

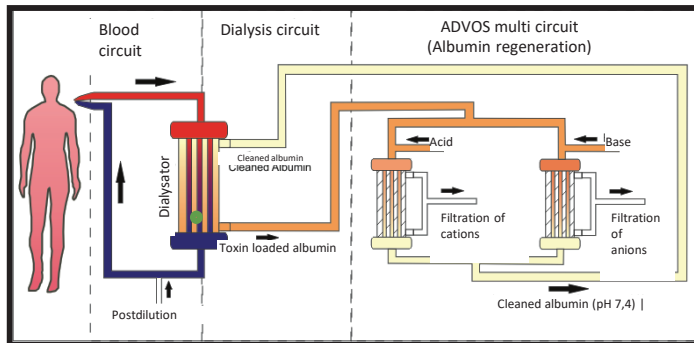
ADVOS reduces liver and kidney disease markers and corrects acidosis: the Hamburg experience

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Introduction:

ADVOS (Hepa Wash GmbH, Munich, Germany) is a recently developed CE-certified albumin-based hemodialysis procedure for the treatment of critically ill patients. In addition to the removal of water-soluble and albumin-bound substances, acid-base imbalances can be corrected thanks to an automatically regulated dialysate pH ranging 7.2 to 9.5.



Methods:

Patients treated with the ADVOS procedure between in the Department of Intensive Care Medicine of the University Medical Center Hamburg-Eppendorf were retrospectively analyzed. Overall 102 treatments in 34 critically ill patients (Mean SOFA Score 16) were evaluated. Additionally, subgroup analysis for hyperbilirubinemia, respiratory acidosis and non-respiratory acidosis were conducted.

Results:

Severe hyperbilirubinemia (>6 mg/dl) was present in 60 treatments, while 26 and 14 treatments were performed to treat respiratory (PaCO₂>45 mmHg) and non-respiratory (PaCO₂<45 mmHg) acidosis (pH<7.35), respectively. Mean treatment duration was 16 h. As shown in the table, ADVOS procedure was able to correct acidosis and reduce bilirubin, BUN and creatinine levels significantly. The subgroup analysis shows an average bilirubin reduction of 21% per ADVOS multi treatment in the hyperbilirubinemia group (15,24 vs 11,77, p<0.05). Moreover, pH (7.23 vs. 7.35, p<0.001) and PaCO₂ (65.88 vs. 53.61 mmHg, p<0.001) were corrected in the respiratory acidosis group, while in the non-respiratory acidosis group, an improvement in pH (7.19 vs. 7.37, p<0.001), HCO₃ (15.21 vs. 20.48, p=0.002) and base excess (-12.69 vs. -5.10, p=0.004) could be observed.

There were no treatment-related adverse events during therapy.

Parameter	Pre-ADVOS	Post-ADVOS
Bilirubin mg/dL	9.69 ± 7.88	7.69 ± 5.89
Creatinine mg/dL	1.51 ± 0.99	1.22 ± 0.57
BUN mg/dL	23.65 ± 18.94	15.95 ± 9.61
pH	7.33 ± 0.11	7.39 ± 0.07
HCO ₃ mmol/L	23.94 ± 6.49	26.06 ± 7.03
PaCO ₂ mmHg	46.86 ± 15.55	42.35 ± 11.36
BE	-0.90 ± 8.23	1.70 ± 8.46

Conclusion:

ADVOS is a safe and effective hemodialysis procedure, which is able to remove water soluble and protein bound markers and correct severe acidosis in critically ill patients.

KOMMENTAR

Diese retrospektiven Ergebnisse an 34 Patienten zeigen deutlich:

1. ADVOS kann Bilirubin pro Behandlung um ca. 21% senken.
2. Der pH kann bei jeder Art der Azidose durch ADVOS signifikant verbessert werden.
3. CO₂ bzw. Bikarbonat kann bei respiratorischer bzw. nicht respiratorischer Azidose jeweils signifikant gebessert werden.

Fazit: Die große therapeutische Bandbreite der ADVOS wird in dieser Arbeit überzeugend dargestellt.