The effect of a hemo-adsorption column (Cytosorb™) on noradrenalin dosage and mortality in critically ill septic shock patients.

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CONCLUSION

There is a significant reduction in noradrenalin dosage in critically ill septic shock patients treated with a hemo-adsorption column for cytokine removal.
There is a small reduction in observed mortality rate compared with predicted mortality rate, but non-significant because of the small size of this study population.
There seems to be a better outcome for early starters.

BACKGROUND

In current acute medicine sepsis is no longer defined as inflammation alone but rather a dysregulated host response to infection causing extreme high serum levels of cytokines leading to life-threatening organ dysfunction.

In the ICU critically ill septic shock patients are recently treated by using a hemo-adsorption column (Cytosorb™) for blood purification in order to reduce high serum cytokines levels.

Until now no large scaled prospective randomized trials concerning the use of adsorbtion-filters for cytokine reduction have been published.

METHODS

a single centre retrospective study

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septic shock patients with multi-organ dysfunction syndrome (N=21)

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a hemo-adsorption column (Cytosorb™) was added in series along with continuous renal replacement therapy (CRRT) for 24 hours

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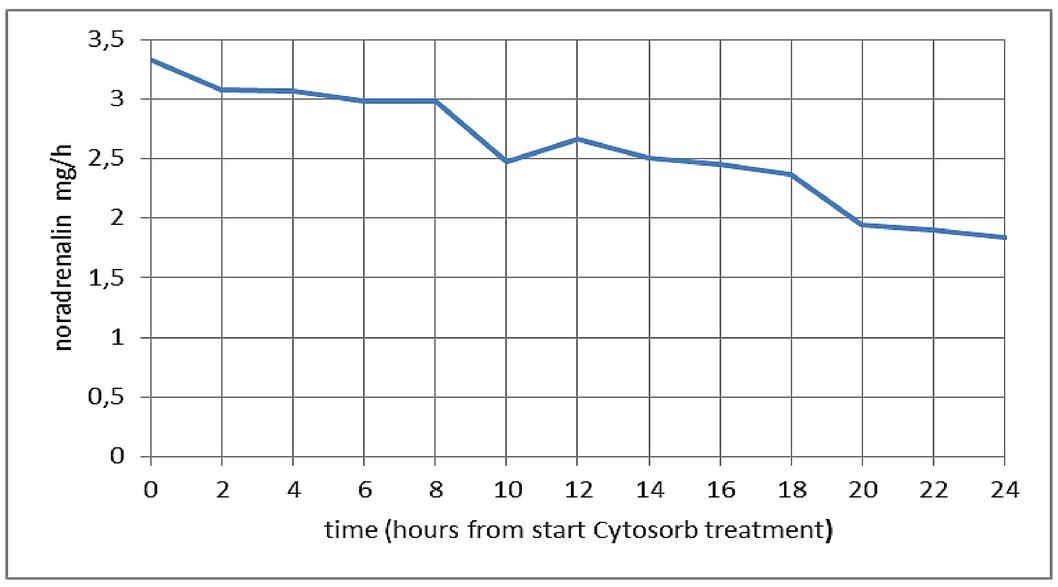
our goal was to monitor the effect of the Cytosorb™ Adsorber on high doses of noradrenalin and mortality rate

RESULTS 1



There is a significant reduction in mean noradrenalin dosage from 3,33 mg/h (SD:1,87) at start to 1,84 mg/h (SD:1,06) after 24 hours of treatment with Cytosorb Adsorber™ P < 0,001 (N=16).

RESULTS 2

The mean apache II score of 32,5 (SD: 6,09) correlates with a predicted mortality rate of 87% (SD: 8,9) in comparison with a 28 day observed mortality rate of 76 % in our study population (N= 21)

In 62% of the study population Cytosorb™ therapy was started within 24 hours after admission in the ICU.
In this group 28 days survival rate was 31%.

In 38% of the study population Cytosorb™ therapy was started after 24 hours.
In this group 28 days survival rate was 12%.

DISCUSSION

Limitations in this study were the size and diversity in patient population, the suppletion of fluids and other vasopressors and interventions such as surgery. At the same time reduction in noradrenalin dosage along with management of circuits depends on knowledge, experience, decisiveness and perception of trained nurses and assistant physicians.

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