

Infective endocarditis (IE)

Importance:

Mortality is 100% without treatment

The diagnosis are often late when irreversible complications are already present

Mortality is still 30%. Surgery is indicated in 50% of the cases.

Incidence:

In Hungary estimated 35-50 cases/ million inhab.

Pathomechanism:

Microinjuries caused by turbulent flow + bacteremia = vegetation, inflammation

Predisposing factor:

Patient: Artificial valve (30-50% of all IEs), vitium, immunosuppression, iv drug abuse (rare in Hungary). Nowadays a lots of pacemaker, ICD, CRT IE.

Environment: Most important!: Hospitalisation in the last 3-6 month (IE 60%!; canule, invasive procedures, etc ...). (Tooth extraction is rare)

Pathogens are linked to the predisposing factors.

1 Staphylococcus (coag neg is frequent), MRSA is increased

2 Enterococcus

3 Streptococcus

<10%: HACEK, mycotic, G neg, Bartonella,

Kb 10%: Blood culture neg (inappropriate sampling, during AB therapy, mycotic)

Signs, symptoms:

General: fever, FUO, weight loss, weakness, muscle ache, anaemia. **Embolic:** Stroke, spleen emb, peripheral (lower limb) emb, AMI (coronary emb), kidney emb. **Local:** Regurgitation, shunt, secondary heart failure. **Immun phenomena:** Skin lesions, arthritic pain, arthritis

Physical signs:

Osler nodule (immun), Janeway lesion (embolic), Roth patch (embolic), murmur (on native valve always regurg. murmur, on artef.valve can also be stenosis), anaemia, splenomegaly, finger clubbing

Diagnosis:

Modified Dukes criteria (major and minor ones).

Simplified: 2 major:

1, vegetation on US, shunt, abscess, aneurysm, artef. valve instability

2, Typical pathogen in blood culture (Staph., Str., Enterococcus, HACEK)

Minor:

Fever, predisposing factor (ie. artef.valve), non-typical pathogen in blood culture (ie. E. coli), emboli, immun reactions (nephritis, Osler)

Established dg: 2 major or 1 major + 3 minor.

Blood culture: several samples, OK to take without fever, if possible stop AB

Echo: TTE, but in case of artef.valve or uncertainty or neg TTE and high clinical suspicion or neg TTE and persisting clinical susp or even with positive TTE (most of the cases!) **TEE is needed.** (In case of artef.valve or PM coron CT or PET CT can be an alternative imaging)

Treatment:

AB always iv. Long term treatment (diffusion into the vegetation). 2-8 weeks depending ont he pathogen

Two extremes: Tricusp valve sensitive Streptococcus vs mitral mechanical valve MRSA

Start empiric treatment focusing on the most probable pathogen (early, late, iv drug)

Pacemaker IE: removal

Surgery indications:

Embolia risk or embolisation: 15 mm vegetation on the left side, recurrent embolisation with tricuspid, large vegetation

Uncontrolled or progressing infection: shunt, abscess, valve destruction and significant regurg, MRSA on artef.valve, persisting fever)

Heart failure (in consequence of valve destruction)

Surgery is generally urgent (within 24-48 h) in order to prevent complications or death in a high-risk patient.

IE prophylaxis

Can have side effects (allergy, C. diff), prevents few IE: 1/ some million

Requisite for two: previous IE, artef.valve.

Before procedure with bacteremia (ie. tooth extraction). One h before 2 g amoxicillin (allergy: clindamycin)

TAKE HOME MESSAGE:

Think of it! Physical examination (immun and embolic signs, murmur). Early TTE, TEE.

Blood culture, a lot, repeatedly! Infectologist involvement is useful. Struggle with surgeons.