Cytokine/Soluble Fas Ligand Response in Children with Septic Acute Renal Failure (ARF) on CVVH

ML Paden, JD Fortenberry, MR Rigby, ML Heard, K Rogers

Objective: Cytokine and apoptosis-mediated pathways may contribute to adult septic ARF, but CVVH clearance has not been well evaluated in children. We hypothesized that selected cytokines and soluble Fas ligand (sFasL) in septic ARF children decrease with CVVH via convective clearance. Methods: Serial measurement of IL-6,-8,-10 and sFasL in blood and ultrafiltrate (UF) was performed in 6 children with bacterial sepsis/ARF and 3 nonseptic (NS) ARF patients on CVVH. Results: Absolute IL-6 (median 12704 pg/ml pre-CVVH, 183 pg/ml at D/C of CVVH; $p<.02$) and IL-10 (706, 45; $p=.04$) levels decreased on CVVH in septic patients. IL-6 (median 5% of pre-CVVH at D/C, 12% 24h post-CVVH; $p<.05$), IL-8 (15%, 23%; $p<.05$), and IL-10 (6%, 7%; $p<.05$) concentrations decreased in septic, but not in NS pts. Median % decrease was larger in septic vs. NS pts for IL-6 (41% of pre-CVVH at 12h), IL-8 (51% at 12h, 57% at 24h, 33% at 48h; 15% at D/C, 23% at 24h post-CVVH), and IL-10 (54% at 24h, 16% at 48h, 6% at D/C, 7% at 24h post-CVVH) (all $p<.05$). UF IL-6 and 8 concentrations were extremely high in septic pts. sFasL pre-CVVH (median 130 pg/ml, 24-439) was similar to NS pts, and did not decrease with CVVH. Conclusion: In this preliminary study, cytokines, but not sFasL, decreased rapidly on CVVH in septic ARF children, possibly by convective clearance.

Matthew L Paden
Children's Healthcare of Atlanta at Egleston
Fax 404-785-6233
matthew.paden@choa.org