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The epidemiology and outcome of young adults with community-acquired bacteremia

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Introduction
- Limited data exist on the epidemiology of CAB among young adults.
- CABs among younger adults are likely caused by risk behavior such as intravenous drug use, or by underlying comorbidity as in the elderly.
- Some CABs presumably occur among previously healthy individuals and the prognosis of these young patients is of great interest to patients and clinicians.

Hypothesis
- A likely underlying cause or predisposing factor of bacteremia can be identified for most young patients with CAB.
- The absence hereof is associated with a favorable outcome.

Objective
To describe the epidemiology and outcome of young adults with community-acquired bacteremia (CAB).

Methods
- We identified all first-time CABs among individuals aged 15 to 40 in Funen County, Denmark, during 2000–2008.
- Two infectious disease specialists independently reviewed patients’ electronic medical records and recorded data on patient characteristics, co-morbidities, risk factors for CAB and focus of infection.
- A likely cause of CAB was based on a plausible relationship between the abovementioned factors and the isolated microorganism.
- We used the Danish Civil Registration System to retrieve data on death until 31 December 2012.
- Mortality was calculated using the Kaplan-Meier method and Cox regression analyses.

Microorganism (No.) Likely causes of community-acquired bacteremia (No.)
- Staphylococcus aureus (26) Intravenous drug use (11), alcohol abuse (4), type 2 diabetes mellitus (3), congenital heart defect (2)
- Escherichia coli (22) Nephrolithiasis (7), pregnancy (3), alcohol abuse (3), ureteropelvic junction stenosis (2)
- Streptococcus pneumoniae (14) Asthma (4), splenectomized (3), alcohol abuse (2), dural defects of the frontal and ethmoid sinuses (1)
- Polymicrobial (9) Intravenous drug use (2), alcohol abuse (2), third degree burns (1), mononucleosis (1)
- Non-hemolytic streptococci (7) Congenital heart defect (3), intravenous drug use (2), teeth cleaning at dentist (1), tooth extraction (1)

Results
- We identified a likely cause of CAB for 111/196 (57%) of the included patients: most often for patients with intravenous drug use (100%), alcohol abuse (93%), and when the focus of infection was the skin (93%), the heart (89%), or the bone and joint (75%).
- A likely cause was often apparent for Staphylococcus aureus (100%), non-hemolytic streptococci (88%) and polymicrobial bacteremia (75%).
- The four most likely causes of CAB for the five most frequent microorganisms are summarized in the Table.
- During 12 years of follow-up, 30/111 (27%) of the patients with a likely cause of CAB died opposed to only 4/85 (5%) of the patients without a likely cause (Figure).
- The unadjusted mortality rate ratio was 6.4 (95% CI, 2.3–18.2), and decreased to 3.36 (95% CI, 1.04–10.9) after adjusting for potential confounders.

Conclusion
- A likely cause of community-acquired bacteremia among young adults could be identified for little more than half the patients, and the absence hereof was associated with a very favorable outcome.

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