

Abstract:

Objective: To investigate the influence of silver ion dressing on related infections induced by inserted central venous catheter through wounds in patients with severe burn.

Methods: From June 2017 to December 2018, 90 severe burn patients who were admitted to the First Hospital of Hebei Medical University and met the inclusion criteria were included in this prospectively randomized control study. According to the random number table, they were divided into silver ion dressing group (30 patients, 20 males and 10 females, aged (37.2 ± 3.4) years), sterile dressing group (30 patients, 18 males and 12 females, aged (35.2 ± 4.1) years), and Anerdian dressing group (30 patients, 17 males and 13 females, aged (36.3 ± 2.6) years). After admission, the patients in three groups were treated with a 16 G single-lumen central venous catheter inserted into the subclavian vein of burn wounds, with the depth of 19 cm. The puncture points of the patients in silver ion dressing group, sterile dressing group, and Anerdian dressing group were covered with silver ion medical antibacterial dressing, sterile dressing, and sterile gauze dressing infiltrated with Anerdian skin and mucous membrane washing and disinfecting solution, respectively. The patients in three groups underwent catheter maintenance and dressing change every 12 hours. The thousand-day infection rates of catheter outlet infection and catheter-related bloodstream infection (CRBSI), catheter indwelling days, and pathogen detection of the patients in three groups were counted. Data were statistically analyzed with chi-square test, one-way analysis of variance, least significant difference test, Fisher's exact probability test, and Bonferroni correction.

Results: (1) The thousand-day infection rates of catheter outlet infection of patients in sterile dressing group and Anerdian dressing group were 22.29‰ (7/314) and 20.83‰ (7/336), respectively, which were similar ($P>0.05$), and both were significantly higher than 1.54‰ (1/651) in silver ion dressing group ($P<0.01$). The thousand-day infection rates of CRBSI of patients in sterile dressing group and Anerdian dressing group were 25.48‰ (8/314) and 20.83‰ (7/336), respectively, which were similar ($P>0.05$), and both were significantly higher than 1.54‰ (1/651) in silver ion dressing group ($P<0.01$). The catheter indwelling days of patients in sterile dressing group and Anerdian dressing group were similar ($P>0.05$), and both were significantly shorter than the days in silver ion dressing group ($P<0.01$). (2) A total of 16 cases of CRBSI occurred in all the patients in 3 groups. A total of 16 pathogenic bacteria were isolated from catheter tip attachment microbial culture and blood microbial culture. The detections rates of pathogenic bacteria of patients in sterile dressing group and Anerdian dressing group were significantly higher than the rate in silver ion dressing group ($P<0.05$).

Conclusions: For severe burn patients, the use of silver ion dressings in the maintenance of central venous catheters inserted through wounds can effectively reduce the rate of central venous catheter-related infections and extend the catheter indwelling days.

Reference:

Li J, Li N, Fu W, Feng JK, Zhang QF. Influence of silver ion dressing on central venous catheter-related infection in severe burn patients. *Zhonghua Shao Shang Za Zhi*. 2020;36(8):698-703. doi:10.3760/cma.j.cn501120-20190519-00246