CAPRYLATE REDUCED ALBUMIN DIALYSIS REDUCES RISK OF OXIDATIVE TUBULAR INJURY IN RENAL FAILURE SECONDARY TO LIVER FAILURE

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Background:
Single pass albumin dialysis (SPAD) has been suggested as a simplified method of MARS which is capable of removing albumin bound toxins and supporting the liver (Sauer et al. Hepatology 2004).

Problem:
Plasma industry adds caprylate (octanoate) and acetyltryptophanate (Ac-Try) to commercial albumin solutions as stabilizers. Caprylate and acetyltryptophanate are harmless if metabolized by a healthy liver. HOWEVER, in liver disease, both stabilizers or its metabolites accumulate and participate in the induction of:
- HEPATIC COMA
- VASODILATION, HYPOTENSION AND SHOCK
- OXIDATIVE RENAL INJURY

Single pass albumin dialysis (SPAD) exposes liver failure patients to 18 l of a 4 mmolar Ac-Try and 4 mmolar caprylate solution within 12 hours. MARS exposes patients to 600 ml of 16 mmolar caprylate and Ac-Try.

Aim:
To investigate the transfer of caprylate in SPAD and MARS into blood with normal and caprylate/Ac-Try free albumin.

Method:

Results:

![Graph showing the effect of plasma caprylate on 24 h serum creatinine](image)

Effect of plasma caprylate on 24 h serum creatinine
- **Increased**
- **unchanged**
- **decreased**

![Graph showing the concentrations of various middle chain fatty acids in various liver support therapies](image)

Middle Chain Fatty Acids in various Liver Support Therapies

**Conclusion:**
Single pass albumin dialysis (SPAD) does induce accumulation of caprylate in patients blood. In 12 h SPAD, patients are exposed to 72 mmol caprylate and Ac-Try, whereas in MARS only to 9.6 mmol, due to the limited amount of albumin.

Clinical implications NEED to be investigated in a controlled study with CLINICAL endpoints.

Albunin, free of toxic stabilizers is desired for ANY therapy applied to patients with liver failure.

References: