0.2 mg/kg over 6 months), oral cyclophosphamide, tablets containing calcium and vitamin-D, oral amphotericin-B suspension and H_2-blocker for gastric protection. In addition he received home-oxigen.
On this regimen his pulmonary condition remained stable over 1 year of observation in pulmonary outpatients. He was then transferred back to the care of his family physician.

Language Used by Patients with Diseases of the Chest

to be out of breath
to be unable to catch a breath
to have a hard time breathing
to run out of air
to feel a tightening of the chest

to cough up a lot of spit
to raise yellow phlegm
I bring up phlegm only in the morning
I cough all the time
my phlegm is so hard I cannot spit it out

I have to sleep on some pillows to have enough air
I have a hurt in my windpipe when I cough
my chest catches on the right side when I cough
I hurt when I breathe in
I have to stop breathing because of the pain

I have always been chesty
I had a choking sensation
my chest rattles
my wife says I forget to breathe at night
my wife complains about my snore

Specific Medical Terms in Patients with Pulmonary Diseases

bronchoscopy, the bronchoscope
broncho-alveolar lavage
lung function tests

the oxygen mask
the tube for nasal oxygen

the inhalation of mist
the inhalation of medicine by a spray
to tap a pleural effusion (to drain it)
to vibrate the chest wall (in the treatment of C.O.P.D.)
to clap the chest (in the treatment of C.O.P.D.)

to put in a chest tube (suctioning of the chest tube)

to breathe a patient; to ventilate a patient
the respirator, the setting of the respirator, the tidal volumes

the arterial blood gases
the earlobe oximetry

4.4 A Female with Multiple Skin Problems

A 24 y o white female was admitted to the hospital because of a rash and fever.

She had been well until 2 weeks earlier when she noticed the onset of anorexia, malaise, fatigue, and morning stiffness. Her temperature rose to 37.9 °C. This was associated with headaches, chills and sweats. She developed a nocturnal cough and noticed a tinge of blood in her sputum. She became listless. She vomited several times. One week before admission her right hand swelled and became painful. Three days prior to admission the fever had risen to over 39 °C. When the patient's husband noticed her to be confused about common events he took her to the hospital.

The past medical history revealed a skin change at age 17. At the time she was being treated for urinary tract infection and received penicillin. About 5 days into her course of penicillin she broke out in a rash. The lesions were confined to the back of the hands, the forearms, and the mouth. They consisted of a sudden eruption of raised, erythematous plaques of varying sizes: the smallest were pinhead spots while the largest were about 2 cm in diameter. They remained for several days. Their color was pink and they had a velvety, urticarial appearance. In some of the bigger ones the center would form a blister which would then dry up and leave a flat yellow crust. There had been no constitutional symptoms; however, the patient had been troubled by the itching of the lesions. In her mouth the patient had developed sodden white patches that tended to bleed. When the penicillin was stopped new crops of similar lesions continued to break out for another 10 days. Thereafter, the rash subsided without any scars. Since then the patient had experienced 2 recurrences of this disturbance. They occurred in the

fall of the next 2 years. Since the initial attack she had never taken penicillin again.

About 2 years before this admission the patient developed skin changes again. They involved her lips, nose, scalp, and fingers. The changes had remained stationary for many months. On the lips she broke out in patches of erythema and telangiectasia, covered by adherent scales. These assumed a milky purple tinge. The lips would become swollen and were quite uncomfortable. On her scalp the changes consisted of areas of stippled telangiectasias and there was abundant follicular plugging. This was later followed by round patches of permanent baldness. On her nose the skin change had a clear margin separating it from normal skin. The affected patches of skin would be raised above the level of the surrounding skin. The lesions looked erythematous and had a number of plaster-like scales firmly attached to them. There were telangiectasias within these lesions. The patient used to experience a burning or itching sensation in these lesions. At one spot near the tip of the nose the erythema had disappeared over a few months and left a depressed scar that was pigmented at its periphery. According to her report the skin changes on the nose worsened during summer and improved in winter. There were skin changes on the index finger and the middle finger of the right hand, too. They had come up in conjunction with the skin changes on the nose. They had been erythematous, assuming a purplish cyanotic shade. Telangiectasias had been visible within them. Much of this had subsequently disappeared from the right index finger, though a reduced range of motion remained.

There was no relevant family history of skin diseases.

Physical examination: This 24 y o white female appeared acutely ill. She was thin and febrile with an oral temperature of 39.4 °C. The respirations were 24/min and shallow, the blood pressure was 160/100 mmHg, the pulse rate was 110/min, and the patient was diaphoretic.

She had small erythematous macules on her face, neck, shoulders, and upper arms. The lesions were pink and slightly raised. They were about 0.5 to 1.5 cm in diameter. Around the light-exposed area of the neck and chest the lesions were confluent. There were clearly visible telangiectasias seen in many of these spots. The lower lip was markedly swollen, the patient could barely open her mouth, and the lip had several bluish lesions. The patient reported a burning sensation in all of these cutaneous alterations. On the face, the rash was confluent on the cheeks, covered by crusts and desquamated skin. In between these desquamations the affected skin showed a glazed dull-red surface and there was oozing of droplets of plasma. The right hand showed skin changes of the index and middle fingers that resembled the lesions on the cheeks but there was no oozing. The

back of the hand was swollen and painful. The right index finger appeared stiff. The patient's scalp showed patchy hair loss in two circumscribed areas over the back of the scalp. Cervical, axillary, and inguinal lymph nodes were palpable and enlarged but not tender. The lungs were unremarkable to percussion, but auscultation revealed a friction rub over the right lower lung field. Cardiac auscultation revealed a two component friction rub. The liver was unremarkable. The tip of the spleen was palpated 2 cm below the left costal margin.

The patient appeared generally euphoric and was not fully oriented to time and place. Her neck was supple. The eyegrounds and the peripheral nervous system were unremarkable.

Questions

1. What was the diagnosis of the patient's skin disorder at age 17 (reaction to penicillin)?
2. How do you explain the two recurrences of the aforementioned skin change over the next 2 years when the patient had not taken penicillin?
3. What was the diagnosis of the patient's skin disorder that began 2 years before the present illness?
4. What organs are involved in the present illness?
5. What diagnoses do you consider to account for the present illness? What tests would you order to work them up?

Answers

1. Erythema multiforme [erə'θi:mə] ['mʌltifɔ:m].
2. Recurrences of erythema multiforme may occur even in the absence of renewed exposure to the allergen. It is said that such recurrences are more common in spring and fall.
3. Discoid ['diskɔid] lupus erythematosus.
4. The following organs are probably involved: the skin, the lungs (abnormal auscultation), the lymph nodes (swelling), the central nervous system (euphoria and disorientation) and possibly the joints (changes of the right hand), the kidneys (high blood pressure), the heart (friction rub), and the spleen (enlargement).
5. The following diagnoses should be considered: immunoblastic lymphadenopathy; septicemia [septi'si:miə] from common bacterial pathogens; miliary tuberculosis; rat bite fever (leptospirosis [leptəspai'rousis]); systemic lupus erythematosus ['lu:pəs] [erəθi:mə'tousəs] following discoid lupus.

The following tests would be useful: CBC (*c*omplete *b*lood *c*ount), UA (*u*rin*a*lysis), blood cultures, lumbar puncture, ANA (*a*nti*n*uclear *a*ntibodies), anti single strand DNA- and anti double strand DNA-antibodies, complement, CXR (chest X-ray), tests for leptospirosis and tuberculosis, cardiac ultrasound.

Continuation of the case: The CBC showed a WBC of 1800 with 55% lymphocytes. The platelet count was 62 000 and the hematocrit was 26%. The direct Coombs test was positive. The UA was normal, as were the BUN (blood urea nitrogen) and creatinine. The tuberculin skin test was negative as were two blood cultures obtained when the patient had fever. On CXR the heart appeared normal, but there was an infiltrate in part of the right lower lobe. There was no pleural effusion. The lumbar puncture was unremarkable. The erythrocyte sedimentation rate was 80/110 mm. The complement was reduced. ANA: positive at a dilution of 1:1024 in a speckled pattern, and at 1:128 in a homogeneous pattern.

Questions

What is the patient's diagnosis in view of this information?

How does the diagnosis explain the individual laboratory abnormalities?

Answers

The patient most likely suffers from disseminated lupus erythematosus. This diagnosis is convincingly supported by the clinical syndrome in conjunction with the results of the blood test. However, the possibility of an associated infection is not yet completely excluded. The diagnosis of systemic lupus erythematosus (SLE) could explain all the physical findings. SLE is associated with leukopenia, thrombocytopenia, and hemolytic Coombs-positive anemia. In addition, cerebritis, pneumonitis, pericarditis, lymphadenopathy, baldness, splenomegaly, arthropathy, fever, and general malaise have been observed to occur in this disease.

Clinical outcome: This patient had SLE. She was treated with 80 mg of prednisolone daily and within 10 days improved symptomatically and clinically. Additional blood cultures failed to show evidence of bacteremia. Three weeks after admission the patient was discharged from the hospital. Many of her symptoms and findings had disappeared or improved. Her skin rash was still visible; however, it was much improved.

Language Used by Patients with Skin Diseases

wheal
boil
blister
rash
itch

to scratch
lump
bump
bruise
sore

pimple
spot
blotch
oily skin
hardening of the skin

weeping of the skin
dandruff
hair loss
freckles
wart

corn
bunion ['bʌnjən]
mole
chilblains
sunburn

bad veins
sting
lice
thrush

Specific Medical Terms in Dermatologic Illnesses

ulcer, erosion
petechiae [pi'ti:kii:]
eruption
palpable purpura
denudation of the skin

bulla ['bulə]
primary lesion

papular/vesicular/macular lesions
puckering of the skin, peau d'orange
tightness of the skin

induration of the skin
sloughing ['slʌfiŋ] of a skin lesion
masculine escutcheon [is'kʌtʃən]
hirsute ['hə:sju:t]

frontal balding, male-pattern baldness, temporal recession
solar sensitivity
self-mutilation
impetigo
alopecia [ælo'pi:ʃə]

seborrhea [sebə'riə]
hyperhidrosis [haipəhai'drousis]
onychia
verruca [və'ru:kə]
pruritus

clavus
skin tests (for allergens)
scratch test

topical treatments

powders, lotions, ointments, creams, paste
sun-barrier cream
atopic [ei'tɔpik] disease
urticaria [ə:ti'kɛəriə]
stasis eczema ['steisis] ['ekzəmə]

Besnier's prurigo
lichen simplex
erysipelas
scabies ['skeibi:z]
anthrax

pediculosis capitis
tinea
leprosy
vitiligo [vitə'laigou]
basal cell carcinoma

4.5 A Patient with Obsessions

Adam was a 30 y o mathematician who sought psychiatric help because of occasional stuttering, "strange thoughts", obsessive ideas, compulsions, and a lack of emotion. All of these distressed him.

For some time he had noticed that he was sometimes unable to think normally. When lying in bed, long strings of words would pour into his mind. He would be unable to interrupt or to stop these. He had observed an occasional inability to read words correctly. He would see in a newspaper the word "triumph" but he would read "trumpet". Or, it would say in a book "camera shop" while he would read "cannon shot". – He had to give people he knew his own fancy names instead of their real names. He thought that these suited people better than their real names. E. g., one of his colleagues whose name was "Tom Collins" he would have to call "Ron Killer". – He once saw a letter on his desk which contained the words "lyon's velvet". He immediately concluded that the letter had come from England, although the stamp showed it to come from the United States. The word "lyon's" suggested England to him because of a chain of restaurants in London called "Lyon's Restaurants". In addition, he always associated the manufacture of textiles such as velvet with England. – The patient frequently used the bus to get to his work. Often, when he saw people talking on the bus he believed they were talking about him. On several occasions he felt that they planned his abduction. – The patient also complained that he had lost all his emotions. He would be unable to feel any joy when people congratulated him on his birthday or when they sang "Happy Birthday" to him. Similarly he was unable to feel any sadness when his father died. – He often could not force himself to do anything. On account of this apathy he could not concentrate on his studies. He finally had to give up the idea of getting a degree in mathematics.

Adam fell in love with girls periodically. These loves were never manifest. The girls were usually unattainable, e.g., they lived in cities far away. The imagined love was so intense as to cause important changes in the patient's life. E.g., in college he took courses unnecessary to his own curriculum, wasting time and energy, only because a girl he imagined he loved was taking them.

Questions

1. At this point, what are the abnormalities reported by the patient? List them.
2. What possible diagnoses would you think of?
3. What information could be of further help to you?

Answers

1. Ideas of reference; loss of emotions; apathy; thought disorders; delusions [di'l(j)u:ʒən].
2. These abnormalities are compatible with early schizophrenia [skitsou'fri:niə]; however, they might also be the result of a severe neurotic development.
3. At this point the family history and an account of the patient's emotional development would be of help.

Continuation of the case: There was no past history of mental or nervous disorders in the patient's family.

The patient's father had died about 10 years before. During his childhood the patient's father occasionally used to take him to movies or he would tell him stories. However, when the patient started to feel a little warmer toward him his feelings were usually changed by his father's nagging attitude. Adam felt that it was better not to confide in him. During adolescence, Adam's father always appeared to be after him to investigate whether he had masturbated or not. If the patient had a pimple on his face, his father would say that this was a sign of masturbation. He would say that terrible things would happen to him. Because the patient had actually masturbated he felt guilty.

The patient rarely saw his mother during childhood. He was cared for by a governess. He did not remember any personal affection from his mother. The governess later developed paranoid schizophrenia. During adolescence, the patient had more contact with his mother. However, he felt that his mother was more concerned with his sister than with him. The sister was 5 years younger than he and his only sibling. Adam considered his mother a weak person. She never came to his defense but always took his father's side. The patient did not trust her.

Adam remembered both parents with a sense of annoyance and disgust. He felt that they were ugly and even had the impression that an awful odor emanated from their bodies. He had to obey them all the time and never put up a fight. He rather tried to detach himself from them and never felt himself understood by them.

He did not play much with children his own age but kept to himself much of the time. He had vivid fantasies that kept him busy when he was alone. In his mind he had constructed an imaginary world of countries in different periods. He would feel that he lived in these different countries during different periods.

Ever since childhood the patient had been very impressed by religion. He had obsessions, consisting of horrible ideas about Jesus Christ. The patient often felt that he should urinate or excrete upon Jesus Christ or on Jesus' mother. He often fantasized that Jesus Christ, Jesus' mother, and God would perform similar defiling [di'failiŋ] actions upon one another.

He also had compulsions to perform all kinds of actions an even number of times, e.g., if he spilled some soup by accident and was reprimanded by his parents he would nevertheless have to repeat the act to make it an even number.

Questions

What is your diagnosis based on this information?

Answers

The patient's emotional development has many traits that have been described in patients with schizophrenia. They are: rejection by both parents, development of a schizoid personality, and autistic phenomena. The patient was given psychoanalytical treatment for 3 years. This was followed by an improvement of his condition. It was eventually concluded that he suffered from schizophrenia.

Language Used by Patients that have Psychiatric Illnesses

to slow down a patient (to calm down a patient)
to be edgy, nervous, irritable ['iritəbl]
to feel jittery, nervous
I was scared to death
he is a high-strung ['hai-strʌŋ] person

I feel quivery
I feel groggy, exhausted [ig'zɔ:stid]
to feel low
to be grumpy
he is a placid soul

he is an odd character
to feel queer
to feel limp
to be fed up with something
to break down

to take things to heart
to be on the same wavelength with someone
to be on the ball
to feel dreadful
I am unable to keep on like this

to have a hangover
to be mad, crazy, goofy, nuts, to go haywire
funny farm, looney bin
fits
the shakes, the D. T.s

I did not know whether I was standing on my head or my heels
this problem was completely over my head
the problem came to a head
to keep one's head
to lose one's head
to be out of one's mind
to get on one's nerves

Specific Medical Terms in Psychiatric Illnesses

volition
ideas of reference
delusions
abnormal cognition
denial [di'naiəl]

a character trait
coping mechanism
deviant ['diviənt] sexual activity
neatness, cleanliness, orderliness
hostility, aggression

fear of reprisal [ri'praizl]
penis envy ['pi:nis] ['envi]
feelings of inferiority
exploration of past history
suicide

to ramble
to be taciturn ['tæsitə:n]
patient's judgement
speech disturbance
self-esteem

indecision
threat, fear
sexual desires
sexual curiosity
rewards [ri'wə:dz], gratification

vocational activities (U.S.)
maladaptive behavior
comprehension
nightmares
apprehensive

to be despondent about something
embarrassment [im'bærasment]
mentally retarded
organic brain syndrome

manic-depressive illness
anxiety neurosis
obsessive-compulsive neurosis
drug dependence, addiction

4.6 A Woman with Diabetes Mellitus [daiə'bi:ti:z] ['melitəs]

A 24 year old type I diabetic patient came to see her physician because of a pregnancy. She had never been pregnant before. At the time of the present visit she was at 10 weeks of gestation. She was on an intensified insulin regimen ['redʒimen] taking 10 units of regular insulin ['insjəlin] plus 8 units of a long acting preparation subcutaneously [sʌbkju:'teiniəsli] in the a.m., followed by 8 units at noon (regular insulin) and 6 +10 units in the evening (regular insulin + long acting preparation). She also adhered to a 1800 cal diabetic diet. On this regimen her diabetic condition had been fairly stable. She tested her fasting blood glucose concentrations daily, and the readings were mostly between 110 and 150 mg/dl. She reported occasional turns of inability to concentrate, irrational bursts of temper, and sudden waves of anxiety and nervousness.

PMH (past medical history): Her diabetes mellitus had been discovered at age 12. Physical development had been normal. She had required insulin from age 12 onward. At age 19 she refused insulin treatments. She treated herself with diet and oral antidiabetic [æntidaiə'betik] agents. This regimen failed after 2 weeks B/O weight loss, hyperglycemia [haipəglai'si:miə], glycosuria [glaikə's(j)u:riə] and nocturia [nək't(j)u:riə]. – She had required one hospitalization at age 20. – She had required one hospitalization at age 20. At that time she suffered an ache to her shoulders, low back pains, myalgias [mai'ældʒiəz], headache, a low-grade fever, vomiting, nausea, excessive thirst, and polyuria [pɔli'(j)u:riə] and she became somnolent. – Otherwise, her treatment had been uneventful over the years. – She had been married for 2 years and was a housewife. Her family history was remarkable in that her mother and her grandmother were also diabetics.

Physical examination: The patient was found to be a rather average young female in no acute distress. She was knowledgeable about her diabetes mellitus, but appeared compulsively concerned with the control of her blood glucose ['glu:kous] concentration.

The physical examination was consistent with a pregnancy of 2 months' duration. The vital signs including the blood pressure were normal. Her skin was in good condition, including her injection sites. She had no ankle edema. A careful evaluation of the peripheral nervous system disclosed no detectable abnormalities. Visual acuity was normal and there were no cataracts. Fundoscopic evaluation disclosed rare scattered microaneurysms [maikrou'ænjərizəmz].

Lab: Renal function was normal as evidenced by: BUN and creatinine [kri'ætəni:n]. However she did show a microalbuminuria [maikrouæl'b(j)u:mi'n(j)u:riə] of 220 mg/24 hrs. There was no bacteriuria [bæktiəri'(j)u:riə] and plasma lipids were normal. A fasting morning blood sugar was 150 mg/dl. At that time the urine contained trace amounts of glucose and was free of ketones ['ki:tounz].

Questions

1. In the account of the patient's history what was the most likely cause of the turns consisting of deficient concentration, bursts of temper, waves of anxiety, and subsequent short duration hyperglycemia?

2. Which diabetic complication do you suspect caused the patient's hospitalization at age 20? What precipitated [pri'sipiteitid] this event?
3. What is the meaning of the microalbuminuria at the time of the present evaluation?

Answers

1. This chain of events is most suggestive of hypoglycemic episodes.
2. At the time of hospitalization the patient suffered an episode of ketoacidosis [ki:touæsi'dousis]. The low-grade fever, the headache, the myalgias, the low back pain and the aches to her shoulders suggest that a viral infection could have precipitated the ketoacidosis.
3. The advent of microalbuminuria > 30 mg/24 hrs in a diabetic heralds diabetic nephropathy. It is usually associated with hypertension and hyperfiltration [haipəfil'treiʃən] of the kidney (low values of BUN/creatinine). In the present case the physiologic decrease of the blood pressure in the first trimenon [trai'mi:nɔn] may have obscured any increase of blood pressure from diabetic nephropathy [ne'frɔpəθi]. The normal daily excretion of "microalbumin" is < 12 mg/24 hrs.

Continuation of the case: The patient was advised to continue on the same regimen and to see the doctor at weekly intervals.

In the 6th month of pregnancy she developed hyperglycemia. Thus, her morning fasting blood sugar concentration ranged between 160 and 220 mg/dl. Because of the hyperglycemia her total dose of insulin had been increased and eventually reached 70 units per day. This was followed by complaints of frequent night sweats and morning headaches. Her pregnancy appeared to develop normally. Inspections of the eye-grounds at that time disclosed more abundant microaneurysms than before. A morning urine contained 1 + acetone, but no glucose. She had a proteinuria [prouti:'n(j)u:riə] of 1.4 gm/24 hrs. A fasting morning blood glucose obtained the following day showed 320 mg/dl. A simultaneous spot urine showed 4 + glucose.

Questions

1. How do physiological [fiziə'lɔdʒikl] insulin levels change in a normal pregnancy?
2. What is the significance of the proteinuria (1.4 gm/24 hrs) in the 6th month of pregnancy?
3. What counselling would you give to a diabetic female that asks about the possibility of becoming pregnant?
4. What was wrong with the patient's diabetic condition in the 6th month?
5. How would you treat the patient now?
6. When should the patient be delivered?

Answers

1. During pregnancy in a normal or diabetic patient plasma insulin concentrations increase. This is caused by insulin antagonists secreted by the placenta. Another factor is relative insulin resistance.
2. Vascular ['væskjulə] changes similar to those of the eye-grounds (background retinopathy [reti'nɔpəθi]) may be anticipated in the patient's kidneys. The urinary protein excretion rate (normal: < 150 mg/24 hrs) obviously progressed from microalbuminuria to pathologic proteinuria. This is indicative [in'dikativ] of a progression of the diabetic nephropathy in the patient. (By the way, some centers consider background retinopathy in pregnancy an indication for treatment by insulin pump.)

3. Diabetic nephropathy is known to worsen during pregnancy. Therefore a diabetic with evidence of nephropathy (microalbuminuria, hypertension; perhaps even proteinuria and renal insufficiency [insə'fiʃənsi]) should be dissuaded from pregnancy.

4. The patient exhibited the Somogyi effect. This term is used to describe a vicious ['viʃəs] circle: excessive exogenous [ek'sɔdʒinəs] insulin (and in addition given at inappropriate [inə'proupriit] intervals) precipitating hypoglycemia, followed by endogenous regulatory phenomena causing hyperglycemia and glycosuria which make the patient take even higher doses of insulin. In the case of this patient, the compulsiveness about control of hyperglycemia probably initiated this cycle. A second explanation is possible (DAWN-syndrome), but less likely, because it is not associated with ketones. The DAWN-syndrome is caused by a surge of counterregulatory hormones after about 4 am. It is characterized by early morning hyperglycemia.

5. Measure the blood glucose concentration more often. Attempt to increase the number of daily injections of insulin, including a night-time injection at 4 a.m. At the same time the physician should seek to decrease the total amount of insulin injected/24 hrs if possible.
6. Ideally the patient should deliver spontaneously. Delivery should not be permitted to take place after week 40; if that situation is threatening labor and delivery should be induced medically. Early delivery (i.e. before week 35) is complicated by a high rate of fetal [fi:tl] loss from prematurity [premə'tjuəriti], while late delivery (after week 40) risks intrauterine [intrə'ju:tərin] death.

Continuation of the case: On the more intensified treatment regimen the patient's insulin requirements were decreased to 55 units/day. From then on the further course of the pregnancy was uneventful and the patient delivered a healthy baby weighing 9 lbs. (approx. 4 kg; 1 lb = 0,45 kg) in the 38th week.

Language Used by Patients with Endocrine Diseases

giving oneself shots
to test one's own water
puffy face
chipped nails

my weight went down
cerebral palsy [sə'ri:brəl] ['pɔ:lzi]
to get fits
bow legs

to crack a bone
hearing loss, deafness
to throw tantrums ['tæntrəms]

Specific Medical Terms in Endocrinology

the pituitary [pi'tjuitəri]
the "panhypopit" ['pænhaipou'pit]
emaciation
fatiguability [fəti:gə'biliti]
inanition

the severing of the pituitary stalk in a skull fracture
the flabby musculature of panhypopituitarism [pænhaipoupi'tju:ətərizm]
the failure of lactation in post-partum panhypopituitarism

pallor of the skin

the gigantism of acromegaly [ækrou'megəli]
the tufting of the terminal phalanges [fə'lændʒi:z] in acromegaly

the aberrant localization of a thyroid gland
thyroid ['θairɔid] nodules
pretibial myxedema
the muscle wasting of hyperthyroidism
the facial flushing and warm, velvety skin of Graves' disease
an exophthalmos should be tested for resiliency
the brittle hair, slow cerebration, and deep coarse voice of myxedema

the moon face, buffalo hump, and pendulous abdomen of Cushing's syndrome

the recession of the hairline caused by 17-ketosteroids
baldness
the intracellular K^+ shift of periodic paralysis

epinephrine/adrenaline (Brit.)
the wrist drop and foot drop of long-standing diabetes
the hyperalgesia or hyperesthesia of long-standing diabetes

the mental retardation of long-standing hypoparathyroidism
the glove-and-stocking skin lesions of pellagra

the pigeon breast of vitamin D deficiency

dwarfism
goiter
Graves' disease
scurvy
gout

4.7 A Policeman with Chest Pain

A 47 y o policeman was taken to the emergency room because of substernal chest pains.

The attack began 45 min before admission, while he was on the phone. The pain radiated to his back and did not budge until admission. It was accompanied by shortness of breath, dizziness, and nausea; he vomited once.

The patient's wife reported that he had had a similar attack 2 hours before while lifting a case of beer. Furthermore, on the morning of this day the patient had had a fainting spell, followed by palpitations and restlessness.

The patient had a past medical history of high blood pressure. Family history: his father died suddenly at 51 years of age.

Physical examination: In the emergency room the patient was in acute distress from severe chest pain. He moaned and groaned continually and was profusely diaphoretic and cyanotic. The temperature was 97 °F (36.8 °C).

The patient was an obese [ou'bi:s] male (148 lbs/5'2") looking much older than his stated age. During the exam he temporarily lost consciousness.

The BP was 70/40 mmHg, the pulse rate was 134/min and irregular.

The physical exam of heart, skin, lung, abdomen, and extremities was unremarkable. Cardiac auscultation was also unremarkable.

Lab: EKG was normal.

Question

What possible diagnoses do you think of and what would you do to confirm them at this point?

Answers

Myocardial infarction (EKG, cardiac enzymes, monitoring in the coronary care unit);

Pulmonary embolism (arterial blood gases, examine legs);

Pericardial tamponade (search for a pericardial friction rub in different positions of the patient in bed; search for "square root" abnormality of the internal jugular venous pulse.

Dissecting aneurysm of the aortic arch (compare the arterial pulses in both arms and both carotid arteries, search for vascular bruits; chest X-ray to assess widening of the mediastinum; ultrasound of aortic valve).

Continuation of the case: 15 min after admission to the emergency room while the medical staff was pondering the best mode of action the patient lost consciousness. He was found to have no pulse and no measurable blood pressure. Therefore the patient was given cardiopulmonary resuscitation (CPR).

During the attempted resuscitation the patient had a sinus tachycardia by EKG, but the tracing was otherwise unremarkable. He continued to be without measurable blood pressure and was also apneic [æp'ni:ik]. Attempts at raising his blood pressure by treatment with intravenous normal saline, dopamine, and angiotensin II were all unsuccessful.

The patient's pupils remained dilated and unresponsive to light throughout the CPR. After 20 min of treatment the CPR was therefore stopped and the patient pronounced dead.

Question

Which of the above mentioned differential diagnoses offers the best explanation for this clinical course?

Answer

A postmortem examination was performed. The patient was found to have a dissecting aneurysm of the aortic arch. The aneurysm stretched to involve the area of the aortic valve, but it did not extend into the abdomen. The aneurysm was fresh, and bleeding had occurred into the pericardial sac. In the initial evaluation in the emergency room, it might have been helpful to examine the radial pulses more carefully. It remained unclear why there was neither an aortic regurgitation heard during the initial cardiac auscultation, nor a square root abnormality of the internal jugular venous pulse recognized.

Specific Terminology a Cardiac Patient May Use

I became sick to my stomach
I felt like suffocating [ˈsʌfəkeitiŋ]
I felt this terrible ache
...like someone standing on my chest
...like someone gripping my chest

I had a crushing [krʌʃiŋ] chest pain
I was dizzy, I felt woozy, I had a blackout
I had butterflies in my chest, my heart made funny jumps
I had a throbbing in my chest

my pain felt like a pin, a stab, a tear...
my pain disappeared when I rested
swollen ankles, down in the morning, worse in the evening
dry, hacking cough, especially at night

I sleep on several pillows
I have lost my appetite for all kinds of food and my weight has gone down by 15 pounds in 3 weeks
my belly swelled up a lot recently
I have low blood; I have high blood; I have bad blood

I have had a coronary before
I had cold sweats all over
I take water pills (diuretics)
I felt weak and dizzy all over

Specific Medical Terms in Cardiac Illnesses

pericardial effusion, empyema [empaɪ'ɪ:mə], tamponade
cardiac valves, leaflets of the valves
valvular stenosis, valvular insufficiency
the cardiac conduction system, intraventricular bundles, bundle branches

sinus node ['sainəs] [noud], AV node
cardiac shadow (with specific curvatures) on chest X-ray
cardiac catheter, coronary catheter
pulmonary artery wedge pressure, Swan-Ganz catheter

EKG: limb leads, precordial leads, main QRS axis, left/right anterior hemiblock, bundle branch block [bʌndl] [bra:ntʃ] [blɔk]
atrial premature beat
atrial fibrillation ['eitriəl] [faibri'leiʃən]
pacemaker for complete heart block

cardiac auscultation; blowing murmur: high frequency (e.g. AI aortic insufficiency)
rumbling murmur: low frequency (e.g. mitral stenosis)
harsh murmur: crescendolike (e.g. aortic stenosis)
sounds, extra sounds, murmurs, clicks, pericardial friction rub

congestive cardiac failure; engorgement of jugular veins
pleural effusion (free or loculated ['lɔkjəleitid])
pulmonary congestion (Kerley B lines), pulmonary edema
orthopnea, paroxysmal nocturnal dyspnea

mitral opening snap
apex beat: e.g. dyskinetic, displaced laterally and thrusting
bicuspid aortic valve

mycotic aneurysm (e.g. of the aortic sinus into the ® atrium) after/during bacterial endocarditis
clubbing ['klʌbiŋ] of the fingers
petechiae of skin, splinter hemorrhages of nail beds in subacute bacterial endocarditis

pre-excitation syndrome (WPW)
myocardial infarction [maiou'ka:diəl] [in'fa:kʃən]
HOCM

patent ductus arteriosus
coarctation of the aorta (rib notching)
cystic medial necrosis of the aorta
pericarditis (amebic, ecchinococcal, viral, etc.)

The Following is an Outline of Resuscitation in Adults (CPR)

Call for help, place patient supine ['sju:pain] and on a firm support.

Check the patient's state of consciousness. Then do the following:
A: Airway: open the airway manually, place a mouth tube (Guedel airway (Brit.).
B: Breathing: start rescue breathing, attempt mouth to mouth ventilation or bag-valve-mask technique. Endotracheal intubation as needed.

C: Circulation: in the absence of any spontaneous movements or respirations: perform external chest compression (the cycle ought to consist of 15 compressions followed by breathing two times).
compression rate of 100/min; do not stop CPR > 5 s.

Place a large bore [la:dʒ] [bɔ:] iv needle (peripherally or centrally), try to avoid interruption of cardiac compression during any such maneuvres.
Give 100% oxygen at all times.
Try to obtain an EKG.

Give epinephrine in: asystole, electromechanical dissociation (give iv 1 mg = 10 cc of a 1 : 10000 solution). Epinephrine may also be given in ventricular fibrillation after 3 attempts to stabilize the cardiac rhythm by D/C shocks.

An alternative to giving epinephrine consists of injecting vasopressin, 40 I.U. iv.

Attempt to obtain blood gases and ventilate appropriately.

R_x atropine iv 0.5 mg in bradyarrhythmia or in asystole; an alternative treatment consists of placing a temporary pacemaker. R_x amiodarone, 5 mg/kg as a bolus in ventricular tachycardia or ventricular fibrillation.
R_x dopamine in hemodynamically significant hypotension, which is not secondary to hypovolemia, give 5–15 µg/kg/min iv of the dopamine.

Electrical defribrillation: termination of an arrhythmia by an unsynchronized D/C shock (usually ventricular fibrillation).
Electrical cardioversion: synchronized D/C current; utilized for the conversion to normal sinus rhythm of arrhythmias other than ventricular fibrillation.

Method: moisten paddles with saline or EKG gel, place one paddle over sternum, the other over the apex of the heart, ask everyone to step back from the patient's bed, and then press the knobs on the handles of the paddles to trigger the discharge [dis'tʃa:dʒ].

4.8 A Young Woman with Thrombocytopenia and Continuing Fever

A 23 year old woman was admitted to the hospital because of persistent fever with diarrhea.

The patient was well until 5 weeks earlier, when nausea, headache, myalgia and watery diarrhea began, and her temperature rose as high as 41 °C. She consulted a physician who made a diagnosis of a viral syndrome and prescribed symptomatic treatment. Fever and diarrhea persisted. Vomiting occurred. She had a sore throat and enlarged, tender cervical lymphnodes. She returned to her physician, who found that the temperature was 40.3 °C. She was admitted to the hospital.

The patient resided in a trailer with her family. In the area, mosquitoes and ticks were abundant and the drinking water often had an unpleasant odour and taste. Two months before the patient had had a miscarriage at home. Four weeks before she was bitten on the hand by a rabbit at a farm fair. Two weeks before entry she ate eggs in a restaurant where 11 persons contracted salmonella infection on the same day from consuming eggs. The patient's husband had used illicit drugs intravenously in the past. Two adult cats, one of which had just delivered a litter, shared the patient's home. There was no history of recent travel, recent exposure to infected persons, use of medications other than penicillin, receipt of

blood transfusions, personal abuse of illicit drugs, or recent cat scratches or bites by ticks, rats or bats. The patient denied having sexual partners other than her husband. He and their two children were currently well.

Physical examination: On examination at admission to the hospital the patient appeared pale and acutely ill. She was lethargic but was easily aroused. No rash was detected. The head was normal. The neck was supple. Submandibular lymphadenopathy was noted bilaterally but no abnormal lymphnodes were palpated in the axillary or inguinal regions. The lungs were clear. A grade 2 systolic ejection murmur was heard along the left sternal border. The breasts were normal. Abdominal examination was negative. No organs, masses or costovertebral angle tenderness were detected. There was no peripheral edema, clubbing, or cyanosis, and the peripheral pulses were intact. On neurologic examination the patient was somnolent and unable to give details of her past history. Her speech was fluent and she was oriented to the month but not to the day. Diffuse weakness was noted, without focal abnormalities.

Lab: The urine was normal except that the sediment contained 15 white cells and small numbers of bacteria per high power field. The hematocrit was 41%. The white cell count was 2700, with 60% neutrophiles, 11% band forms, 24% lymphocytes and 6% monocytes. The platelet count was 75 000 and the erythrocyte sedimentation rate was 43 mm/h. The renal function, the liver function tests and the electrolytes were normal. The GGT (gammaglutamyltranspeptidase) was elevated at 295 units/liter. An electrocardiogram showed sinus tachycardia at a rate of 105. X-ray films of the chest revealed a patchy infiltrate in the lingula and the right middle lobe. The heart and mediastinum appeared normal.

Question

How would you proceed at this stage?

Answer

In this situation, cultures should be obtained from all available sites, serologic tests for viral infections should be taken and all suspicious [səs′piʃəs] areas of the body should be evaluated further.

Continuation of the case: A lumbar puncture was performed and yielded clear, colourless cerebrospinal fluid that contained 2 red cells and 41 white cells /mm³. 97% of the white cells were lymphocytes. A culture of the cerebrospinal fluid failed to grow out organisms. – Specimens of blood, urine and stool were obtained for culture. Fluid and electrolytes were administered by vein and the patient was observed without antibiotic treatment. During the next 2 days the temperature rose as high as 41.6 °C and antibiotic treatment was begun. During the hospital stay the patient received at various times cefazolin, metronidazole, chloramphenicol, ciprofloxacin, tobramycin, vancomycin, and erythromycin, but she remained febrile. The diarrhea subsided after several days. The patient did not cough or produce sputum. Repeated cultures of blood and urine yielded no microorganisms. The stool culture gave no growth of pathogenic bacteria, and microscopical examination of the stool for ova and parasites was negative. On the 5th hospital day the hematocrit was 30%. The white cell count was 2100, with 52% neutrophiles, 14% band forms, 25% lymphocytes and 9% monocytes. The platelet count was 67 000 and the erythrocyte sedimentation rate was 50 mm/h. A tuberculin skin test was negative. Another X-ray film of the chest showed clearing of the infiltrates and was interpreted as within normal limits. Tests for hepatitis B surface antigen, hepatitis B core antibodies, hepatitis A antibodies, cold agglutinins, antinuclear antibodies, and antimitochondrial antibodies were negative. A computed tomographic scan (CT) of the abdomen and pelvis, performed with intravenous contrast material, disclosed that the spleen was at the upper limit of normal in size, as was the liver. The retroperitoneum, urinary tract, and pelvic organs were normal. An ultrasonographic study of the gall bladder was technically suboptimal because of apparent contraction of the gall bladder, but there was a suggestion of several gall stones giving ultrasonic shadows. On the 12th hospital day a total body gallium scan showed no localization of the radionuclide in a potentially septic source.

Question

What further steps would you take now?

Answer

A bone marrow aspiration might be the most useful test in this situation.

Continuation of the case: Microscopical examination of a biopsy specimen of the bone marrow was reported to be negative. Examination of a cervical lymph-node biopsy specimen was reported to show only lymphoid hyperplasia. Cultures of both biopsy specimens yielded no microorganisms. – A test of the patient's husband for antibodies to human immunodeficiency virus (HIV) was reported to

be negative. – An oral cholecystographic examination revealed faint opacification of the gall bladder, with multiple gall stones. – Assays for the presence of the human immunodeficiency virus type 1 (HIV-1) in samples of the patient's blood and cerebrospinal fluid were obtained. HIV-1 antigen was detected at a level of 9.2 pg/ml in the cerebrospinal fluid but was absent in the serum. Viral cultures of blood and cerebrospinal fluid were positive after 5 days of cocultivation with stimulated normal human peripheral blood leucocytes. An ELISA for HIV-1 was weakly positive on repeated tests and was confirmed by Western-blot analysis. – After the results of those diagnostic studies were discussed with the patient, additional history was obtained of a heterosexual contact with an intravenous drug abuser approximately 4 weeks before the onset of her symptoms.

Comment: The patient's findings are compatible with the diagnosis of acute HIV-1 infection with associated meningoencephalitis. Most symptomatic patients present with a mononucleosis-like illness with fever, lethargy, malaise, pharyngitis, myalgia, arthralgia, headache and lymphadenopathy. Rashes have been observed frequently during primary HIV-1 infection, and include an erythematous macular or mixed macular-papular rash, a roseola-like exanthematous rash, and a vesicular exanthem and enanthem. Gastrointestinal symptoms, including nausea, vomiting, diarrhea and abdominal pain are found in a minority of patients. A spectrum of neurologic involvement ranging from mild headaches and photophobia to severe meningoencephalitis has been observed in patients with acute HIV-1 infection. – Characteristic laboratory findings during primary HIV-1 infection include transient leucopenia, an atypical lymphocytosis, thrombocytopenia, and elevation in the alkaline phosphatase activity, but these abnormalities are nonspecific and may be seen in other acute viral infections.

4.9 A Tramp with Unconsciousness and Renal Failure

An elderly white male was brought to the emergency room because of unconsciousness.

In the emergency room the patient was able to open his eyes upon command; however, he was unable to communicate appropriately. His clothes were torn and filthy. His hair was unkempt. It had grown to his shoulders. He had an ungroomed beard. There was an odor of urine and alcohol about him. His pants and underwear appeared wet.

Physical examination: Vital signs: the patient had an elevated blood pressure of 180/100 mmHg. His pulse rate was 108/min and 3 irregularities/min were noted. The rectal temperature was 94 °F. He had labored deep respirations at a rate of 24/min.

The patient looked emaciated; his estimated weight was less than 110 pounds. (His height was average). There were a number of old scars on the

patient's forehead, nose, and forearms. He had tattoos on both arms and all of them read "Jane". – Specific details of the physical examination: the neck was supple and there was no blood behind the tympanic membranes. The right pupil was smaller than the left; it was deformed and looked white. The patient's teeth were stained brown and exhibited an extremely poor condition of dental health. There was blood in the patient's mouth, but its origin was undetectable because of incooperativity.

The patient's conjunctivae showed yellow jaundice. There were no indications of injection sites or needle tracks in the inner elbows or on the forearms. He had several bruises on the skin of both forearms. There were telangiectasias on the patient's forehead, cheeks, shoulders, and chest. There was an old scar below the right nipple over an old osseous deformity. There were neither wheezes nor any rales. A rub was audible in the area of the thoracic scar. The cardiac examination was unremarkable. The abdominal examination showed a firm liver edge reaching 10 cm below the right costal margin. There was a suggestion of ascites, but because of the patient's condition the presence of shifting dullness could not be tested. The bowel sounds were decreased and there was an indication of mild tenderness to deep palpation, particularly around the umbilicus (belly button). The genitourinary examination was unremarkable. Stool obtained at the rectal examination was heme negative.

During the physical examination the patient gradually woke up. He mumbled indistinctly and seemed to indicate the presence of abdominal problems. The remainder of the neurological examination was unremarkable.

Questions

1. At this point what are some potential explanations of the initial unconsciousness [ʌnˈkɔnʃəsnis]?
2. What is the most likely cause of the jaundice [ˈdʒɔːndis]?
3. Why would he have evidence of multiple old trauma [ˈtrɔːmə]?
4. Why does the patient exhibit accelerated breathing [ˈbriːðiŋ]?
5. What is the best explanation for the change of the patient's right pupil?
6. Why is it important to determine the origin of the blood in the patient's mouth?
7. What are some explanations of the abdominal findings?

Answers

1. In view of the circumstances the most likely possibilities are: postictal state (epileptic seizures), intoxication, intracranial bleeding.

2. Because of the setting, the patient's smell, his skin changes, and the appearance of the liver this might be secondary to alcoholic liver disease.
3. A likely explanation for this observation is chronic alcoholism.
4. Pain, CNS abnormalities, liver disease, chronic lung disease, and other disturbances can cause accelerated breathing. In this case, the reason is not obvious from the physical examination.
5. Old trauma to the right eye.
6. It might be related to a tongue bite (indicating epilepsy) or to hematemesis (indicating bleeding esophageal varices [isɔfə'dʒi:əl] ['veərəsi:z] or gastric ulcer).
7. Pancreatitis, peptic ulcer disease.

Further hospital course: Over the next 3 h the patient's mental status improved further. He now complained of a nagging pain over his entire abdomen. The pain radiated into his back. Reexamination of the oral cavity revealed several bites of recent origin in the tongue. With external warming by a heating blanket the patient's rectal temperature returned to 98.6 °F.

The patient was now able to give an account of his whereabouts. He admitted to sleeping in parks over the last 6 weeks, where he would occasionally drink "a few drops of wine" together with "friends".

Earlier that day he remembered drinking a sweet fluid from an unlabeled bottle that smelled and tasted like alcohol. It had been given to him by a fellow alcoholic. He had had an argument about money with the other alcoholic the day before.

Over the next 6 h in the hospital it was noticed that the patient failed to produce any urine. The patient's pain remained unaltered.

The following lab data became available:
LP (lumbar puncture): normal.
LFTs (liver function tests): SGOT, SGPT, bilirubin and alkaline phosphatase were elevated.
CBC (complete blood count): the WBC was elevated without left shift; there was a decreased hematocrit of 36 c̄ (with) an increased MCH and MCV.
Amylase: mildly elevated.
Abdominal flat plate (plain film): several air-fluid levels in the small intestine.
ABG: pH 7.18; pCO_2 = 24 mmHg; bicarbonate = 11 mM/l; pO_2 = 95 mmHg.

CXR: unremarkable except ® sided healed rib fractures and blunting of the ® costophrenic angle.
Electrolytes were normal, creatinine concentration was 4.2 mg/dl, urea was 142 mg/dl;
CPK was 20000 IU/l.
Toxicology screen showed the presence of ethylene glycol in the serum.

Question

With this information how do you put the patient's problems together?

Answer

This patient turned out to be an alcoholic with alcoholic liver disease and multiple alcohol-related old fractures and injuries. He had had an epileptic seizure before admission and this was also related to alcoholism. The elevated CPK was assumed to be caused by rhabdomyolysis, possibly from the epileptic seizure or from lying motionless on the ground for an extended period of time during the unconsciousness. The profound metabolic acidosis explained the initial tachypnea; it caused a search for an etiologic agent and ethylene glycol was detected. Ethylene glycol (antifreeze) poisoning is occasionally seen in alcoholics. Alcoholics may mix up ethylene glycol with alcohol because of the similarities in taste and smell, or they may try to kill someone with ethylene glycol intentionally.

Ethylene glycol in the present case explains the metabolic acidosis, the acute renal failure, the abdominal pain, and the ileus. Finally, the patient's initial hypothermia was attributed to this poisoning together with lying on the street. – The patient was given immediate treatment consisting of infusion of ethyl alcohol combined with dialysis. However he died suddenly 5 days later from an undetermined cause.

Language Used by Patients

I felt nauseated; I was sick to my stomach
I got a bad breath
I have stomach rumbles; I suffer from heartburn
I have had a problem with indigestion
I cannot take coffee anymore

I have frequent hiccups; I do a lot of belching ['beltʃiŋ] (burping)
I am easily stuffed; I have no desire for meat
it hurts to swallow; I have a soreness in my throat
the food seems to get stuck in my throat
I get bellyaches ['beli'eiks] after alcohol; I like the booze [bu:z]

I am often bloated and feel uncomfortable
I have too much gas, too much wind
it feels like knots in my bowels
I've got the shits, the runs
I have a bowel movement every third day

I take medicine for my bowels
I have cramps in my belly
the baby hurts in his tummy
I have bleeding from my piles
my back passage hurts
I gained weight around my bottom

Specific Medical Terms in Gastrointestinal Disorders

stomach, spleen [spli:n]
duodenal cap, duodenal C loop [d(j)u:ou'di:nəl] [si:] [lu:p]
small and large bowel
portal vein, bile ducts, gallbladder

stages of hepatic coma:
I: vacant stare, personality change
II: lethargy, muscle twitching, flapping tremor
III: abusive, noisy, violent behavior
IV: coma

physical evidence of liver cirrhosis: pectoral alopecia, altered hair distribution, palmar erythema ['pælmər] [erə'θi:mə], testicular atrophy, pruritus
clotting factors, prothrombin time
impacted gallstone

bulky stools of malabsorption
light stools
viral hepatitis, purulent ['pjurələnt] hepatitis
fecal impaction [fi:kl] [im'pækʃən]

motility of the GI tract
food intolerance, food allergy
Weil's disease
hydatid disease

peptic ulcer disease
inflammatory bowel disease (IBD)
pseudomembranous [su:dou'membrənəs] enterocolitis

5 The Organization of Medical Care and Education in the Teaching Hospital

This chapter is a sketchy outline of the hospital structure, the patient care, and the teaching hospital's training programs. – We will concentrate on the university hospital and its affiliated teaching hospitals.

5.1 US Health Care System

The US health care system is the most expensive and by many technical standards perhaps the best health care system in the world. However, it is not equally available to everyone. 16.1% of the population are uninsured and many people are underinsured.

The US health care system is supposed to provide care to the sick and profits to the organizations which assume the financial risk of insuring them. The country's health care bill is shared equally by private sources and the government. Employers pay up to 80% of the health care premiums of their employees, but this is not mandatory. In addition to the work related health insurance there are several federally supported insurance programs: medicaid, medicare, defense and veterans affairs system. Medicaid is fully financed by the federal government. It covers acute and long-term care of aged, blind or disabled people with low incomes as well as poor mothers and children. Medicare is funded by mandatory contributions from employers and employees, general tax revenues, beneficiaries' premiums, and deductibles and copayments by patients. It covers people over 65 years of age, the disabled, and those with end-stage renal disease.

Before the emergence of managed care with health care management organizations (HMOs), it was largely the doctors who decided how to spend the insurance funds on behalf of their patients. Now HMOs control the spending aggressively with preferred insuring of low risk populations, purchasing and merging health care facilities into gigantic alliances, selective contracting of physicians, stringent review of the medical services provided, practice guidelines, fixed per case payments, a numerous jungle of different service options (plans) for patients.

There is a trend towards outpatient medicine with short in-hospital stays. Utilization review boards were introduced in medical centers to review costly

cases. More and more less expensive ancillary staff is employed, like nurse practitioners, physician assistants, nurse anesthesiologists, clinical technologists, respiratory technologists, case managers, social workers and fewer physicians.

Medical schools reacted quickly. They now offer primary care training tracks beside the categorical programs for post-graduate training of physicians.

5.2 The UK National Health System (NHS)

The NHS is a tax-funded, government-run thrifty health care provider, controlling the medical sector. The National Health System (NHS) was founded in 1946 and united all the voluntary and municipal hospitals. NHS trusts provide a wide range of hospital and community based services – from accident and emergency (A&E) to OBGYN to providing care for people with long-term illness or disability.

Primary Care Groups (PCGs) were introduced in 1999, put doctors, nurses and health professionals in the driving seat, shaping local services.

NHS trusts employ the majority of the NHS workforce including nurses, doctors, dentists, pharmacists, midwives and staff from the professionals allied to medicine (PAMs) such as physiotherapists, radiographers, podiatrists, speech and language therapists, counselors, occupational therapists and psychologists. Trusts also provide services in the community – for example through health centers, clinics or in people's homes. The care and treatment provided by NHS trusts is free to patients. Five percent of specialist care is carried out privately.

Some trusts act as regional or national centers of expertise for more specialized care, while some are attached to universities.

Access to expensive medications / high-tech operations/procedures appears to be more limited with the NHS than in other European countries.

5.3 Physicians, Students, Nurses and other hospital personnel

Medical care is organized in several teams with different tasks and schedules. There are floor (ward) teams, consultation teams and clinic teams. Physicians undergoing postgraduate training are called house officers (*resident* and *fellow* are US specific terms, *trainee* is a UK specific term) and rotate through all the teams regularly.

Floor team

A floor team consists of house officers at different levels of their training. In the US they are named according to their year of graduation from medical school PGY-1 (post-graduate year-1) resident, PGY-2 resident etc. The period of post-graduate training is called residency in the US and ends with a board exam. In the UK they are called junior house officer (JHO), senior house officer (SHO) or registrar.

In the US house officers are assigned to cases which may be located in various parts of the hospital. (In the UK house officers are assigned to specific floors in the hospital.) One team usually consists of a senior resident (PGY-2 and up) working with two PGY-1 residents. The floor team is furthermore joined by medical students at different educational levels.

An attending physician (consultant in the UK) or attending surgeon in surgical specialties supervises the team. The PGY-1 residents (junior house officer in the UK) of the floor team pre-round on all their patients in the morning and write progress notes in the chart. They share some cases with students for teaching purposes. Rounds are lead by a senior resident (PGY-2 and up) or the attending. On rounds the PGY-1 residents or students present the cases to the senior resident or attending.

The attending will join the team daily or every other day and see all the team's patients. Attendings are senior subspecialists (consultants or specialists in the UK) of the university or experienced physicians in private practice. They carry the legal responsibility for the team's patients. The floor team is usually on call every 3rd or 4th night. At that time it will accept all new admissions. The care is coordinated with the attending.

Consultation team

If the floor team needs specific advice or wants to schedule a patient for a special procedure, it may call another specialty or subspecialty on the case. Each consulting team is staffed similar to a floor team and has a fellow (trainee in the UK) in addition. Fellows or trainees are house officers who completed general training in a specialty and are undergoing subspecialty training. Consulting teams provide the floor team with an extensive initial consultation and follow the patient daily with the primary team.

Clinic team

A major part of medical care is provided in the outpatient clinics. House officers usually have two clinics. They see their patients and present them to an attending who is exclusively assigned to precept. This way every patient's care is supervised by a board certified physician.

5.4 The Teaching

The Teaching of Medical Students

Third year medical students assigned to a ward team receive teaching in several ways:

The resident and the attending physician will use the student's write-up of the history and complete physical examination to discuss all medical problems of patients evaluated by the medical student. The medical student is expected to be able to quote the relevant literature.

In "professor's rounds" a medical student will present an interesting case of his team, followed by a very detailed discussion of that case with the professor. While the professor will try to give the medical student a good "grilling", the medical student will have to show a good understanding of the patient and an excellent grasp of the literature.

Most 4th-year medical students (final year of training) will be working on consultation services. Incidentally, most foreigners are commonly assigned to such services also.

Continuing Medical Education of Physicians

Hospitals will frequently offer a daily *noon conference*. These conferences sequentially cover all relevant diseases in a given field, e.g. in internal medicine. They are usually well prepared, competently done, and they go into diagnosis, therapy, and research of a given disease. Such conferences may occasionally have the format of a *morbidity and mortality conference (M & M conference)* which is an analysis of errors that have occurred in a patient's care.

Sometimes the noon conference will be a clinical-pathological conference *(CPC)* or *medical grand rounds* conference. The *CPC* is an exercise in making the

differential diagnosis. Usually an experienced physician has been given a case history plus some laboratory results of an actual (rather difficult) case but not the final diagnosis. He will then have to analyze these data, discuss the differential diagnosis, and propose a diagnosis. Everybody will be excited to learn whether the discussant is right or wrong. At this moment the pathologist will stand up to report and explain the definitive diagnosis. – Medical grand rounds are often given by invited authorities from other medical centers; they will be dedicated to issues of major relevance.

5.5 Access to Medical Information

The primary sources of medical and scientific information are the hospital's internal computer network (intranet), the biomedical library and the internet. Students and physicians can search and access medical literature from computer terminals throughout the hospital 24 hours a day 7 days a week. Many academic medical centers offer standard textbooks, full text subscriptions to online versions of leading medical journals and drug reference books on their intranet.

Libraries are frequently open around the clock to physicians. Apart from books and journals they hold a variety of other multimedia educational materials. Classes on how to use the various search tools and databases are often available. Please see our internet chapter on how to access medical information on the internet.

Evidence based medicine (EBM) is widely practiced in the US and the UK. Therefore it is a priority to read leading medical journals, i.e. *The New England Journal of Medicine, The Lancet, The Journal of the American Medical Association* or the *British Medical Journal,* to name a few.

Information about drugs in the US may be obtained from either the *PDR® (Physicians Desk Reference)*, published by *Medical Economics*, or the *USP DI® (United States Pharmacopoeia Drug Information)*, published by *Micromedex.* The *PDR®* is sponsored by the pharmaceutical industry and is available free of charge to practicing physicians. It resembles the German *Rote Liste®*, has limited coverage of generics and only lists *FDA (Food and Drug Administration)* approved indications and dosages. The *USP DI®* is based on national consensus annually reached at the pharmacopoeial convention by independent expert panels. It resembles the *German Pharmacopoeia (DAB)* and includes all drugs, orphan drugs and biologicals available in North America with *FDA* and non-*FDA* approved indications and dosages. It comes in three volumes. Volume I for healthcare professionals is the most important one for the clinician. Volume II

contains patient information and volume III contains information on drug dispensing and is designed for pharmacists. Both are available online. Please see our internet chapter.

Information about drugs in the UK can be found in the *British National Formulary (BNF)*. It is not currently available online and will be merged with all other European Union drug standards into the *European Pharmacopoeia (E.Ph.)* soon. European drug information can be accessed through the *European Community Pharmacology Information Network (ECPHIN)*. This database is available on the internet. Please see our internet chapter.

Internet Resources

The advent of graphical world wide web browsers such as *Firefox®* have made the internet a powerful media for reference, instruction and learning. Internet and hypermedia technologies can have a profound impact on the way medical training is delivered and received. Hypermedia technology is used to create individual groupings of related information, and provides the ability to branch instantly to the selected content and back to the original document.

Almost every major hospital these days manages at least part of its patient data electronically. Therefore computer terminals with internet access and graphical user interfaces such as *Firefox®* are located in every part of the hospital. To assure an effective use of the internet one must address its limitations. These limitations are: getting lost among the abundance of information, failing to gain an overview of the information, and navigational difficulties when looking for specific information.

To overcome the above limitations, we have compiled a list of bookmarks relevant to medical students and doctors who are planning to study, work and teach in an English speaking environment. The list also includes links to organizations which assist in the administrative planning of such endeavors. We suggest to create an individual free start page and upload the following bookmark list. For details how to create the page please see the browser's help menu.

To avoid the tedious URL typing process this list can be downloaded from the Thieme website *(www.thieme.de)*. An individual start page allows continuous access of relevant data independent from location and browser by establishing links to specific information related to each topic.

In the following Internet sources providing access to strictly medical knowledge (diseases, published articles, diagnostic tools, recent progress, drugs) are listed under *Medical Libraries*. *Medline* or *Cochrane* are two frequently used Internet addresses for such purposes. In addition our list under *Medical Journals* provides access to the articles published in those journals.

Verzeichnis der Internet-Adressen

Medical Associations and Organizations

http://www.dh.gov.uk/Home/fs/en UK Department of Health
http://www.ahd.com American Hospital Directory
http://www.who.int World Health Organization
http://www.acponline.org American College of Physicians
http://www.ama-assn.org Official American Medical Association (AMA)
http://www.ama-assn.org/ama/pub/category/7634.html National Specialty Societies and Health Related Organizations
http://www.rcplondon.ac.uk Royal College of Physicians of London
http://www.amc.org.au Australian Medical Council
http://www.bma.org.uk British Medical Association (BMA)

Medical Education, Examination and Certification

http://www.lcme.org LCGME – Liaison Committee on Medical Education
http://www.aamc.org/ AAMC – American Association of Medical Colleges
http://www.fsmb.org FSMB – Federation of State Medical Boards
http://www.ecfmg.org ECFMG – Educational Commission for Foreign Medical Graduates
http://www.nbme.org NBME – National Board of Medical Examiners®
http://www.npdb-hipdb.com/ NPDB – National Practitioner Data Bank
http://www.nrmp.org NRMP – National Resident Matching Program
http://www.abms.org ABMS Certified Doctor Home Page
http://www.ama-assn.org/ama/pub/category/2997.html FREIDA – Fellowship and Residency Electronic Interactive Database
http://www.aacom.org/ AACOM – American Association of Colleges of Osteopathic Medicine
http://www.afmc.ca/ ACMC – Association of Canadian Medical Colleges
http://www.who.int/hrh/wdms/en/ WHO – World Directory of Medical Schools
http://www.services.aamc.org/memberlistings/index.cfm?fuseaction=home.search&search_type=MS&wildcard_criteria=&state_criteria=CNT%3AUSA&image=Search US Medical Schools
http://www.services.aamc.org/memberlistings/index.cfm?fuseaction=home.search&search_type=MS&wildcard_criteria=&state_criteria=CNT%3ACanada&image=Search Canadian Medical Schools

Dictionaries

http://www.scit.wlv.ac.uk/wwlib/american.html American English
http://dict.leo.org/?lang=en English Dictionary

Encyclopedias and Textbooks

http://biotech.icmb.utexas.edu/search/dict-search.html BioTech's Life Science Dictionary
http://physician.pdr.net/physician/static.htm?path=controlled/searchstedmans.htm Stedman's Medical Dictionary Search

http://www.emedicine.com/asp/dictionary.asp eMedicine Online Text – Emergency Medicine
http://www.vnh.org/Providers.html Virtual Naval Hospital: Providers HomePage
http://www.spellex.com/speller.htm Spellex Online Medical Dictionary
http://www.merck.com/pubs/mmanual The Merck Manual
http://www.vh.org/Providers/ClinRef/FPHandbook/FPContents.html UIA Family Practice Handbook, 3rd Edition

Medical Libraries

http://www.ncbi.nlm.nih.gov/entrez/query.fcgi Advanced PubMed Search
http://www.update-software.com/cochrane The Cochrane Library
http://www.mdanderson.org/departments/cimer/ Center for Alternative Medicine Research in Cancer

Clinical Practice Guidelines

http://www.ncbi.nlm.nih.gov/books/bv.fcgi?rid=hstat
http://text.nlm.nih.gov/ftjava/gov/nih/nlm/text/ftweb/clientapp/home.html HSTAT – Health Services Technology Assessment Text
http://medicine.ucsf.edu/resources/guidelines Primary Care Clinical Practice Guidelines – Index
http://www.guideline.gov/ National Guideline Clearinghouse
http://odp.od.nih.gov/consensus NIH Consensus Statements Database
http://cebm.net Centre for Evidence-Based Medicine

Medical Coding (ICD etc.)

http://doctorspage.net/coding.asp The Doctors' Page – Coding Resources

Alternative Medicine

http://nccam.nih.gov/ NIH – Office of Alternative Medicine
http://www.rosenthal.hs.columbia.edu/ Rosenthal Center for Complementary and Alternative Medicine at Columbia University

Anatomy, Pathology and Histology

http://www.neuroguide.com Neurosciences on the Internet
http://www.ornl.gov/sci/techresources/Human_Genome/links.shtml Links to the Genetic World
http://www.nlm.nih.gov/research/visible/visible_human.html The Visible Human Project
http://www.med.harvard.edu/AANLIB/home.html The Whole Brain Atlas
http://www-medlib.med.utah.edu/WebPath/webpath.html The Internet Pathology Laboratory

Pharmacology

http://www.mca.gov.uk UK Medicines Control Agency
http://www.ars-grin.gov/duke Phytochemical and Ethnobotanical Databases

http://www.rxlist.com RxList – The Internet Drug Index
http://www.pharmweb.net/ Pharmaceutical Information Network Home Page
http://www.usp.org/ USP DI (US Pharmacopeia Drug Information) Volume I (Health Care Professionals)
http://www.intelihealth.com/IH/ihtIH?t=4631&p=~br,IHW¦~st,408¦~r,WSIHW000¦~b,*¦&st=8124 USP DI (US Pharmacopeia Drug Information) Volume II (Patients)
http://physician.pdr.net/pdrnet/librarian PDR – Physicians Desk Reference
http://www.rxmed.com/ RXmed: Prescribing Information
http://www.physician.pdr.net/physician/static/
htm?path=controlled/searchred=book.htm Drug Pricing Information
http://www.emea.eu.int/ The European Agency for the Evaluation of Medicinal Products

Radiology

http://www.radcentral.com Radiology Central

Toxicology

http://vm.cfsan.fda.gov/~mow/intro.html FDA/CFSAN Introduction to Foodborne Pathogenic Microorganisms and Natural Toxins
http://www.ific.org/ International Food Information Council Foundation (IFIC)
http://www.oshweb.com/s/178-01 Environmental Chemicals Data and Information Network (ECDIN)
http://www.cbiac.apgea.army.mil/ CBIAC – The Chemical Warfare/Chemical and Biological Defense Information Analysis Center
http://vm.cfsan.fda.gov/~dms/chemist.html Center for Food Safety and Applied Nutrition (CFSAN) Chemistry Information
http://vm.cfsan.fda.gov/~frf/biologic.html Center for Food Safety and Applied Nutrition (CFSAN) Biological Collection

Emergency Medicine

http://www.emedicine.com/emerg/index.shtml eMedicine Online Text – Emergency Medicine
http://www.ncemi.org/cgi-ncemi/edhome.pl Emergency Medicine Informatics
http://www.ncemi.org Emergency Medicine

Medical Journals

http://www.jama.ama-assn.org/ JAMA – The Journal of the American Medical Association
http://www.cdc.gov/mmwr/ MMWR – Morbidity & Mortility Weekly Report
http://www.bmj.bmjjournals.com/ BMJ – British Medical Journal
http://www.nature.com/index.html Nature Medicine
http://www.nejm.org New England Journal of Medicine
http://www.thelancet.com The Lancet
http://mulford.mco.edu/instr/ Instructions to Authors in the Health Sciences

Multispecialty Medical Websites

http://www.medscape.com Medscape
http://www.cdc.gov Centers for Disease Control and Prevention
http://www.nhlbi.nih.gov/index.htm National Heart Lung Blood Institute Alerts
http://www.medical-devices.gov.uk Medical Devices Agency – MDA
http://www.nih.gov/news/ NIH Health Information Index
http://www.medslides.com Medslides – Presentation Slides
http://www.ncbi.nlm.nih.gov The National Center for Biotechnology Information
http://cancernet.nci.nih.gov NCI's CancerNet
http://www3.niaid.nih.gov/ National Institute of Allergy and Infectious Diseases
http://www.nih.gov National Institutes of Health (NIH)
http://www.who.int/csr/don/en/ Disease outbreaks reported – index
http://www.quackwatch.com QuackWatch (Medical Quality Control Site)
http://www.fda.gov FDA – Food and Drug Administration

6 How to Talk to Patients

It is not easy for the doctor – let alone for the foreign doctor – to make himself well understood by his patients. In such conversations the physician will try to use the patient's own language. He will also attempt to present the issues in a kind and reassuring manner. The following chapter is therefore intended to give examples that are applicable in common situations as indicated. First, we will comment on the usual style of conversation between patients and physicians.

6.1 Style of Conversation Between Patients and Physicians

Admittedly, the degree of formality in conversations between patients and physicians has its regional variations; nonetheless, the following general remarks seem to be appropriate:

Physicians usually treat patients as their equal partners. They will try to get the patient to cooperate with them by making the patient understand his disease. The physician will almost always listen patiently to all questions and is also willing to discuss controversial medical facts with the patient. At the end of a conversation the physician will often invite the patient to ask further questions.

When major medical procedures, operations, or the dismal prognosis of a patient are involved the discussions are likewise fact-oriented and straightforward. Usually, physicians will not hide an unfavorable prognosis from their patient; however, they will not force it onto the patient if the patient doesn't seem to care.

The language in which they address each other may be quite informal. It is not unheard of that the physician and the patient greet each other by their first names, or even by a nickname.

Some Phrases for the Outpatient Clinic

(Meeting a new patient): "Hello, Mrs. Brendan, I am Dr. Smith. Please, come over to my office. Have a seat, please. How are you?"

(Meeting a new patient): "Good morning, Mrs. Brendan, my name is Dr. Smith; I have been expecting your visit from Dr. Robertson's letter. Come in and bring your sister along if you wish. Sit down right here, please. How do you do?"

(Meeting a known patient): "Hi, Mrs. Patterson, good to see you again. How have you been?"

(Meeting a known, incapacitated patient): "Hello, Mr. Peterson, let's see how we might get you to the office. I will help you with your crutches. Take your time. Maybe you should lie down on the stretcher right away. Nurse, would you bring a blanket for Mr. Peterson?"

Phrases Used to Start a Conversation with a New Patient

„Well, Mr. Moore, what bothers you?"
"Well, Mr. Moore, what seems to be the trouble?"
"Well now, Mr. Moore, why did you come to see me?"

(To a patient seen in referral): "Well, Mr. Zimmerman, Dr. Robertson says in his letter that your back pain is getting worse. Tell me about it."

(To a sick patient): "Well, Mr. Zimmerman, you are obviously not feeling well. How long has this been going on?"

(To a sick patient): "Well, Mr. Zimmerman, you seem to be quite ill. Let's go over your problems one at a time. Which of your troubles is the most bothersome to you?"

Some Comments to be Used on Ward Rounds

(Intern meeting a patient with **pneumonia**): "Good morning, Mr. Williams, how are you today? How was your night? Do you still cough as much as before? How about your fever and chills, are they gone? In which way do you feel better this morning?"

(Resident meeting a female patient with **Crohn's disease** that he knows well): "Good morning, my dear; how did you like your breakfeast this morning? Can you take meals any better than before? Do you seem to be making any progress?"

(Consulting service student meeting a patient with a **cardiac problem**): "Hello, Mr. Walters, I am Bill Wilder from the cardiology service. I am a medical student. Your doctors have asked our service to come by and find out about your heart murmur. Let me ask you a few questions."

(Physician rounds meeting a patient with **pyelonephritis**): "Good morning, Mrs. Miller. How are you today? Did you have any more night sweats? Are you still

running a fever? How about your flank pain? How often did you get up to pass water during the night? Did you pass a lot of water each time? Did you hurt when you passed the water? Are you still sick to your stomach? Are you still feeling weak and dizzy?"

(Ward rounds meeting a patient with **deep vein thrombosis** and **pulmonary embolus,** receiving heparin): "Hallo, Mrs. Fisher. Is there any improvement in your condition? What about your swollen leg? Is your throbbing pain letting up? How about the tight stockings? Are they helpful to you? Are you still as short of breath as two days ago? Do you still use the nasal oxygen? Do you hurt in your chest when you take a deep breath? Have you coughed up any bloody phlegm?"

(Rounds meeting a patient with a **cardiac arrhythmia,** who is sitting at the table in his room): "Hello, Mr. Koch. It's good to see that you are up and around. Have you had any more dizzy spells? Did you have any blackout? Did you fall to the ground? Do you still have the ringing in your ears? Have you felt any more throbbing of your heart?"

(Rounds meeting a patient with **headaches** and **sinusitis**): "Good morning, Mr. Morris. How about your splitting frontal headaches? Did the painkiller give you relief? Are your nasal secretions clearing up? What was their colour? Did you feel any secretions running down your throat at night? Do you still feel that fullness in your sinus cavity? Is there any tooth-ache? Are you still running a temperature?"

(Rounds meeting a patient who has had **pancreatitis**): "Hi, Mr. Newman. The attack of pancreatitis appears to be all over. Your blood work shows normal results. Have you had any more cramps or pain to your belly? Does your diet agree with you; or have you felt nauseated again? Have your stools become normal? Can you flush down the stool easily – or is it very foamy? Dr. Sidney told us that your abdominal ultrasound study now shows a normal bile duct and pancreas. Maybe we should discharge you soon. How do you feel about going home tomorrow?"

(Physician examining a patient after a **fall on the ward** who is in bed now): "Mrs. Miller, I hear you fell on our stairs a few minutes ago. Where do you hurt? How did it happen? Did you get dizzy or did you trip up? Now let me see your head. You bruised the skin over your nose but the nasal bone does not give. Move your shoulders up and down! O.k., there is nothing wrong here. Oh, I see your elbow is sore and you're unable to stretch your arm. Did you hit the ground with the elbow when you fell? Your elbow is badly swollen and it is blue all over. Let me gently feel the bones of the elbow. Well, there are mobile pieces of bone in here. I think, you cracked the elbow. We need to take an X-ray shortly."

Giving Explanations and/or Getting the Patient's Consent

(Explaining the need for a **CT-scan** in a patient who has weakness of the legs. Neurology consultant speaking): "I cannot find anything wrong with your legs. My bedside evaluation is normal. I expect that you will be all right. However, I think that a CT-scan should be done. This will give you reassurance. The CT-scan is a high-tech kind of an X-ray. It shows important details of your brain. It does not hurt and it is not dangerous. During the study you will be lying on your back on a stretcher. The technician will advance your head into a narrow tunnel for about 8 minutes. There is nothing to be worried about. There will be enough breathing space around your head. You will be able to speak to the technician by a microphone in the CT-tunnel. The tunnel serves to bring electronic imaging machinery close to your head. Have you ever been afraid of tunnels in your life before?"

(Explaining the need for a **central venous catheter**): "We have a little problem with your veins, Mr. Olsson. During your chemotherapy we had to use your veins quite heavily. Most of them are now irritated and not accessible. In the next few days we will have to give you several i.v. drips and a transfusion of blood. We will therefore have to use a vein in your neck. It is not going to hurt. First of all I will numb the skin with an injection. I will then put in a small piece of sterile tubing which can be used for infusions. This is not dangerous. You can take my word for it. We have quite a bit of experience with this approach since we have to use it a lot."

(Explaining **medication for high blood pressure**): "Mrs. Brown, you have had the high blood pressure and the headaches for 3 years. This condition will not go away by itself. All the necessary tests have been done. They did not show a curable cause of your hypertension. But we can treat you with medication. The medicine will bring your blood pressure down to the normal range. It is necessary that you take the medication all the time because its effects expire after about 12 hours. I also recommend a blood pressure cuff of your own. This will allow you to know your blood pressure."

(Explaining the need for **surgery**): "Well, Mrs. Anderson, it is now time for a decision. You have had colics from your gallstones four times in one year. The ERCP and the incision we made in the duct has not helped to prevent the colics. You had jaundice and fever once. The studies have shown many more stones in your gall bladder. Unless we do something these events will just keep repeating themselves. I think the surgeon should remove your gall blad-

der. I will consult with Dr. Richards. I will ask him to come over and see you today."

(Explaining **cancer**): "Mr. Ramsey, I'm afraid the biopsy from your prostate did not show benign tissue. This is not a life threatening disorder. Tissue changes of the prostate gland can almost always be kept in check by therapy. There are several options. We should probably remove the prostate gland by an operation. Thereafter we should consider three courses of chemotherapy. Neither the surgery nor the chemotherapy will be dangerous. In fact, I expect you to do quite well throughout."

Phsyician-Patient conversation in the Outpatient Clinic: Two Actual Cases

Office visit; 51 y o patient with uncontrolled high blood pressure:

Physician: "Why did your doctor send you to my outpatient clinic?"
Patient: "We cannot get the blood pressure down."
Physician: "How long have you had a high blood pressure?"
Patient: "I took medication for 10 years."
Physician: "Is the high blood pressure in your family?"
Patient: "Not that I know of."
Physician: "What did your parents die of?"
Patient: "My father is alive. My mother died of a stroke at seventy. She was a diabetic."
Physician: "Did she take blood pressure pills?"
Patient: "I am not sure; maybe yes."
Physician: "How are you feeling?"
Patient: "I am tired a lot. I forget things. I'm just not up to par."

Physician: "What are your blood pressure readings?"
Patient: "I am often over 200."
Physician: "What is the lower reading?"
Patient: "Sometimes it reaches 110."
Physician: "How about your medication? Does it help?"
Patient: "No. They tried a beta-blocker and I could not climb stairs any more."

Physician: "Now you're on a calcium channel-blocker."
Patient: "Yes, but I get dizzy and my legs swell up."
Physician: "How about the ACE-inhibitor?"

Patient: "It's o.k."
Physician: "So, maybe you cannot take the medication as your doctor prescribed it for you?"
Patient: "That's possible."
Physician: "How about your weight? Any changes?"
Patient: "My weight has gone up."
Physician: "Where do you eat?"
Patient: "Mostly at fast food restaurants."
Phsysician: "Do you smoke?"
Patient: "Well, yes. 5 to 10 (cigarettes) a day."
Physician: "Do you drink?"
Patient: "I have a beer or two in the evening."
Physician: "Have you had a check for diabetes lately?"
Patient: "No."
Physician: "What kind of work do you do?"
Patient: "I am a salesman."
Physician: "Do you enjoy your work?"
Patient: "It gives me a lot of trouble."
Physician: "O.k., let us now do the physical examination."

After the physical examination (Physician): "I am quite satisfied with you, except the blood pressure is very high indeed. You also have changes in your eye grounds from the high blood pressure. We will have to do an EKG, some blood work, and a urine test. I can tell you this: We must bring your blood pressure down. I advise you to add a diuretic. We should switch your calcium channel-blocker to a long acting preparation. I will give you prescriptions for both drugs. You must take them religiously. Can you change your diet and lose weight? Can you stop smoking? I want to see you again in two weeks and we will go from there."

Office visit; 22 y o waitress:

Physician: "What seems to be the trouble?"
Patient: "I keep going to the bathroom. It began two days ago."
Physician: "How did you sleep at night?"
Patient: "I got up every hour."
Physician: "How much water did you pass?"
Patient: "That's what I don't understand: It's just a few drops. And it hurts."

Physician: "Is it yellow?"
Patient: "Sometimes it's brown, sometimes it's red."
Physician: "Did you have a fever?"
Patient: "I didn't take my temperature."

Physician: "Did you feel cold and shivery?"
Patient: "Yes. Certainly."
Physician: "Where do you hurt?"
Patient: "Between my legs. And in my back."
Physician: "How is your appetite?"
Patient: "Poor."
Physician: "Do you throw up?"
Patient: "No, but I felt nauseated ['nɔ:sieitid]."
Physician: "Do you drink enough?"
Patient: "No, not much now."
Physician: "Have you had this before?"
Patient: "Yes. I get it two or three times a year. The doctor gave me antibiotics before."
Physician: "When did this trouble first begin?"
Patient: "When I was eighteen."
Physician: "Do you have children?"
Patient: "No."
Physician: "Is your bladder working normally between the attacks?"
Patient: "Almost. Sometimes I lose some water into my pants."
Physician gives the patient a physical exam.

Thereafter (Physician): "You have a temperature and there is obviously a urinary tract infection. I do not think that the bacteria are in your kidneys. But I will do a blood test to rule it out. We will also need a fresh midstream urine for a culture. I will prescribe an antibiotic. I advise you to drink a lot of fluid, maybe tea. I want you to stay in bed for one day. When you are well again I may send you to the urologist for a check up. You're having too many of those infections. Maybe we should then provide prophylactic medication later on."

Some Phrases to Guide and Direct the Patient During the Physicial Examination

"I am going to give you a physical examination. Would you mind taking off your clothes except your pants and bra. Then put on this hospital gown, the nurse will help you. When you are done, make yourself comfortable on the examination table and call me."

(To a known patient with long-standing diabetes): "Please take off your shoes and socks. Show me your feet. I'm going to examine your toes and your pulses."

(To a known patient with lung disease): "Take off your sweater and your shirt and let me listen to your lungs."

(Taking the blood pressure): "Roll up your sleeve and let me take your blood pressure."

(Weighing patient): "Step on to the scale and let me weigh you."
(Positioning the patient): "Stand up, please. Sit up, please. Bend your knees, please. Lie down on your back, please. Roll over onto your left side, please. Lie on your belly, please."

(Examining the hands): "Let me see your hands. Turn them over. Make a fist."

(Testing the eyes): "Let me test your eyes. Look at the tip of my nose. I will now use some light to test your pupils."

(Examination of the mouth): "Open your mouth wide. Stick out your tongue. Say Aah."
(Examination of the neck): "Now I will step behind you to feel your neck. Give a swallow, please. Let me feel your armpits now."
(Examination of the lungs): "Breathe in and out deeply, I will listen to your lungs. Now hold your breath. Now breathe out as fast as you can. Cough a few times, please."

(Abdominal examination, patient lying on his back): "Fold your hands over your chest and pull up your knees. I will feel your belly. Be sure to let me know when you hurt."
(Examining costovertebral angle): "I will now poke my finger into your back. Does it hurt you?"

(To start an examination of the testicles): "Now I have to feel your testicles. Spread your legs apart. Have you noticed any lumps yourself?"

(Rectal examination): "Now I have to examine your back passage. Roll on your side and come over to the edge of the bed. I will slowly advance my finger. Try to be relaxed and take a few deep breaths."
(To start a pelvic examination): "We should now give you a pelvic examination. I will get the nurse to position you and make preparations. She will then call me."

(During the neurological examination): "I want you to walk on a straight line, heel to toe.
Try to relax, let your muscles go loose, I shall test your reflexes.

Stand up, take your heels together, hold out both arms, palms up, and now close your eyes for a few minutes.

Take your index finger and keep going back and forth between your nose and my finger.
Take your right heel and run it up and down your left shin."

(At the end of the physical examination): "Now we are finished. Is there anything else that you have noticed? If not, get dressed and come over to my desk."

7 How to Give a Presentation in English

It may happen that you have to present scientific findings at a medical scientific meeting. In such situations it is not helpful to write down the intended talk as you would give it in your native language, and then translate such a talk into English. This way you would probably end up with sentences that are too complicated while your conceptual framework would be difficult to understand. Unless you are an experienced speaker able to converse fluently in English you should adhere to the following rules of thumb:

1. Make simple short sentences, even if this means losing some detail. (Non-essential details can always be shown on your accompanying slides or on the overhead display).

2. Use clear language, avoid ambiguity [æmbi'gju:iti]. (It is difficult to present a joke in a foreign language well or to make a sarcasm well understood.) Be certain that you understand the meaning of all your words well. (If in doubt ask someone who is a native English speaker.)

3. Follow a logical and straightforward concept for the parts of your presentation. In a talk during a scientific meeting in which you have to present your own findings you may use the following form:

a) Introduction/background: Findings of other authors, relevant data that have been published previously.

b) Question(s) of present study: Clearly state in one sentence why you undertook the present study or which specific question you wanted to answer.

c) Methods: Describe those aspects that are essential for an understanding of the results; point out methods that are new, or which have been modified by you.

d) Results: Present the main findings in the form of tables or diagrams. (Tables should not be overloaded with too much data; about ten lines of data is the limit. Each table should carry a title at the top stating the contents of the table. Use the terms "increased" or "decreased" only in those situations where the change is statistically significant. When using diagrams keep them simple, avoid overly crowded or complicated diagrams. Each diagram should begin with a title above it stating the contents of the work.)

e) Summary: Describe your main findings and how they relate to your initial question(s) in 2–4 sentences.

f) Conclusions: Answer your initial question.

4. Concentrate on established facts and on data, either as they are known from the literature or as they emerge from your own work. Quote the literature and do so correctly. Try to be precise. Avoid speculation and do not propose more

than one hypothesis to explain your findings – if at all necessary. When you draw conclusions from your work be fact-oriented and modest.

5. Do not exceed the time allotted for your talk in the printed program. The usual time for an oral presentation in a scientific meeting is 10 minutes. In preparing your talk make sure your presentation takes only 8 to 9 minutes, i.e. 10 to 20% less than the allotted time. (In the actual presentation in front of an audience you will almost always take longer than during practice. This is because the laser pointer or the slides may malfunction, or because you may react to the audience and feel obliged to speak more slowly than you had planned).

6. Practice your talk about 5 to 10 times. Use your slides during such practice exactly as you would during the eventual presentation. Initially practice by yourself. For the last two times of practice present in front of a few colleagues.

7.1 Example of an Oral Presentation

Title: Contrast-media induced acute renal failure: Is there a role for hydration?

"Chairpersons (chairmen), ladies and gentlemen!

Acute renal failure is a frequent problem in the hospital. (First slide). Radiocontrast material is a known risk factor for acute renal failure in patients with underlying renal insufficiency. A study by Miller et al. showed last year that pretreatment with loop diuretic increased the incidence of contrast induced acute renal failure. This suggested a detrimental role of dehydration in acute renal failure. (Next slide).

We therefore asked the following question: Is it possible to prevent contrast-media induced acute renal failure by pre-hydration? (Next slide).

We conducted an open, randomized study in 141 patients scheduled for coronary angiography. We enrolled only patients considered to be at risk for radiocontrast induced acute renal failure. By definition we considered patients to be at risk when the plasma creatinine concentration was higher than 160 µmol/l (normal 60–95), or when they had significant proteinuria (more than 2 gm/24 hrs) together with a diagnosis of diabetes mellitus.

Prospective patients were asked to give written informed consent. Thereafter they were randomized to the placebo group or to the hydration group. All previously prescribed medications were continued unchanged in all patients. (Next slide).

In the placebo group usual routine care was given before and after the cardiac catheterization. If possible, diuretics were avoided in all patients. In addition,

patients with recent loss of volume and pathologic orthostatic changes (e.g. following diarrhea or vomiting) were excluded from the study. Patients randomized to the hydration protocol received the same care as described for the placebo group. In addition, they were given 0.5 l of 0.45% saline i.v. during the 8 hrs preceding the cardiac catheterization. In patients with mild to moderate left-sided heart failure only 0.3 l of 0.45% saline were given. (Next slide).

The cardiologist performing the procedure was given information about a patient's participation in the study. He was advised to employ the same contrast agent (iopamidol) in all patients. He was asked to use the smallest possible amount of radiocontrast in each procedure. The cardiologist was blinded as to whether a patient belonged to the placebo group or to the hydration group. (Next slide).

We measured the plasma concentrations of creatinine, urea, urate, and potassium. This was done twice before the catheterization and daily thereafter for 5 days. We determined the creatinine clearance daily over the same 7 days. Acute renal failure was defined as an increase of the plasma creatinine concentration by at least 20% compared to baseline. Similarly, a decrease of the creatinine clearance by 20% or more from baseline was considered evidence of acute renal failure. (Next slide).

We made the following observations: Of the 142 patients initially enrolled 20 dropped out of the study. The reasons were: Noncompliance, necessity for major changes of medication (e.g. diuretics), early discharge from the hospital and miscellaneous causes. As the table shows, 55 of the remaining 122 patients were in the hydration group and 67 were in the placebo control group. The demographic data of all patients are shown in the table of the slide. The two groups of patients were comparable in terms of age, sex distribution, body mass index, mean blood pressure, diagnoses of underlying illnesses and severity of coronary artery disease. (Next slide).

The mean amount of radiocontrast injected was approximately 80 ml in both groups. As the diagram on this slide demonstrates, the mean baseline plasma creatinine concentration was 160 µMol/l in the placebo group and 170 in the hydration group. The mean plasma creatinine concentration did not change significantly over the 5 days after the procedure in either group. The same applied to the mean creatinine clearance. However, in the placebo group there were 4 patients and in the hydration group there was 1 patient who had acute renal failure as defined here. The difference was not statistically significant. The patients with acute renal failure were older and had higher blood pressure than the mean of the groups. There were no side-effects in the placebo group.

However, in the hydration group 3 patients had possible side-effects (worsening of dyspnea in 2 patients, new cardiac arrhythmia in 1 patient). (Next slide).

In summary, in a small study of 142 patients at risk, a moderate degree of i.v. hydration using 0.45% saline failed to establish a prophylactic effect for contrast induced renal failure. Whereas 4 patients in the placebo control group had acute renal failure there was only one case of acute renal failure in the hydrated group.

We conclude:

a) Moderate hydration is not detrimental in patients at risk for contrast induced acute renal failure;
b) additional studies should be carried out to test subgroups of patients at risk (e.g. hypertension, higher age group) for possible prophylactic efficiency of hydration.

In closing, I would like to acknowledge the support I received from many colleagues of my hospital in conducting this study. Thank you for your attention."

8 How to write an article and how to present a poster in English

8.1 How to write an article in English

With the advent of the internet – and even before – it became commonplace that German-speaking scientists and students very often would try to publish their work in English. This trend is likely to continue for some time to come, not least because of the generally higher scoring on impact factors of English speaking journals.

The five basic rules of publishing an article are: a) **be brief**; b) **be complete**; c) **present clearly and well to understand**; d) **be fair about the works of others**; e) **don't speculate** (it goes without saying that you should always stick to your original observations; never "make up data").

Step 1: When you sit down to start the write-up of a draft the first thing you ought to do is to conceptualize a firm opinion on what the most important part of your data is and what it means (i. e. how you suggest to interpret it). Speak to your statistician to be quite sure that your statistics are correct and "waterproof". (Maybe you also present your data to an experienced and critical colleague to see if your interpretation is convincing).

Step 2: The next thing ought to be the introduction. It should mainly consist of your rationale. A good rationale explains – step by step and on the basis of previous work by others, which you ought to reference - how you concluded that there was an unanswered question (or several of them). You must try to document that the question(s) of your study are a) important (give reasons for why any study results promise to be important) b) novel or original. Again: be as brief as possible – without being incomplete.

Believe it or not, the introduction, the abstract (and perhaps the results) are the most important parts of your manuscript, because this is where you convince most of the readers of your data. So think hard about the best possible introduction, don't be superficial. (A widely known scientist once said to me that it was okay to spend 30% of the total time of a study on the manuscript alone!)

Step 3: A few journals now report the results right after the introduction – but most do not (yet). Read the "instructions for authors" and do exactly what they want. Let us assume for the present discussion that in your intended journal the 'introduction' is followed by the 'methods' section (sometimes also called 'materials and methods'). In this section you have to describe your protocol in enough

detail so that someone else could repeat your work. Again: be as brief as possible, without giving an incomplete description. When possible, use quotations from other publications to abbreviate the description of your techniques. Make sure that your 'methods-section' and your subsequent 'results-section' match exactly (i. e.: do not report parts of study in 'methods' that you later do not wish to present in 'results').

Step 4: Following 'methods' present your 'results'. There are two schools of thought on what belongs here. One group of scientists feels that the author should present the study (including the results of course) exactly in the way the original protocol was written, e. g. as it was presented to the ethics-committee and as it was registered with a major journal. This means that negative results would be reported as well and even parts of a study that later turned out to have been planned in error would be included in the manuscript. This approach is probably a very transparent and truly scientific one. The other school of thought holds that negative or erroneous parts of a study may be deleted from the reported data. (We are not talking about highly relevant negatives there, e. g. if someone proved that H.I.V. was not contagious, but about "normal" negatives – i. e. if in a study of a statin the agent did not cause diarrhea. We are also not talking about negatives that have specific relevance to your study, perhaps because they illustrate that some results of your work are more problematic than other results are, etc.) In this way the scientist actually does some editing of his data after it has been obtained.

This difference is like that between two CD's of Wagner's 'Tannhäuser': one giving the complete $2^1/_2$ hr opera music, while the other may be limited to 1 hr of the highlights only.

Personally I feel that both approaches are justifyable, as long as they are used in a fair way and the context of the data is not falsified.

As a reader of articles of general interest and as an editorial board member of journals the second approach clearly is preferable to me, because it saves time. However, if it concerns an article (or manuscript) in one of the fields in which I work myself, I would prefer to know every possible detail of a study, even if it was "normal negatives", because in that setting the "normal negatives" might be very instructive to me as a specialist.

Taken together, there is no ideal solution to this problem. I would however recommend – with a lot of caution – to perhaps prefer the second approach when possible.

In the results section you should try to present your most important data in the form of clear diagrams. ("One picture may be more telling than a thousand words"). Don't overload your diagrams with too much information, make them (look) simple. Even presenting your protocol of investigation in diagrammatic form is often more instructive than lots of descriptive text. If it saves space use tables as well. The remainder may be presented as text. Journals like to see 'hard data', e. g. exact numbers. Do not say: "There was a big increase of factor-x". It is better to remark: "Factor-x increased during the study (baseline: 42±15 mmol/L; end of protocol: 87±22; $p < .05$).

Again, be as brief as possible under the circumstances, don't do double-reporting of your data like for instance in a diagram and in a table. Present your results in a stepwise and logical sequence, just like you (hopefully) did in presenting your rationale. Use the term of "a change" that occurred (increase or decrease) only if it was statistically significant. (If you wish to comment on data which do not meet this criterion you may say "... there was a tendency (of these data) to increase numerically though this tendency did not reach statistical significance." You probably should not use this kind of a soft statement much more often than once or twice in any given manuscript.) Do not offer interpretation of your data in the section on 'results'; also abstain from any editorial statements here (e. g. "... therefore these data shall be highly interesting and relevant for the pathogenesis of diabetic retinopathy ...").

Step 5: The last section is the 'discussion'. As far as I know the rules about the discussion are less stringent than those on the other sections mentioned previously. It is clear however that the discussion should not just be another repetition of the results. It is okay to start your 'discussion' with a very brief outline of the most important part of your results, but thereafter your discussion ought to concentrate on the following issues: a) how does your data fit with other literature in the field? If there were any discrepancies: read the other authors really well and try to make suggestions as to how the discrepancies might be explained/resolved. Do not make arrogant comments on the work of others (e. g. "... they didn't even think of this issue in their protocol ..."); b) try to make proposals on how your data could be refined or substantiated further in the future. Point out any new questions that follow from your data and make suggestions on how they might be approached; c) try to point out what kinds of consequences might follow from your data, what they might mean in the context of everyday clinical medicine, or how they seem to contribute to the resolution of a basic science problem. Be restrained, do not exaggerate and do not speculate (much); d) point out briefly what the limitations of your methods and techniques are and in which way this might lessen the reliability

of your results. – Again: the discussion ought to be concise and to the point(s); avoid excessive talk.

Most journals also require an abstract. It is often limited to about 200 words. Work hard and think about every single word to condense the abstract to an informative minimum. The reviewers and many of your readers will later study the abstract first or sometimes even exclusively. Start with a one sentence comment on previous literature. Then give the question your study tried to answer. Report only the essentials of your methods, i.e. those which are quite indispensible for understanding your work. Be as explicit as space permits in terms of giving your results. Again: try to report hard data (numbers) and avoid generalizing 'soft' verbal statements. At the end you may offer a one sentence 'summary and conclusion'.

One word about the use of proper English. This often presents some problems. It is certainly helpful if a manuscript makes for pleasant reading as far as the correct use of English is concerned. If you have a colleague whose mother tongue is English you might ask her or him to go over your manuscript in order to improve its language if necessary. However, I feel that the aspect of "English language" is sometimes exaggerated by reviewers. In my experience all editors-in-chief that I know will clearly stress data over language. In other words: if the data are good but the language is flawed they will probably accept the manuscript but request revision of English. It never works the other way round.

The last issue is the accompanying 'letter of submission'. It should be very brief and very dry; please, no apologies, no requests for mercy, and no self-glorifications. You simply ought to state that the authors (give their names) wish to submit a manuscript (entitled: "...") to the journal (give the name) for consideration for publication; period!

You may add that there is no (financial) conflict of interest of any of the authors, and how much each author contributed to the work. It is also acceptable – though not the rule – to add one or two sentences which outline your main finding and why you chose to submit your work to this particular journal.

My very last point concerns the comments by reviewers your manuscript will probably get. Do your best to respond to such comments point-by-point, precisely, using hard data or quotations from the literature, or giving further explanations. Do not fight the reviewers unless you have very good arguments in favour of your own point of view. You should always be diplomatic and polite in your response to reviewers or to an editor. Their comments by and large represent an attempt to improve the presentation of your work – rather than to do you in.

That's it. Good luck!

8.2 How to present a poster

Wear comfortable shoes.

Be sure to eat breakfast (and lunch).

Carry a notebook to take down attendees's questions, suggestions and criticisms.

Prepare a summary of your poster and memorize it. Consider preparing a long, very complete summary together with a shorter abbreviated version of your data. Once you introduce yourself to each attendee who stops at your poster, ask whether he/she prefers the long or the short version of your summary.

Walk the attendee through your poster data, focusing on its highlights and importance to your field.

If the attendee does not wish a summary of your data, but prefers to look at it for himself tell him that you would be happy to answer any questions about the data or methodology.

Prepare answers to expected questions and methodological or study design issues.

If there are other posters on similar topics discuss how your poster fits in with them.

Write down any possible future collaborations with attendees. Ask for e-mail addresses or business cards.

Do not be afraid to question attendees as to whether they are working in the same field. They may be a fountain of information.

Always be pleasant, even if negative comments are made about your data.

Remember that you are the sales-person of your data and its message. Enjoy selling your interesting results.

View the poster session as one continuous question and answer period where you will educate others and learn from your audience.

9 How to get by in everyday life

(Don't read this unless you are planning to work or study abroad)

How to get there

Most English-speaking overseas countries have special requirements for entry (visas, etc.). The regulations concerning visas are subject to change, especially at the present time (due to terrorism). Find out with your travel agency or with the embassy of the intended country what the most recent regulations are, what kind of visa you are required to present, where and when to get the visa and what kind of ID (passport, ID-card, driver's license) you are required to bring.

Departure

On the day of your departure it is a good idea to come to the airport early to allow enough time for any controls. Answer all questions patiently and correctly, even if they do not seem to make a lot of sense or if you are asked the same questions three times. Do not get irritated by unusual safety requests like getting out of your shoes or taking your jacket off for separate control. That's just the way it is these days and there are no exceptions. (They recently took me aside for an extra interrogation after the X-ray inspection had shown a screw- driver [for my inline skates] in my handbag. I was told that a screw-driver is a potentially dangerous weapon and has to travel with the bulk-luggage, i. e. in the transport compartment of the plane and not in the passenger cabin).

Additional forms

You may receive additional forms from the stewardess to be filled out in flight. These forms are usually necessary for entry into the country of destination. They concern customs related items and visa specifying issues. You may be asked if you bring any food or plants with yourself or if you have more than a certain amount of cash in your luggage. Take care to answer all questions truthfully and carefully to stay out of potential trouble later. If you don't understand a question (they are usually presented in English and German): ask the stewardess or the officer at the port of entry; do not risk giving an erroneous answer. In the questionnaire you may be asked if you ever were a member of

the communist party, if you ever were in jail, if criminal charges had been brought against you, or if you ever were denied a visa/entry into the country of destination. These questions are no jokes! You must answer them properly and fully. When you are asked what you plan to do during your stay (travel, study, work) and how long you plan to stay: give fully correct answers. Do not transgress the permitted duration of stay which shall be documented by the immigration officer in your passport upon entry. When leaving make sure your leave is documented as well. (In the U.S, this is usually accomplished by your airline officer at the check-in counter. He or she ought to remove the permit-document from your passport for return to the immigration service.) All these items look or sound trivial – but they aren't by any means. You could learn this very painfully should something have been wrong.

Money

It may not be a good idea to bring all your money in cash and in Euros. One reason is that it may get stolen or you could lose it. The more important reason however is that many foreign banks have difficulty changing your money (Euros supposedly) into the local currency and some may not do it at all. Therefore, international credit cards, checks to be drawn on a bank in your country of destination, travellers' cheques or money orders (if for some reason a larger amount of money was involved) are supposedly a better idea than a lot of cash in Euros.

Place to stay/appartment

You should not expect a university guest house that would accomodate you for a few weeks or months; many universities just don't have one and even when they do it is not meant for students. It is sometimes possible to find a room in a student dormitory (this is particularly true for the U.K.). Another possibility is to try and find a family that is interested in a foreign guest-student for some weeks or even months. To accomplish this you ought to write a letter of inquiry into this possibility to the "office of students' affairs" of the medical center where you plan to work or study. You ought to send such a letter about 4–6 months before the begin of your intended stay. In some cases you may be interested in having more space, in being able to cook for yourself or in being able to have guests staying with you for a while. In short, you may want to rent an appartment. This is usually neither difficult nor very expensive. Go by the signs "Appartment for Rent" or "Now Renting" and approach the person in charge of the appartment(s) about the conditions of the rent. They will want to know from you about the length of your

stay and the purpose. (If you say you are working in the hospital/going to be a doctor it usually helps.) Be sure it is a furnished appartment and ask to see it. Maybe you look at several different offers to be able to compare the rates. A very important point is also location. Your appartment should not only be within easy reach from the hospital, it should also be in a safe area. Inquire into this last aspect; ask people at the hospital about it.

Shopping

This is usually quite easy and similar to shopping in Europe. The exception to the similarities may be that people almost always go shopping by car (e. g. in the U.S.; I once was stopped by police in Colorado when walking home from shopping and they wanted to see my I.D. It is strange to think that way but apparently in some places they wonder whether you might be a criminal [like a burglar] when you walk instead of driving a car). Most shopping is done in big supermarkets specializing in either food, or clothes, or furniture or other wares, and there are often somewhat long distances between these places. It is the exception to find a lot of small shops such as bakers, butchers, delikatessen (which may offer some of your loved European food), and it is even more rare to find them close by.

Shopping malls are usually found in the suburbs and therefore may be outside your reach.

Work in the hospital

You will find most things to be similar to home; exceptions may be a generally higher level of documentation of the medical process (especially true for the U.S.) and the use of "gadgets", e. g. computers on rounds to retrieve recent lab results, scientific information on drugs, etc. As a foreigner you are usually well received. However, there is one principle you ought to be strict about – to stay out of trouble: when you do not understand fully what you have to do, what kind of test they want you to obtain, what treatment they want you to begin on a patient: ask about it and clarify the issue. Don't feel obliged to play the "knows-it-all" or "understands-it-all" foreign medical student (or doctor) when in fact this is not the case. There is no need for pretending here. This area is where most mistakes happen. Now you know! Be careful!

Driving/driver's license

If you plan to rent a car your home driver's license may not get accepted. Make sure you obtain an international driver's license before leaving. That will very often avoid the problem. If you were going to stay longer (e. g. longer than six months) even the international driver's license may not do in the eyes of local police. In that circumstance it is advisable to obtain a driver's license in the area of your residence. This is often easier than it sounds – because they usually accept that you have sufficient driving experience already. There is no comparison with the expense and the time-commitment that is involved in obtaining a German driver's license for instance. So just talk to the Licensing Bureau for driver's licenses, learn the new rules (they give you a book about it), take the written (multiple choice) and practice test (10 min of driving in your car in the presence of an officer) and that's all. By the way: having a local driver's license is often considered a higher ranking form of ID than your passport for instance. (Yes, no kidding!)

Police/The Law

This is serious matter. As a rule "negotiations" with police officers are not possible. If they stop your car with the police officer stepping up to your door and ordering you to get out for a search for potentially suspicious matter (nowadays this implies bombs and similar material) just get out and do exactly as requested. It may take 20 min, but you do not have to be afraid of inappropriate treatment. Answer all questions correctly. Show them all forms of I.D. they want. Explicitly do not: Say you are innocent and do not want to get out of the car; complain about this seemingly unusual procedure; say you want to talk to your embassy first of all; say you want to talk to a lawyer right then; beg for mercy (it is o.k. to point out that you are a foreigner and that you do not understand some things, but use this comment only to give them information, not to resist their orders).

In the movies we get to see in Europe (primarily from Hollywood and the U.S.) it is easy to get an impression of lawlessness in some overseas countries. The same has recently been true for the 'financial sector' (the ENRON scandal; the WORLDCOM scandal; wall street men like Ivan Boesky; etc.). This however is no more than glitter that sparkles; it is by no means typical of the whole picture. Make no mistake about it: when it comes to the law they really mean it, they are very law-abiding indeed. To give you one example: if you were out in the countryside all by yourself and no one else in sight and if there was a widely open range before you with an indication of a fence around it carrying a

sign "NO TRESSPASSING" – that's it: no tresspassing! (Even if the "NO TRESSPASSING" sign makes no sense to you.) Why? Perhaps the law in that county or state may permit the owner of the land to shoot you if you do tresspass. And so on. – The sheriff once caught me driving 80 miles/hr on a completely empty 2-lane highway in the wilderness, where the speed limit was 55 miles/hr. Although I did everything he wanted: can you imagine my fine? I had to return at 9 a.m. on a given day to a village near the location of my speeding. It was 200 miles away from the place of my work. On that day the sheriff was holding court in the village, starting at 9 a.m.. In the courtroom I discovered that I was to be the last case of 51, mostly burglaries etc. When I was up after about 5 hrs of court hearings the sheriff simply examined my I.D. and recommended that I should never do it again. That was all the pain for the day.

10 Making Applications

This chapter is designed to help students and physicians who wish to apply for clinical training abroad. Please consult the internet chapter which provides you with many useful links to the most up to date information for the application process.

10.1 Application for clinical rotations or electives during medical school

Medical students who wish to undergo clinical training abroad should apply for a clerkship or a clinical elective. It is important to clarify the duration of the planned rotation in the application letter. Be aware that many foreign medical schools may charge tuition. As a general rule, the more invasive the medical specialty or the more it involves direct patient care, the more difficult it will be to get accepted as a foreigner. You may apply to the Education Office of the department you intend to do your rotation at or to the Dean of Student Affairs Office of the respective university.

Please consult your Dean of Student Affairs office in Germany to ensure credit at your home medical school.

10.2 Application letter template

Please do not duplicate this letter. Rather customize this template by including your personal details and ideas about what you intend to do and why at the particular location. It is expected that you supplement your letter with a current curriculum vitae (cv) and have two physicians that you worked with send letters of reference to the program directly.

Egon Bückling 1/15/1999
Chirurgenplatz 1
D-1000 Sauerbruchstadt
Germany

University of Nowhere Medical Center
Department of Pediatrics
Education Office
1234 Desert Boulevard
Anytown
Anystate, 012345
Anycountry

Re: Clinical Elective in Pediatric Cardiology

Dear Sir or Madam,
I am a German medical student starting my final year of medical school in September 2000. While doing the pediatrics rotation last year at German Nobelprize University Medical Center I became particularly interested in pediatric cardiology. I intend to become a pediatrician and consider pediatric cardiology as a future career. I would be excited to do a pediatric cardiology elective at Nowhere Medical Center to gain further insight into this specialty. Letters of recommendation will be forwarded by Dr. Hans Schlaumeier and Dr. Leni Herzlich of German Nobelprize University Medical Center under separate cover.

Should you require any additional information, please do not hesitate to contact me at the numbers below.

Sincerely,

Egon Bückling
Phone: +49-area code-number
Fax: +49-area code-number
E-Mail: ebückling@emailadresse.de

10.3 Application for post-graduate medical training

United Kingdom

Medical students and physicians planning to undergo post-graduate medical training in the UK should contact the *Royal College of Physicians* RCP (of London):

Royal College of Physicians of London
11 St Andrews Place
Regent's Park,
London NW1 4LE
UK

On their website (http://www.rcplondon.ac.uk) the RCP provides detailed information for overseas doctors. In general physicians who graduated from a medical school within the European Union only have to register with the *General Medical Council* (GMC):

Registration Division
General Medical Council
Regent's Place, 350 Euston Road
London, NW1 3JN
UK

They do not have to repeat any part of their training or pass any exams. However, before limited registration to an overseas-qualified doctor is granted he or she must pass a language test by the *Professional and Linguistic Assessments Board* (PLAB). For further information see the website (http://www.gmc-uk.org).

Australia

Medical students and physicians planning to undergo post-graduate medical training in Australia should contact the *Australian Medical College* (AMC):

Australian Medical College
PO Box 4810,
Kingston Act 2604
Australia

On their website (http://www.amc.org.au) the AMC provides detailed information for overseas doctors, including registration information and all addresses of medical schools in Australia with internet addresses.

USA

Medical students and physicians planning to undergo post-graduate medical training in the USA should contact the *Educational Commission of Foreign Medical Graduates (ECFMG)*. Do not rely on any information other than the one for the year you wish to apply for as regulations are complex and change often.

Educational Commission for
Foreign Medical Graduates
3624 Market Street, 4th Floor
Philadelphia, PA 19104-2685
USA

In general every physician who wishes to apply for training or practice in clinical medicine has to pass all three US medical licensing exams (*USMLE℠ I, II* and *III*) and a clinical skills assessment *CSA™*. These exams are administered by US medical schools to their students and by the *ECFMG* to foreign medical graduates. In addition foreigners have to pass a language test. Post-graduate medical training spots are managed by the *National Resident Matching Program (NRMP)* (http://www.nrmp.org/).

On their website *ECFMG™* (http://www.ecfmg.org) offers an abundance of information to foreign medical graduates on examination, certification and licensure in the US. Please also refer to our bookmark list which has the most important links.

Always make sure your mail is sent at least AirMail or use a carrier that provides proof of delivery such as *United Parcel Service (UPS)* or *Federal Express (FedEx)*.

10.4 Addresses for Information and Application

For general information about work-and-travel-abroad please visit:
http://www.praktikum-usa.org/
http://www.travelworks.de/wat-usa/
http://www.travelworks.de/wat-kanada/
http://www.travelworks.de/australien/index.php
http://www.travelworks.de/neuseeland/index.php
http://www.weltweiser.de/

America

Below you will find the addresses of American institutions for educational and cultural exchange in Germany. These institutions will help to apply for US medical examinations. Also, we give the addresses of American and Canadian medical schools.

The special web-address of the US Embassy (www.us-botschaft.de/germanyger/austausch) provides a broad range of information for students who want to work or study in the United States.

For special questions not covered by the web-information there is a ho tline on Tuesday, Wednesday and Thursday (afternoons only, 2 p.m. - 5 p.m.): 030-318 008 99.

Educational and Cultural Exchange-Advising Centers

Carl-Schurz-Haus Freiburg, Kaiser-Joseph-Str. 266, 79098 **Freiburg**; Tel.: (0761) 3 16 47, Fax: (0761) 3 98 27

Amerikazentrum Hamburg im Curio Haus, Rothenbaumchaussee 15, 20148 **Hamburg**; Tel.: (040) 45 01 04 22, Fax: (040) 44 80 96 98

Studienberatung USA in der Fachhochschule Hannover, Hanomagstr. 8, Zi. 122 30449 **Hannover-Linden**; Tel.: (05 11) 92 96 21 54, Fax: (05 11) 92 96 21 00, E-mail: usa@fh-hannover.de

Deutsch-Amerikanisches Institut, Sofienstr. 12, 69115 **Heidelberg**; Tel.: (06 22 1) 60 73 15, Fax: (06 22 1) 60 73 73

Kennedy-Infozentrum, Ohlshausenstr. 10, 24118 **Kiel**; Tel.: (04 31) 5 86 99 93; Fax: (04 31) 5 86 99 95

Bayerisch-Amerikanisches Zentrum, Amerika Haus, Karolinenplatz 3 80333 **München**; Tel.: (089) 5 52 53 70, Fax: (089) 55 35 78

Deutsch-Amerikanisches Institut, Gleisbühlstr. 13, 90402 **Nürnberg**; Tel.: (09 11) 23 06 90, Fax: (09 11) 2 30 69 23

Deutsch-Amerikanisches Zentrum, Haidplatz 8, 93047 **Regensburg**; Tel.: (0941) 524-76, Fax: (0941) 521-98

Deutsch-Amerikanisches Zentrum, James-F. Byrnes-Institut e.V. Charlottenplatz 17, 70173 **Stuttgart**; Tel.: (0711) 22 81 80, Fax: (0711) 228 18 40

Deutsch-Amerikanisches Institut, Karlstr. 3, 72072 **Tübingen**; Tel.: (07071) 795260, Fax: (07071) 795 26 26

The **DFA** (Deutscher Famulantenaustausch) is an institution which organizes the worldwide exchange of medical students. The institution is sponsored by the Foreign Ministry and the DAAD (Deutscher Akademischer Austauschdienst). Its main office is in Bonn and can be contacted for further information:
Deutscher Famulantenaustausch DFA, Godesberger Allee 54, 53175 **Bonn**; Tel.: 02 28-37 53 40

US Medical Schools

Alabama

University of Alabama School of Medicine, 1530 3rd Avenue, South, FOT 1203, Birmingham, AL 35294-3412, USA

University of South Alabama College of Medicine, 307 University Boulevard, Mobile, AL 36688, USA

Arizona

University of Arizona College of Medicine, Arizona Health Sciences Center, P.O. Box 245017, Tucson, AZ 85724, USA

Arkansas

University of Arkansas for Medical Sciences College of Medicine, 4301 West Markham Slot 601, Little Rock, AR 77205, USA

California

University of California, Davis, School of Medicine, 4150 V Street, Suite 1100, Sacramento, CA 95817, USA

University of California, Irvine, College of Medicine, Medical Education Building 802, Irvine, CA 92697-4089, USA

University of California at San Diego, School of Medicine, 9600 Gilman Drive, La Jolla, CA 92093-0602, USA

Loma Linda University School of Medicine, 11175 Campus Street, Coleman Pavillion, Ste A1108, Loma Linda, CA 92350, USA

David Geffen School of Medicine at UCLA, 10833 Le Conte Avenue, 12-138 CHS, Los Angeles, CA 90095

Keck School of Medicine of the University of Southern California, 1975 Zonal Avenue, KAM 500, Los Angeles, CA 90033

University of California, San Francisco School of Medicine, 513 Parnassus Avenue, San Francisco, CA 94143-0410, USA

Stanford University School of Medicine, 300 Pasteur Drive, Alway Building M121, Stanford, CA 94305-5119, USA

Colorado

University of Colorado Health Sciences Center School of Medicine, 4200 East 9th Avenue, Denver, CO 80262, USA

Connecticut

University of Connecticut, School of Medicine, 263 Farmington Ave, Farmington, CT 060301905, USA

Yale University School of Medicine, 333 Cedar Street, P.O. Box 208055, New Haven, CT 06520-8055, USA

District of Columbia

Georgetown University School of Medicine, 3900 Reservoir Road, N.W., Washington, DC 20007, USA

George Washington University, School of Medicine and Health Sciences, 2300 Eye Street N.W., Washington, DC 20037, USA

Howard University College of Medicine, 520 West Street, N.W., Washington, DC 20059, USA

Florida

University of Florida College of Medicine, Box 100215 JHM Health Center, Gainesville, FL 32610, USA

University of Miami, Leonhard M. Miller School of Medicine, 1600 N.W. 10th Avenue, Miami, FL 33101, USA

University of South Florida College of Medicine, 12901 Bruce B. Downs Boulevard, Tampa, FL 33612-4799, USA

Florida State U. College of Medicine, 1115 West Call Street, Tallahassee, FL 32306-4300, USA

Georgia

Emory University School of Medicine, Woodruff Health Sciences Center, Administration Building, 1440 Clifton Road, N.E., Atlanta, GA 30322, USA

Medical College of Georgia School of Medicine, 1120 Fifteenth St., Augusta, GA 30912, USA

Morehouse School of Medicine, 720 Westview Dr. SW, Atlanta, GA 30310-1495, USA

Mercer University School of Medicine, 1550 College Street, Macon, GA 31207, USA

Hawaii

University of Hawaii John A. Burns School of Medicine, 5, 1960 East-West Road, Honolulu, HI 96822, USA

Illinois

Northwestern University The Feinberg School of Medicine, 303 East Chicago Avenue, Chicago, IL 60611-3008, USA

Rush Medical College of Rush University Medical Center, 600 South Paulina Street, Suite 202, Chicago, IL 60612, USA

University of Chicago Division of the Biological Sciences, The Pritzker School of Medicine, 5841 South Maryland Avenue, MC1000, Chicago, IL 60637-1470, USA

Chicago Medical School at Rosalind Franklin U-Med & Sci, 3333 Green Bay Road, North Chicago, IL 60064, USA

University of Illinois, College of Medicine, 1853 West Polk Street, Chicago, IL 60612, USA

Loyola University Chicago, Stritch School of Medicine, 2160 South First Avenue, Maywood, IL 60153, USA

Southern Illinois University, School of Medicine, 801 North Rutledge, P.O. Box 19620, Springfield, IL 62794-9620, USA

Indiana

Indiana University School of Medicine, 1120 South Drive, Indianapolis, IN 46202-5114, USA

Iowa

University of Iowa Roy J. and Lucille A. Carver College of Medicine, 200 Medicine Administration Building, Iowa City, IA 52242-1101, USA

Kansas

University of Kansas School of Medicine, 3901 Rainbow Bld, Kansas City, KS 66160, USA

Kentucky

University of Kentucky College of Medicine, MN-150, Chandler Medical Center, Lexington, KY 40536-0298, USA

University of Louisville School of Medicine, Abell Administration Center, 323 East Chestnut Street, Louisville, KY 40202-3866, USA

Louisiana

Louisiana State University School of Medicine, 533 Bolivar Street, New Orleans, LA 70112-2822, USA

Tulane University School of Medicine, 1430 Tulane Avenue, New Orleans, LA 70112, USA

Louisiana State University School of Medicine in Shreveport, P.O. Box 33932, Shreveport, LA 71130-3932, USA

Maryland

Johns Hopkins University School of Medicine, 733 North Broadway, Baltimore, MD 21205, USA

University of Maryland School of Medicine, 655 West Baltimore Street, Baltimore, MD 21201, USA

Uniformed Services U of the Health Sci, F Edward Hebert SOM, 4301 Jones Bridge Road, Bethesda, MD 20814-4799, USA

Massachusetts

Boston University School of Medicine, 715 Albany Street, Boston, MA 02118, USA

Harvard Medical School, 25 Shattuck Street, Boston, MA 02115, USA

Tufts University School of Medicine, 136 Harrison Avenue, Boston, MA 02111, USA

University of Massachusetts Medical School, 55 Lake Avenue North, Worcester, MA 01655, USA

Michigan

University of Michigan Medical School, 1301 Catherine Road, Medical Science Building I, Ann Arbor, MI 48109-0624, USA

Wayne State University School of Medicine, 540 East Canfield, Detroit, MI 48201, USA

Michigan State University, College of Human Medicine, A-110 East Fee Hall, East Lansing, MI 48824, USA

Minnesota

University of Minnesota Medical School, 420 Delaware Street S.E., Mayo Mail Code 293, Minneapolis, MN 55455, USA

Mayo Medical School, Mayo Clinic College of Medicine, 200 First Street S.W., Rochester, MN 55905, USA

Mississippi

University of Mississippi School of Medicine, University Medical Center, 2500 North State Street, Jackson, MS 39216, USA

Missouri

University of Missouri-Columbia School of Medicine, MA 204 Medical Sciences Building, One Hospital Drive, Columbia, MO 65212, USA

University of Missouri, Kansas City School of Medicine, 2411 Holmes Street, Kansas City, MO 64108-2792, USA

St. Louis University School of Medicine, 1402 South Grand Boulevard, St. Louis, MO 63104, USA

Washington University in St. Louis School of Medicine, 660 South Euclid Avenue, Box 8106 St. Louis, MO 63110, USA

Nebraska

Creighton University School of Medicine, 2500 California Plaza, Omaha, NE 68178, USA

University of Nebraska College of Medicine, 986545 Nebraska Medical Center, Omaha, NE 68198-6545, USA

Nevada

University of Nevada, School of Medicine, Pennington Medical Education Building/332, Reno, NV 89557-0071, USA

New Hampshire

Dartmouth Medical School, 1 Rope Ferry Road, Hanover, NH 03755-1404, USA

New Jersey

UMDNJ-New Jersey Medical School, 65 Bergen Street, RM 1441, Newark, NJ 07107-3001, USA

UMDNJ-Robert Wood Johnson Medical School, 675 Hoes Lane, Piscataway, NY 08854-5635, USA

New Mexico

University of New Mexico School of Medicine, Basic Medical Science Bldg; Room 107, Albuquerque, NM 87131, USA

New York

Albany Medical College, Mail Code 34, 47 New Scotland Avenue, Albany, NY 12208, USA

Albert Einstein College of Medicine of Yeshiva University, 1300 Morris Park Avenue, Bronx, NY 10461, USA

State University of New York, Downstate Medical Center College of Medicine, 450 Clarkson Avenue, Brooklyn, NY 11203, USA

University at Buffalo State, University of New York School of Medicine & Biomedical Sciences, 3435 Main Street, Buffalo, NY 14214, USA

Columbia University College of Physicians and Surgeons, 630 West 168th Street, New York, NY 10032, USA

Joan & Sanford I. Weill Medical College of Cornell University, 1300 York Avenue, New York, NY 10021, USA

Mount Sinai School of Medicine of New York University, One Gustave L. Levy Place, New York, NY, 10029-6574, USA

New York Medical College, Administration Building, Valhalla, NY 10595, USA

New York University School of Medicine, 550 First Avenue, New York, NY 10016, USA

University of Rochester School of Medicine and Dentistry, 601 Elmwood Avenue, Box 706, Rochester, NY 14642, USA

Stony Brook University Health Sciences Center School of Medicine, Level 4 – Room 169, Stony Brook, NY 11794-8430, USA

State University of New York, Upstate Medical University, 750 E Adams Street, Syracuse, NY 13210, USA

North Carolina

University of North Carolina at Chapel Hill School of Medicine, CB 7000 Room 125, MacNider Bldg, Chapel Hill, NC 27599, USA

Duke University School of Medicine, P.O. Box 2927, Durham, NC 27710, USA

Wake Forest University School of Medicine, Medical Center Boulevard, Winston-Salem, NC 27157, USA

The Brody School of Medicine at East Carolina University, 600 Moye Blvd., Greenville, NC 27834, USA

North Dakota

University of North Dakota, School of Medicine and Health Sciences, 501 North Columbia Road, Box 9037, Grand Forks, ND 58202-9037, USA

Ohio

University of Cincinnati College of Medicine, P.O. Box 670555 Cincinnati, OH 45267-0555, USA

Case Western Reserve University School of Medicine, 10900 Euclid Avenue, Cleveland, OH 44106-4915, USA

The Ohio State University College of Medicine and Public Health, 200 Meiling Hall, 370 West 9th Avenue, Columbus, OH 43210-1238, USA

Medical College of Ohio at Toledo, 300 Arlington Ave., Toledo, OH 43614, USA

Northeastern Ohio Universities College of Medicine, 4209 State Route 44, P.O. Box 95, Rootstown, OH 44272-0095, USA

Wright State University School Boonshoft of Medicine, P.O. Box 927, Dayton, OH 45401-0927, USA

Oklahoma

University of Oklahoma College of Medicine, P.O. Box 26901, 940 Stanton Young Blvd., Rm 357, Oklahoma City, OK 73190, USA

Oregon

Oregon Health & Science University School of Medicine, 3181 S. W. Sam Jackson Park Road, Portland, OR 97239, USA

Pennsylvania

Pennsylvania State University College of Medicine. P.O. Box 850, 500 University Drive, Hershey, PA 17033, USA

Jefferson Medical College of Thomas Jefferson University, 1025 Walnut Street, Philadelphia, PA 19107-5083, USA

Drexel University College of Medicine, 2900 Queen Lane, Phildadelphia, PA 19129, USA

Temple University School of Medicine, 3400 North Broad Street, Philadelphia, PA 19140, USA

University of Pennsylvania School of Medicine, 3620 Hamilton Walk, Suite 295, Philadelphia, PA 19104-6055, USA

University of Pittsburgh School of Medicine, 401 Scaife Hall, 3550 Terrace Street, Pittsburgh, PA 15261, USA

Rhode Island

Brown University Medical School, 97 Waterman Street, Providence, RI 02912, USA

South Carolina

College of Medicine, Medical University of South Carolina, 96 Jonathan Lucas Street, P.O. Box 250617, Charleston, SC 29425, USA

University of South Carolina School of Medicine, Columbia, SC 29208, USA

South Dakota

University of South Dakota School of Medicine, 1400 West 22nd Street, Sioux Falls, SD 57105-1570, USA

Tennessee

University of Tennessee Health Science Center College of Medicine, 62 South Dunlap, # 400, Memphis, TN 38163, USA

Meharry Medical College, D. B. Todd Jr. Boulevard, Nashville, TN 37208, USA

Vanderbilt University School of Medicine, 21st Avenue South at Garland Avenue, Nashville, TN 37232, USA

East Tennessee State University, James H. Quillen College of Medicine, P.O. Box 70694 Johnson City, TN 37614, USA

Texas

The University of Texas, Southwestern Medical Center at Dallas, Southwestern Medical School, 5323 Harry Hines Boulevard, Dallas, TX 75390, USA

The University of Texas, Medical Branch at Galveston, 301 University Boulevard, Galveston, TX 77555, USA

Baylor College of Medicine, One Baylor Plaza, Houston, TX 77030, USA

University of Texas Medical School at Houston, 6431 Fannin Street, Houston, TX 77030, USA

Texas Tech. University Health Sciences Center School of Medicine, 3601 4th Street, MS 6207, Lubbock, TX 79430, USA

University of Texas Medical School at San Antonio, 7703 Floyd Curl Drive, San Antonio, TX 78229-3900, USA

Texas A & M University System Health Science Center College of Medicine, 147 Joe H. Reynolds Medical Bldg. 1114 TAMU, College Station, TX 77843-1114, USA

Utah

University of Utah School of Medicine, 30 North 1900 East, Salt Lake City, UT 84132-2101, USA

Vermont

University of Vermont College of Medicine, E109 Given Building, 89 Beaumont Avenue, Burlington, VT 05405, USA

Virginia

University of Virginia School of Medicine, P.O. Box 800793 – McKim Hall, Charlottesville, VA 22908, USA

Eastern Virginia Medical School, 700 W. Olney Road, Norfolk, VA 23507, USA

Virginia Commonwealth University, School of Medicine, Richmond, VA 23298-0565, USA

Washington

University of Washington, School of Medicine, A-300 Box 356340; Hlth Sciences Center, Seattle, WA 98195-6340, USA

West Virginia

West Virginia University, School of Medicine, Robert C. Byrd Health Sciences Center, P.O. Box 9100, Morgantown, WV 26506, USA

Joan C. Edwards School of Medicine at Marshall University, 1600 Medical Center Drive, Huntington, WV 25701-3655, USA

Wisconsin

University of Wisconsin Medical School, 750 Highland Avenue, Madison, WI 53705-2221, USA

Medical College of Wisconsin, 8701 Watertown Plank Rd., Milwaukee, WI 53226-0509, USA

Puerto Rico

University of Puerto Rico School of Medicine, Medical Sciences Campus, P.O. Box 365067, San Juan, PR 00936-5067, USA

Ponce School of Medicine, P.O. Box 7004, Ponce, PR 00732, USA

Universidad Central del Caribe School of Medicine, Ramon Ruiz Arnau University Hospital, Laurel Ave, Bayamon, PR 00960-6032, USA

Canada

Canada welcomes the cultural enrichment that international students bring to its educational institutions. Students who are interested in studying in Canada must obtain a special permit before arrival.

For the most up-to-date information please contact the Canadian Embassy in Germany:

Embassy of Canada, Leipziger Platz 17, 10117 Berlin; Tel.: (030) 203120, Fax: (030) 20312-121
www.canada.de
http://www.dfait-maeci.gc.ca/canadaeuropa/germany/studyincanada-en.asp
http://www.cic.gc.ca/english/study/index.html

Canadian Medical Schools

Dalhousie University Faculty of Medicine, Halifax, NS, B3H 4H7, CANADA

Laval University Faculty of Medicine, Foy, Quebec City, QC, G1K 7P4, CANADA

McGill University Faculty of Medicine, 3655 Promenade Sir-William-Osler, Montreal, QC, H3G 1Y6, CANADA

McMaster University Faculty of Health Sciences, Health Science Centre, Room 1B7, 1200 Main Street, Hamilton, ON, L8N 3Z5, CANADA

Memorial University of Newfoundland Faculty of Medicine, Health Sciences Centre, Prince Philip Drive, St. John's, NL, A1B 3V6, CANADA

Northern Ontario School of Medicine, 935 Ramsey Lake Road, Sudbury, ON, P3E 2C6, CANADA

Queen's University Faculty of Health Sciences, Macklem House, 18 Barrie Street, Kingston, ON, K7L 3N6, CANADA

The University of Western Ontario Faculty of Medicine and Dentistry, Health Sciences Addition, Richmond Street North, London, ON, N6A 5C1, CANADA

Université de Montreal Faculty of Medicine, 2900 boulevard Edouard-Monpetit, P.O. Box 6128, Succ. Centre-Ville, Montreal, QC, H3C 3J7, CANADA

Université de Sherbrooke Faculty of Medicine, 3001 12th Avenue North, Sherbrooke, QC, J1H 5N4, CANADA

University of Alberta Faculty of Medicine and Dentistry, 2J2 Mackenzie Health Sciences Centre, Edmonton, AB, T6G 2R7, CANADA

University of British Columbia Faculty of Medicine, 317-2194 Health Sciences Mall, Vancouver, BC, V6T 1Z3, CANADA

University of Manitoba Faculty of Medicine, 260-727 McDermot Avenue, Winnipeg, MB, R3E 3P5, CANADA

University of Ottawa Faculty of Medicine, 451 Smyth Road, Ottawa, ON, K1H 8M5, CANADA

University of Saskatchewan College of Medicine, B103 Health Sciences Building, 107 Wiggins Road, Saskatoon, SK, S7N 5E5, CANADA

University of Toronto Faculty of Medicine, 1 King's College Circle, Toronto, ON, M5S 1A8, CANADA

University of Calgary Faculty of Medicine, 3330 Hospital Drive, N.W., Calgary, AB, T2N 4N1, CANADA

Australia

Australia welcomes cultural exchange and seeks skilled professionals. According to their most recent skilled occupation list this includes a variety of medical professionals.

For the most up-to-date information please contact the Australian Embassy in Germany:

Australian Embassy Berlin, Wallstrasse 76-79, 10179 Berlin; Tel.: (030) 880088-0, Fax (030) 88008 8-210, E-mail: info@australian-embassy.de
http://www.australian-embassy.de
http://www.immi.gov.au/allforms/pdf/1121i.pdf

New Zealand

In general, if you wish to visit, work or study in New Zealand you will need to obtain a visa before you depart, depending on your purpose for visiting New Zealand. German residents should first request the Self-Assessment Residence Guide from the Visa Section, NZ Embassy in Berlin. Please send a self-adressed A4 envelope, stamped with € 1,44 to:

New Zealand Embassy, Friedrichstr. 60, 10117 Berlin; Tel.: (030) 20621-0, Fax (030) 20621-114; E-mail: nzembassy.berlin@t-online.de

New Zealand Consulate-General, Domstrasse 19, 20095 Hamburg; Tel.: (040) 442 55 50, Fax: (040) 44 25 55 49, E-mail: hamburg@nzte.govt.nz

UK & Northern Ireland

Working and studying in the UK and Northern Ireland is a lot easier than in all the other countries listed above due to European Union legislation. Please contact the respective embassies and consulates listed below:

The British Embassy, Wilhelmstr. 70-71, 10117 Berlin; Tel.: (030) 20457-0, Fax (030) 20457-594
http://www.britische-botschaft.de/

The British Council is the United Kingdom's international organisation for educational opportunities and cultural relations. The British Council operates in several major German cities.

British Council, Hackescher Markt 1, 10178 Berlin; Tel.: (030) 311 0990, E-mail: info@britishcouncil.de

British Council Heinrich-Heine-Universität Düsseldorf, Universitätsstr. 1, Gebäude 16.11 Raum 04/24, 40225 Düsseldorf

British Council Universität Leipzig, Beethovenstr. 15, (EG, H4 0.10), 04107 Leipzig

British Council, Herzog-Heinrich-Str. 7, Erdgeschoss rechts, 80336 München
http://www.britishcouncil.de/

Ireland

Working and studying in Ireland is a lot easier than in all the other countries listed above due to European Union legislation. Please contact the respective embassies and consulates listed below:

Embassy of Ireland, Friedrichstr. 200, 10117 Berlin; Tel.: (030) 220720, Fax: (030) 22072299, E-mail: berlin@dfa.ie
http://www.botschaft-irland.de/

Honorary Consulate of Ireland, Feldbrunnenstr. 43, 20148 Hamburg; Tel.: (040) 44186113, Fax: (040) 44186551

Honorary Consulate of Ireland, Frankenforsterstr. 77, 51427 Bergisch-Gladbach; Tel.: (02204) 609860, Fax: (02204) 609861

Honorary Consulate of Ireland, Denningerstr. 15, 81679 München, Tel.: (089) 20805990, Fax: (089) 20805989

Honorary Consulate of Ireland, Gräfstr. 99, 60487 Frankfurt am Main; Tel.: (069) 97788383, Fax: (069) 97788380

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