**LECTURE SYLLABUS**

**(General medicine, dental medicine)**

**Fever**

**Poikilothermic** organisms

**Homoiothermic organisms**

Normal temperature if measured in the axilla: 35.8 – 37.0 °C

(rectal temperature about 0.5 °C higher)

Day oscillations: the lowest at 4:00 a.m., the highest late afternoon

Hormones increasing body temperature:

Progesterone, T-hormones, STH, testosterone, adrenalin, noradrenalin

The influence of activity, environment…

**Body temperature control**

**Center:** hypothalamus

**Thermoreceptors:**

hypothalamus, peripheral receptors (spinal cord, abdominal cavity, large veins)

→ vegetative system → reaction of tissues and organs

→ behavior



**Fever = febris**

Symptom of a disease

**Pyrogens:** bacterial endotoxins, viruses, aseptic tissue damage…

Activation of macrophages → production of cytokines (endogenous pyrogens) **IL-1β**, IL-6, TNF-α

→ production of prostaglandins (PGE2) → hypothalamus programmed to maintain higher temperature → processes increasing body temperature

Prostaglandin production – cyclooxygenase

Fever does not need occur in old people and in the case of hypothalamus damage.

**Fever stadia:**

1) incrementi – cold feeling, temperature increase, shivering (thermogenesis)

2) akme - temperature corresponds with the hypothalamus setting

 - cold feeling and shivering disappear

3) decrementi - after provoking factor disappears

 → normalization of the hypothalamus setting

 → processes leading to temperature decrease

 - quickly = crisis

 - slowly = lysis

**Fever types**

* Febris continua = changes of the temperature within one day < 1 °C
* Febris remittens = temperature changes within one day > 1 °C
* Febris intermitens = period of fewer and of normal temperature

**Fever importance**

* ↑ leukocyte generation
* Acceleration of leukocyte migration
* ↑ antibody production
* Inhibition of microbe growth

**Effects on the organism**

* Increase of basal metabolism, catabolic processes
* Cardiovascular system - ↑ heart rate (1 °C ~ 10 beats/min)
* Respiration - tachypnoea
* CNS - inhibition (somnolence, apathy) or excitation (insomnia, unrest, hallucination), headache
* GIT - ↓ secretion

 - ↑ water resorption

* Kidneys - decreased urine production

→ cardiovascular system overload

→ energy source reduction

→ dehydration

→ protein denaturation when > 42 °C

→ febrile seizures in newborns

**Febrile seizures** = convulsiones febriles

The most common cause of cramps in children (2-5 % of children < 5 years)

Tonic-clonic cramps, potentially unconsciousness

* Non-complicated febrile seizures

 - disappear within 3 min (max. 15 min)

 - good prognosis

* Complicated febrile seizures - > 15 min, recidive within 24 h
* Febrile epileptic state - > 30 min

Unclear etiopathogenesis

Temperature > 38 °C