



To investigate the characteristics of early catheter-related bloodstream infection (CRBSI) in severe burn injury patients induced by a massive aluminum dust explosion” Zhou et al (2018).

Abstract:

OBJECTIVE: To investigate the characteristics of early catheter-related bloodstream infection (CRBSI) in severe burn injury patients induced by a massive aluminum dust explosion.

METHODS: Sixty-eight severe burn injury patients experienced a massive dust explosion in Kunshan were included in this study. Patients received central venous catheter placement, arterial catheterization to monitor blood pressure and PiCCO cardiac monitoring, tracheostomy, mechanical ventilation, analgesics and sedation treatment, and fluid resuscitation. Clinical data including age, gender, burn surface area, fluid intake and output, urine temperature, and APACHE II score information were collected from each patient. Ultrasound screening was performed to exclude heart failure, which may lead to the change of NT-proBNP. When CRBSI was suspected, 10 ml central venous blood and peripheral arterial blood were sent for testing. For patients with suspected CRBSI, the level of PCT and NT-proBNP were monitored every day until the infection was controlled.

RESULTS: Among the 68 patients, 29 showed CRBSI. The most common pathogenic bacteria of CRBSI were *A. baumannii* (39.8%), *P. aeruginosa* (26.4%), and *K. pneumoniae* (13.7%). Procalcitonin (PCT) (2.98 ng/ml) and NT-proBNP (355 pg/ml) were significantly associated with

CRBSI results. The sensitivity of PCT, NT-proBNP, WBC, and CRP was 94.2%, 89.7%, 88.3%, and 90.5%, respectively ($P < 0.05$). The area under curve (AUC) of PCT combined with NT-proBNP for prediction of CRBSI was 0.981, and the sensitivity and specificity was 0.812 and 0.857, respectively. CONCLUSION: PCT and NT-proBNP combination improves the diagnosis of CRBSI. PCT and NT-proBNP may be alternative candidates for potential prediction of CRBSI in patients with severe injury.

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Reference:

Zhou, B., Zhu, J., Mao, Z. and Liu, L. (2018) Roles of Procalcitonin and N-Terminal Pro-B-Type Natriuretic Peptide in Predicting Catheter-Related Bloodstream Infection in Severe Burn Injury Patients. *Disease Markers*. November 22nd. eCollection 2018.

doi: 10.1155/2018/5607932.

