

Reference list

- Duszyńska W, Śmiechowicz J, Adamik B, Zieliński S, Kübler A.
Advanced therapeutic methods for the treatment of meningococcal septic shock. Case report. *Anaesthesiol Intensive Ther*. 2012 Oct-Dec;44(4):212-6.
<https://pubmed.ncbi.nlm.nih.gov/23348489/>
Topics: septic shock
Summary: Hemoperfusion with Alteco LPS adsorber was performed to eliminate endotoxins from the bloodstream. Rapid pathogen identification, adequate antimicrobial therapy and endotoxin elimination from the bloodstream improved the hemodynamic and respiratory parameters of the patient. The application of routine plus non-standard methods of treatment of septic shock prevented the progression of the biological cascade in sepsis and improved the patient's clinical condition.
- Kulabukhov V.
Use of an endotoxin adsorber in the treatment of severe abdominal sepsis. *Acta Anaesthesiol Scand* 2008; 52:1024-1025.
<https://pubmed.ncbi.nlm.nih.gov/18494849/>
Topic: abdominal sepsis
Summary: After LPS adsorption, the level of LPS in the patient's bloodstream was almost eliminated: from 1.44 EU/ml before treatment to 0.03 EU/ml post treatment). The procalcitonin level and inflammatory cytokines were concurrently reduced. Also, an obvious improvement in the status of the patient's hemodynamics was seen. Forty-five days after treatment the patient is still alive. LPS adsorption may represent a significant improvement in the treatment of gram-negative sepsis and further studies are planned.
- Kulabukhov V., Chizhov A
The use of a novel technique for adsorption of lipopolysaccharide in patients with severe gram negative sepsis. Poster. International Sepsis Symposium, Granada, Spain 2008
Topic: gram-negative sepsis
- Kulabukhov V, A Chizhov, A Kleuzovich, A Kudryavtsev
Clinical effects of adsorption of lipopolysaccharide in the treatment of Gram-negative severe sepsis. *Crit Care*. 2010; 14 (Suppl 2): P28. Published online 2010 Sep 1. doi: [10.1186/cc9131](https://doi.org/10.1186/cc9131)
PMCID: PMC3254946
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3254946/>
Topic: gram-negative sepsis
- Adina N. Hadade, Caius M. Breazu, Iulian V. Ilie, Calin I. Mitre.
The Use of Endotoxin Adsorption in Extracorporeal Blood Purification Techniques. A Case Report *The Journal of Critical Care Medicine*, 2017;3(2):73-78
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5769914/>
Topic: septic shock, purulent peritonitis
Summary: A case of a 64-year-old man with severe gram-negative sepsis was presented. To reduce the amplitude of the general effects of endotoxins the Alteco LPS Adsorber was used. The efficacy markers were the overall hemodynamic profile, translated into decreased vasopressor requirements, the normalization of the cardiac index, and the systemic vascular resistance index combined with the lactate level and the reduction in procalcitonin levels. A decrease in the sequential organ failure assessment (SOFA) score at twenty-four hours was demonstrated. The clinical course following treatment was favorable for the days immediately following the treatment. This was attributed to the removal of endotoxin from the systemic circulation.

- T.I. Ala-Kokko, J. Laurila, J. Koskenkari.
A New Endotoxin Adsorber in Septic Shock: Observational Case Series. Blood Purif. 2011 Sept 2:32:303-309
<https://pubmed.ncbi.nlm.nih.gov/21893976/>
Topic: septic shock
Summary: Two-hour hemoperfusion with Alteco LPS adsorber was initiated in patients with septic shock and endotoxemia. Controls were matched for age, focus and severity of illness. Alteco LPS adsorber treatment was associated with a decrease in NA dose, decrease in SOFA scores and LPS concentrations.
- Adamik B., Zielinski S., Smiechowicz J, Kübler A.
Endotoxin Elimination in Patients with Septic Shock: An Observational Study. Arch Immunol Ther Exp 2015 Jun 21.
<https://pubmed.ncbi.nlm.nih.gov/26093653/>
Topic: septic shock
Summary: Endotoxin elimination was performed using hemoperfusion with the Alteco LPS Adsorber. Effective endotoxin elimination resulted in a significant improvement in hemodynamic parameters and of organ function. The application of the EA assay was useful for the bedside monitoring of endotoxemia in critically ill ICU patients.
- Lipcsey M, Tenhunen J, Pischke SE, Kuitunen A, Flaatten H, De Geer L, Sjölin J, Frithiof R, Chew MS, Bendel S, Kawati R, Larsson A, Mollnes TE, Tønnessen TI, Rubertsson S.
Endotoxin Removal in Septic Shock with the Alteco® LPS Adsorber was Safe But Showed No Benefit Compared to Placebo in the Double-Blind Randomized Controlled Trial - the Asset Study. Shock. 2019 Dec 26. doi: 10.1097
<https://pubmed.ncbi.nlm.nih.gov/31880758/>
Topic: septic shock
Summary: The termination was made due to difficulties in recruiting subjects, despite modifying the inclusion criteria. The intended number of subjects was 32-44, but the included number of subjects according to protocol was only 8. Because of the low number of subjects recruited according to protocol, any observed differences between the Alteco LPS Adsorber and placebo device groups may be due to random variation. It is therefore not possible to draw any conclusions with respect to performance based on the data collected in this clinical investigation. Adverse event data, safety laboratory, vital sign and Richmond Agitation-Sedation Scale data provide no evidence of any risks associated with Alteco LPS Adsorber treatment.
- E Gromova, M Kisselevskiy, N Anisimova, and L Kuznetsova
Clinical experience with lipopolysaccharide adsorber in cancer patients with severe sepsis and septic shock. Crit Care. 2010; 14(Suppl 1): P409. Published online 2010 Mar 1. doi: 10.1186/cc8641
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2934292/>
Topic: cancer, severe sepsis, septic shock
- M Yaroustovsky, B Gelfand, Z Popok, M Abramyan, E Nazarova, I Yakovleva, D Popov, M Plyushch
Lipopolysaccharide adsorption in combined therapy of patients with severe sepsis. Critical Care200812(Suppl 2):P455
<https://doi.org/10.1186/cc6676>
Topic: severe sepsis - nine cardiac surgery with cardiopulmonary bypass and three patients with severe pancreatitis

- SM Sh Khubutiia, M M Abakumov, I V Aleksandrova, S I Reï, M E Il'inskiï, V B Khvatov, N V Borovkova, A S Pertsev, V lu Zinkin
Selective adsorption of endotoxin in the complex treatment of patients with severe sepsis.
Anesteziol Reanimatol Sep-Oct 2010;(5):65-9. PMID: 21395145
<https://pubmed.ncbi.nlm.nih.gov/21395145/>
Topic: postoperative gram-negative sepsis
- S. Blomquist, V. Gustafsson, T. Manolopoulos and L. Pierre.
Clinical experience with a novel endotoxin adsorption device in patients undergoing cardiac surgery. *Perfusion* 2009 Jan;24(1):13-7.
<https://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.1033.3778&rep=rep1&type=pdf>
Topic: cardiac surgery
Summary: No adverse events were encountered when the Alteco LPS Adsorber was used in the circuit. Blood flow through the device was easily monitored and kept at the desired level. The Alteco LPS Adsorber can be used safely and is easy to handle in the bypass circuit. No complications related to the use of the device were noted.
- De Silva RJ, Armstrong J, Bottrill F, Goldsmith K, Colah S, Vuylsteke A.
A lipopolysaccharide adsorber in adult cardiopulmonary bypass: a single center randomized controlled pilot trial. *Interact Cardiovasc Thorac Surg.* 2010 Jul;11(1):86-92
<https://academic.oup.com/icvts/article/11/1/86/725054>
Topic: cardiopulmonary bypass
Summary: This study demonstrated the device to be safe in a complex cardiac surgery setting.
- Yaroustovsky M, Abramyan M, Popok Z, Nazarova E, Stupchenko O, Popov D, Plushch M, Samsonova N.
Preliminary Report regarding the Use of Selective Sorbents in Complex Cardiac Surgery Patients with Extensive Sepsis and Prolonged Intensive Care Stay. *Blood Purif.* 2009 Aug 14;28(3):227-233.
<https://pubmed.ncbi.nlm.nih.gov/19684388/>
Topic: complex cardiac surgery
Summary: Thirteen patients with gram-negative sepsis underwent the procedure of selective lipopolysaccharide adsorption using Alteco LPS Adsorber (group I) or Toraymyxin columns (group II). This therapy positively influenced the course of sepsis. After the second procedure, levels of serum endotoxin and procalcitonin markedly decreased in both groups. We also discovered a positive effect on leukocytosis levels and a trend towards normalization of body temperature, improvement of hemodynamic indices and increase of the lung's oxygenating function. Blood cultures taken several days after the procedure were negative.
- N.Tenga (1), R.S. Giordano (1), F. Iodice (1), L. Belloni(1), V. Panetta (2), F. Allegretto(3) G.Pinto (3), L.Piazza (3)
Type A Aortic Dissection treated in Emergency conditions with Alteco® LPS Adsorber during extracorporeal circulation. *MedTASS-CARACT 2017, 6th - 8th April 2017, PALERMO*
Topic: type A Aortic Dissection