Gram negatieve Ventriculitis

Eva Hendriksen
ANIOS IC
Casus

- Dame met SAB
- EVD
- Ernstige ventriculitis
- Gram negatief!!
Ventriculitis

- EVD/Ventriculostomy-associated cerebrospinal fluid infection (VAI)
- Incidence varies from <5% to 20%
- A significant cause of morbidity and mortality

Symptoms
- Triad
  - Altered mental status
  - Fever
  - Headache

Ramanan M et al. A meta-analysis of ventriculostomy-associated cerebrospinal fluid infections. BMC Infectious Diseases 2015:3
Risicofactoren

- Advanced age
- Duration of EVD placement (>11)
- Number of manipulations
- Presence of intraventricular haemorrhage

Humphreys H et al. Surveillance and management of ventriculitis following neurosurgery. *J Hosp Infect.* 2015 Apr;89(4):281-6
The pooled VAI rate was 11.4/1000 catheter-days (95% CI 9.3 to 13.5)

1 VAI per 88 catheter-days
Microbiologie

- Extraluminale migratie
  - Huidkolonisatie ++
    - Meer frequent en sneller
    - Meestal huid flora
    - Soms pathogenen
  - Gemanipuleerde drain(dopjes)
!! CSF lekkage en kolonisatie

Mounier et al. From the Skin to the Brain: Pathophysiology of Colonization and Infection of External Ventricular Drain, a Prospective Observational Study. PloS One.2015 Nov 10;10(11).
Microbiologie(2)

Microbiologie(3)

• 25 studies
• 523 positive cultures
  ▫ 64% Gram positive bacteria
    • coagulase negative staphylococci (39%, including *S. epidermidis*) and *S. aureus*(15%)
  ▫ 1% were caused by *Candida* spp
  ▫ 35% Gram negative bacteria
    • *Acinetobacter* spp.(9.3%) and *Pseudomonas* spp.(6%) followed by enteric organisms
Microbiologie (4)

- staphylococci, particularly *Staphylococcus epidermidis* and *S. aureus*, account for nearly 80%
- 19% Gram negative
- Occasionally fungi

Humphreys H et al. Surveillance and management of ventriculitis following neurosurgery. *J Hosp Infect* 2015 Apr;89(4):281-6
Conclusie

- Meestal Gram positief 65-80%
- 20-33% gevallen Gram negatief
  - Meer fulmonante uiting?

▫
Discussie

- Gram-negative bacteria 71.7%
- Gram-positive bacteria 25.7%
- fungi 2.6%