Acute Renal Failure in the Intensive Care Unit

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Dear Sirs,

The statistical survey of acute renal failure (ARF) in intensive care unit (ICU) patients by Groeneveld et al. [1] showed that either sepsis or cardiopulmonary failure led to ARF.

Conversely, there was a low prevalence of sepsis-induced organ damage and mortality from ARF in those with preexisting complete renal failure (CRF).

We have results from a 2-year laboratory investigation of ICU patients in Abha. Assays were done for endotoxemia by a chromogenic substrate assay (Whitaker Bioproducts kit) and for antibodies to glycolipid-A of endo-toxins by Elisa. Those results shed further light on these problems. ARDS has always been associated with endotoxemia [2]. Indeed, endotoxin is the common cause of ARDS [2, 3]. Among 68 major trauma cases, there were 12 patients who developed ARF whilst under study, and among 55 septic blood culture positive patients (mainly gram-negative) another 20 developed ARF. 24 cases of ARF had mean plasma endotoxin values of 94.5 pg/ml at the time of onset of their ARF. There were 8 other cases of ARF associated with trauma that did not have significant endotoxemia. They probably had myoglobin-uria.

The results of the lipid-A antibody studies are summarized in table 1 which shows optical density values of Elisa for IgG and IgM antibodies to glycolipid-A by the 7th day in

Table 1. Glycolipid A anti-endotoxin antibodies

Normal Sepsis Trauma CRF

the ICU for trauma/sepsis patients compared with normal Saudi Arabians and 36 patients with CRF. Trauma and sepsis patients showed a rise in antibodies that is consistent with the fact that endotoxemia (possibly associated with bacterial translocation) [4, 5] was common in this group. Such antibodies were already high in CRF patients. This will explain why CRF patients have a degree of protection against sepsis and endotoxin-induced ARF.

IgG

1/4M

0.205±0.21

0.707±0.27

1.076±0.22

1.24±0.27

0.262±0.22 1.320±0.33 0.817 ± 0.34 0.650±0.18

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