

Histopathology of septic shock induced acute kidney injury: apoptosis and leukocytic infiltration

Submitted by Emmanuel Lemoine on Fri, 07/18/2014 - 09:42

Titre	Histopathology of septic shock induced acute kidney injury: apoptosis and leukocytic infiltration
Type de publication	Article de revue
Auteur	Lerolle, Nicolas [1], Nochy, Dominique [2], Guérot, Emmanuel [3], Bruneval, Patrick [4], Fagon, Jean-Yves [5], Diehl, Jean-Luc [6], Hill, Gary [7]
Editeur	Springer Verlag
Type	Article scientifique dans une revue à comité de lecture
Année	2010
Langue	Anglais
Date	2010/03/01
Numéro	3
Pagination	471 - 478
Volume	36
Titre de la revue	Intensive Care Medicine
ISSN	0342-4642 / 1432-1238
Mots-clés	Acute kidney injury [8], Acute tubular necrosis [9], Anesthesiology [10], Apoptosis [11], Critical care medicine [12], Emergency Medicine [13], Intensive / Critical Care Medicine [14], Kidney pathology [15], Pain Medicine [16], Pediatrics [17], Pneumology/Respiratory System [18], septic shock [19]
Résumé en anglais	<p>Purpose Septic shock is one of the leading causes of acute kidney injury. The mechanisms of this injury remain mostly unknown notably because of the lack of data on renal histological lesions in humans. Methods Kidney biopsy was performed immediately post-mortem in consecutive patients who died of septic shock. Comparisons were made with specimens from eight patients who died of trauma on scene and nine ICU patients that died of non-septic causes. Results Nineteen septic patients were included, 11 were male, and age was 72 ± 12 years. Anuria occurred in all patients 2.2 ± 1.4 days before death. Seven patients had disseminated intravascular coagulation. In all patients we observed (1) acute tubular lesions whose intensity correlated with blood lactate concentration; (2) intense infiltration by leukocytes, mainly monocytic, in glomeruli and interstitial capillaries as compared to controls; (3) presence of tubular cell apoptosis proved by the presence of apoptotic bodies (2.9% of tubular cells) significantly more frequently than in controls and confirmed by TUNEL and activated caspase-3 staining. Arteriolar/arterial thromboses were observed in only 4 of 19 patients, without any association with presence of disseminated intravascular coagulation. Conclusions Kidney lesions in septic shock go beyond those associated with simple acute tubular injury, notably capillary leukocytic infiltration and apoptosis. Vascular thrombosis, however, did not appear to play a major role in the majority of patients. The extent to which these lesions are specific to sepsis or are common to all multi-organ failure independent of its cause is yet to be elucidated.</p>

URL de la notice	http://okina.univ-angers.fr/publications/ua3549 [20]
DOI	10.1007/s00134-009-1723-x [21]
Lien vers le document	http://dx.doi.org/10.1007/s00134-009-1723-x [21]

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