



To investigate the prevalence of central venous catheter-related infection (CRI) in burn patients and its risk factors, so as to guide the clinical practice” Fang et al (2016).

Abstract:

OBJECTIVE: To investigate the prevalence of central venous catheter-related infection (CRI) in burn patients and its risk factors, so as to guide the clinical practice.

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METHODS: Clinical data of 5 026 days of 480 cases of central venous catheterization altogether in 228 burn patients admitted to our ward from June 2011 to December 2014, conforming to the study criteria, were retrospectively analyzed. (1) The incidence of CRI and that of catheter-related bloodstream infection (CRBSI) in patients (the infection rates per thousand days were calculated) and mortality due to them, and detection of concerning bacteria were recorded after each case of catheterization. (2) The incidence of CRI after each case of catheterization in patients was recorded according to the classification of their gender, age, total burn area, full-thickness burn area, cause of injury, severity of inhalation injury, location of catheterization, whether catheterization through wound or not, duration of catheterization, and the data were processed with chi-square test. Indexes with statistically

significant differences were selected, and they were processed with multivariate logistic stepwise regression analysis to screen the independent risk factors of CRI. (3) To all cases of catheterization and cases with catheterization through wound, incidence of CRI after each case of catheterization in patients at each time period was recorded according to the sorting of duration of catheterization. Data were processed with chi-square test and Fisher's exact test, and the values of P were adjusted by Bonferroni.

RESULTS: (1) Infection rate of CRI per thousand days was 50.14‰ (252/5 026), resulting in the mortality rate of 3.51% (8/228). Infection rate of CRBSI per thousand days was 18.70‰ (94/5 026), resulting in the mortality rate of 2.19% (5/228). Respectively 319 and 105 strains of pathogens were detected in CRI and CRBSI, in which the top four bacteria detected were *Acinetobacter baumannii*, *Pseudomonas aeruginosa*, *Staphylococcus aureus*, and *Klebsiella pneumoniae*, and the most common fungus found was smooth *Candida*. (2) There were no statistically significant differences in the incidence of CRI after each case of catheterization among patients with different gender, age, cause of injury, severity of inhalation injury, and location of catheterization (with χ^2 values from 0.427 to 6.991, P values above 0.05). There were statistically significant differences in the incidence of CRI after each case of catheterization among patients with different total burn area, full-thickness burn area, whether catheterization through wound or not, duration of catheterization (with χ^2 values from 7.202 to 14.246, P0.05); the incidence of CRI in patients after each episode of catheterization was significantly higher in cases enduring catheterization longer than 5 days and shorter than or equal to 7 days, longer than 7 days and shorter than or equal to 14 days, and longer than 14 days than the former two periods (with χ^2 values from 3.625 to 13.495, P values below 0.05). In the cases with catheterization through wound, the incidence of CRI of patients after each episode of catheterization was close between cases enduring catheterization shorter than 5 days and those longer than or equal to 5 days and shorter than 7 days (P>0.05); the incidence of CRI of patients after each episode of catheterization was significantly higher in cases enduring catheterization longer than or equal to 7 days and shorter than 14 days and longer than or equal to 14 days than those with longer than or equal to 5 days and shorter than 7 days (with χ^2 values respectively 6.828 and 4.940, P values below 0.05).

CONCLUSIONS: The infection rate of CRI per thousand days in burn patients is relatively low, while that of CRBSI is relatively high, both resulting in relatively low mortality, and

Acinetobacter baumannii is the main pathogen. Total burn area, whether catheterization through wound or not, and duration of catheterization are independent risk factors of CRI in burn patients, and with which its occurrence could be predicted. It is suggested that central venous catheterization should be removed within 5 days, and catheterization through wounds should be avoided as much as possible. If catheterization through wound is unavoidable, removal of the catheter within 7 days is recommended.

Reference:

Fang, L., Wang, F., Sun, K.D., Zhou, T., Gong, Y.L. and Peng, Y.Z. (2016) Analysis on the prevalence of central venous catheter-related infection in burn patients and its risk factors. Zhonghua Shao Shang Za Zhi. 32(4), p.243-8. .

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