Resumé af afhandling

Fluid administration in adult emergency department patients with sepsis

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Væskebehandling, indlæggelsesforløb, sepsis, væskeprotokol

Background

Fluid administration is regarded as an important part of sepsis treatment. Recommendations do not guide fluid administration to patients with sepsis without shock or hypotension. Our primary aims were to describe current fluid administration, to describe the clinical choices around fluid administration, and investigate if a restrictive fluid protocol was feasible in ED patients with sepsis.

Methods

We conducted a prospective, multicenter study investigating oral and intravenous fluid volumes in patients admitted with suspected infection of any severity. We assessed fluid volumes as well as associations between clinical variables and fluid volumes.

We developed and conducted a survey study, investigating triggers, facilitators, and barriers to fluid administration and self-reported treatment in four clinical scenarios. Lastly, we conducted the multicenter, randomized, feasibility trial, Restrictive Fluid Administration vs. Standard of Care in Emergency Department Sepsis Patients (REFACED Sepsis trial) in which sepsis patients without shock were randomized to either 24-hour restrictive fluid administration or standard care. The primary outcome was the mean difference between intravenous, crystalloid fluid volumes.

Results

We included 734 patients with 24-hour fluids available. Fluid volumes varied between 200-15870 ml. Patients with simple infection received 3656 ml (mean, standard deviation (SD): 1675) and sepsis patients 3762 ml (SD: 1839), combined oral and intravenous fluids, with no statistically significant differences between the total volumes. Sepsis patients received significantly fewer oral fluids and more intravenous fluids compared to simple infections. Clinical variables explained 37% of the fluid variation.

Fluid administration was regarded as challenging, and most decisions were based on clinical judgment. Blood pressure was the most used trigger for fluid administration. We randomized 124 patients in 6 weeks; 32% of eligible patients. At 24-hours, the mean intravenous crystalloid fluid volumes were 562 ml (SD: 1076) vs. 1370 ml (SD: 1438) in the restrictive vs. standard care group (mean difference -801 ml (95% CI: -1257 to -345), ≈ -58%, p = 0.001). There were no differences in adverse events or other outcomes.

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Conclusion

Current fluid administration varies substantially. Fluid administration is challenging and often guided by blood pressure. We achieved a significant separation in volumes with no signs of harm in 24-hour fluid restriction vs standard care in ED patients with sepsis. A future large-scale trial appears feasible.

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