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Adverse cardiac events during catecholamine therapy: a role for hydrocortisone?

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Dear Editor,
We read with great interest the study by Schmittinger et al. [1] hypothesizing that adverse cardiac events frequently occur during catecholamine vasopressor therapy and that catecholamine vasopressor support is associated with both morbidity and mortality. In this prospective observational study, 54 of 112 surgical intensive care unit patients with cardiovascular failure developed a total of 114 adverse cardiac events during catecholamine vasopressor therapy, an incidence of 48.2 % (95 % CI, 38.8–57.6 %). The two adverse cardiac events most frequently observed in this study were tachyarrhythmia and prolonged elevated heart rate, both of which were correlated with significant morbidity and mortality. Sepsis was observed in a total of 44 (39 %) patients. In the Patients and Methods section, the authors detailed that “hydrocortisone (200–300 mg/day) was added as a continuous infusion if escalating norepinephrine dose could not stabilize hemodynamic function.” Unfortunately, we did not find any details about the

dose, the duration and the weaning for hydrocortisone therapy in the results or in the discussion sections. There is still an ongoing debate about hydrocortisone therapy during septic shock: the CORTICUS study conducted by Sprung et al. [2] did not find a significant reduction in mortality in the hydrocortisone group, but Moreno et al. [3] observed a significant reduction of SOFA scores mainly represented by a faster decrease in the cardiovascular component. The hydrocortisone-treated group had a higher mean number of vasopressor-free days in the first 7 days (2.5 ± 2.4) compared with the placebo group (1.4 ± 2.4) ($p < 0.0001$). In a meta-analysis, Sligl et al. [4] also demonstrated a significant difference in the incidence of shock reversal at 7 days between patients who received corticosteroids and those who did not [64.9 % (314 of 484 patients) vs. 47.5 % (228 of 480); RR, 1.41; 95 % CI, 1.22–1.64]. Additionally, Annane et al. performed a systematic review on the benefits of corticosteroids in the treatment of severe sepsis and septic shock in adults. A favorable effect of treatment on shock reversal at 7 and 28 days was shown [5]. Indeed, shock reversal (as defined by a stable hemodynamic status for >24 h after withdrawal of vasopressor therapy) at 7 days for treated patients was 308 of 485 (63.5 %) versus 226 of 480 (47.1 %) (RR, 1.35; 95 % CI, 1.16–1.57; $p < 0.001$) in the control group. Similar results were found at 28 days for treated patients with 322 of 481 (66.9 %) of shock reversal vs. 276 of 471 (58.6 %) (RR, 1.12; 95 % CI, 1.02–1.23; $p = 0.02$) in the control group. To conclude, as far as hydrocortisone therapy reducing the time exposure to vasopressor support, we would like to know if the authors could describe their results more

precisely and provide their opinion concerning the use of corticoids in their study, specifically regarding the adverse cardiac events during vasopressor therapy in patients with sepsis and septic shock.

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