Introduction
Clinical studies have shown that the reduction of toxic levels of cytokines from blood with the use of a new sorbent, CytoSorb (CytoSorbents), could be useful to regain control during a complicated inflammatory condition in patients with severe sepsis/septic shock. In this case series, we evaluated patients admitted to our ICU from Jan. to Nov. 2015 treated with CytoSorb. The aim was to analyse its influence in clinical outcomes, as mean arterial pressure (MAP), vasopressors need and inflammatory markers, like procalcitonin (PCT).

Methods
We included 8 patients (4 f, 4 m): 2 severe sepsis and 6 septic shock. Patients’ data are reported in Table 1 as median (lower and upper quartiles). All patients were non-responding to the Standard of Care for the treatment of severe sepsis/septic shock. Therefore, CytoSorb was used as adjunctive therapy in combination with continuous renal replace therapy (CRRT), in order to control the cytokines storm and improve the hemodynamic stability. It was installed in series connection after the dialyser in the CRRT circuit for 24h (median duration of the treatment: 48h). Clinical parameters were collected before and after every treatment with CytoSorb.

Results
6 treated patients survived and during the treatment there was an overall improvement of MAP from 83 (73,5-89) to 88 (82-89,5) mmHg, with a rapid reduction in vasopressors dosages: noradrenaline decreased from 0,33 (0,150,46) to 0,13 (0,10-0,18) while dopamine from 7,5 (6-8) to 3 (1,5-5) Y/kg/min. Moreover, there was a markedly decrease of PCT levels from 14,53 (7,64-67,5) to 3,90 (1,62-23,05) ng/dl and an improvement in renal function, thanks to the combination of CytoSorb with CRRT. In non-survivors, MAP was hard to stabilize and decreased from 89,5 (77,75-101,25) to 69,5 (63,25-73,75) mmHg and there was an aggravation in overall patients’ conditions.

Conclusions
To our experience, a timely use of CytoSorb in combination with the standard therapy could have benefits in improving patients hemodynamic and helping a more rapid stabilization. However, more in vivo studies are needed to confirm these results.