Febrile states

As. MUDr. Dagmar Holá
Interní klinika 2. LF UK a FN Motol

The human is homiotermic organism, keeping constant temperature.
The temperature is a terminal balance state between production and expenditure of warmth.
Temperature is controled reflexly from termoregulatory center in the hypothalamus.

Deep temperature (homiotermic nucleus of organism) is 36 – 37°C. We measure it in mouth, rectum or vagina.

Cutaneus temperature (poikilotermic coat) is lower, we measure it in axilla by medical thermometer.

Temperature:

- subnormal
- subfebrile
- fever

Subnormal temperature

is lower than 36,2 °C and is related to

restrained metabolism.

It can by observed in olderly people,

in chronic cachexia – causing diseases (tumors),

in hypopituitarism, hypothyroidism,

after excessive bleeding, and in shock.

Subfebrile temperature

does not exceed 38°C,

it accompanies focal infections

(chronic tonsillitis or sinusitis, urinary infections, adnexitis).

Fever (pyretic, febrile state)

is marked by the body temperature raising above 38°C.

Condition with temperature ranging from 40 to 41°C is called hyperpyrexia.

Fever occurs in inflammations, infectious diseases, systemic diseases and in certain tumours (lymphomas, Grawitz's tumour).

Just for completeness, we add the overview of the temperature types:

Febris

1. continua
2. remittens
3. intermittens
4. recurrens
5. undulans
6. efemera
7. hectica

Febris continua

is marked by temperature fluctuation within 1°C range during a 24 hour period (abdominal typhus, paratyphoid, croupous pneumonia, erysipelas).

Febris remittens

daily fluctuations exceeds the 1°C range, the temperature does not return to the normal value (infectious diseases).

Febris intermittens (septic temperature)

temperature swiftly raises to 39°C,
swiftly falls below 37°C, in 24 hour period the difference of the maximum and minimum temperatures is bigger than 1°C
(sepsis, e.g. cholangitis, urosepsis, infectious endocarditis).

Febris recurrens

alternation of fever and apyretic periods of various duration.

Febris undulans

periods of raising and falling temperatures alternating with apyretic periods (abdominal lymphomas, brucellosis).

Febris efemera

one-day fever is caused by mild advancement of a respiratory infection, by blood transfusion, or by intravenous applications of certain drugs.

Febris hectica

long-lasting intermittend temperature,
common in tuberculosis.

Diagnostic methods

- anamnesis (case history)
- objective examination
- laboratory and technical methods

Anamnesis (case history)

- how long is fever
- course
- hitherto existing examinations
- therapy (? antibiotics, …)
- epidemiology continuity (f.e. diarrhoea in family, in employement, at school…)

Laboratory methods

a) FW increase → bacterial infections
lower → viral infections

b) Blood count:

leucocytosis – bacterial infections, tumours, non-infections case – acute myocardial infarct

leucopenia – viral infections, abdominal typhus, paratyphoid, tularemia

eosinophylia – alergic disease, parasitic disease

Laboratory methods

c) Haemoculture

d) Microbial cultivation (sputum, urine, exudates)

e) Immunological examinations (LE cells, ANF, dsDNA, ASLO, LATEX, CRP, cells and humoral immunity

f) Serological examinations

Technical methods

f.e.:

- rentgenology
- ultrasonography
- echocardiography (+ transesophageal echo)
- CT, MR
- endoscopy
- biopsy (of lymphonody, marrow…)

Respiratory infections

a) viral: Rinoviry, Coronaviry, Adenoviry, Myxoviry influenzae, parainfluenzae,
atypical pneumonie – Mycoplasma pneumonie

b) bacterial: often viral infections and than bacterial superinfections → bronchitis, pneumonie, Streptococcus Pyogenes, Haemophillus influenzae, Klebsiella pneumonie, Staphylococcus, Proteus, Pseudomonas, Streptococcus Pneumonie

Long time lasts fever

It is diagnostic problem in internal medicine.
Ethiology of fever is non-elucidate during some weeks or months.
Fever is usually constant with small fluctuate, but typical signs missing.

Etiology:

- Infectional
- Tumours
- Systemic disease

Subfebrile temperature

is also diagnostic problem, occur in young and middle age and we must it through examine.

We must eliminate focal infection (in dental, ORL, gynecology, urogenital, gastrointestinal parts), immunodeficiency.

Invasive methods

(f.e. peripheral or central catheter, pacemaker, urinary catheter, endoscopy…)

can by source of fever and infections.