Introduction

Diagnosing sepsis in early stage is challenging due to the lack of a gold standard. Although not validated for this purpose, Systemic Inflammatory Response Syndrome (SIRS) and quick Sequential Organ Failure Assessment (qSOFA) are frequently used as diagnostic tools for sepsis in clinical practice, and diagnostic studies. Beyond that, identification and treatment of sepsis is often initiated by physicians and emergency medical services personnel.

Aim: to compare the diagnostic performance of SIRS, qSOFA, and CBJ of the treating physician in the emergency department (ED) for sepsis in patients with suspected infection using an expert panel as reference standard.

Methods

Retrospective study using data from the SePsis in the ACutely ill patients in the Emergency department (SPACE) cohort: 
• 18 experts: 12 specialists and 6 physicians of internal medicine
• CBJ were obtained from the SePsis in the ACuely ill patients in the Emergency department (SPACE) cohort:
• Complete case description of ED presentation and follow-up admission
• Description includes routine clinical data, diagnostics and all follow-up data
• One case is judged by 2 experts

Results

• From 20 January until 25 March 2018, 349 patients were included (figure 2).
• Table 1 shows the total number of patients with ≥2 SIRS criteria, qSOFA ≥2 and a positive CBJ. Furthermore diagnostic values of these scores are illustrated.
• To illustrate the certainty of the expert panel the percentages of the mean likelihood scale for all patients is illustrated in figure 3.
• The top 10 main reasons for the final diagnosis of sepsis and no sepsis given by the expert panel are illustrated in figure 4.

Discussion

• Based on our findings, SIRS ≥2 criteria were highly sensitive but not specific, whereas qSOFA ≥2 and positive CBJ were highly specific but not sensitive for detection of sepsis.
• In order to initiate early treatment in sepsis patients, a sensitive screening tool is more needed than a specific one.
• Using an expert panel is in our opinion a good alternative method to provide a reference standard in sepsis research since qSOFA and SIRS are not validated for this purpose.

Conclusion

Neither SIRS nor qSOFA nor CBJ serves as ideal diagnostic tool for sepsis in patients with suspected infection admitted to the ED.

Table 1. Frequencies of positive sepsis score (top). The diagnostic accuracy of SIRS, qSOFA, and CBJ (bottom). Incidence sepsis: 15,8%; N=349.

![Figure 3. Percentages of the mean likelihood scale of all cases divided into a sepsis group and no sepsis group. 0: definitely no sepsis. 10: definitely sepsis. N = 306.](image)

![Figure 4. Top 10 main reasons for the final diagnosis of sepsis and no sepsis by the expert panel reference given in frequencies. Number of reviews sepsis group: 180; Number of main reasons sepsis group: 392; Number of reviews no sepsis group: 687; number of main reasons no sepsis group: 1054.](image)