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Poster Abstract
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Opal, but not MARS improves patients albumin binding function measured by Electron Spin Resonance (ESR) in a prospective multicenter trial

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Background and Aims: In patients with decompensated cirrhosis, endogenous accumulation of toxins results into overload of patient's albumin as a toxin carrier and reduction of patient's albumin binding functions measured by Dansylsarkosine binding (ABiC), a marker for bile acid binding (Klammt et al. EJGH 2007) or Electron Spin Resonance (ESR), a marker for long chain fatty acid binding (Jalan et al. Hepatology 2009). Both markers have been shown to be associated with survival. Extracorporeal albumin dialysis (ECAD) using MARS has been reported to be ineffective to improve ESR parameters in decompensated cirrhosis, indicating the reduction seen in this condition is either irreversible or insufficient removal of albumin bound toxins, or both. Open albumin dialysis (OPAL), employing new membranes and more efficient adsorbents was tested versus MARS in a multicenter randomized cross over study to test the hypothesis if these changes can be reversed by more effective ECAD.

Method: 30 subjects in 4 sites with chronic liver disease and progressive jaundice and/or hepatic encephalopathy and/or renal failure and/or pruritus were treated first randomly with OPAL or MARS and after wards crossed over to the other. Patient's albumin binding was measured by ESR using a long chain fatty acid as a marker.

Results: Subjects initiated with MARS and initiated with OPAL were comparable with respect to age, gender, baseline MELD. Detoxification Efficacy (DE) was unchanged during MARS (0.11 ± 0.07 vs. 0.11 ± 0.09 ; n.s.) while it was significantly increased after OPAL (0.085 ± 0.07 vs. 0.14 ± 0.09 ; $p < 0.05$). Binding Efficacy (DE) was unchanged during MARS (0.23 ± 0.09 vs. 0.22 ± 0.09 ; n.s.) while it was significantly increased after OPAL (0.2 ± 0.06 vs. 0.26 ± 0.07 ; $p < 0.05$).

Conclusion: These data indicate that the reduction of patient's albumin binding for long chain fatty acids is at least in part reversible provided effective adsorbents are used to remove albumin bound toxins. A prospective randomized study is planned to re-examine the consequence of improving this prognostic marker on survival.