

Abstract

Catheter Related Blood Stream Infections in patients receiving parenteral nutrition at ASIH Stockholm Södra, incidence and comparison between the different Home Care Teams

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Background: Many patients enrolled in the advanced medical home care (ASIH) in Stockholm are encouraged to have a central venous line (CVL) in order to gain a safe, accessible route to obtain medical treatments and facilitate treatment with home parenteral nutrition (HPN) when needed. Catheter-related blood stream infections (CRBSI) constitute a major complication associated with the use of CVL. The aim of this study was to investigate the incidence and risk factors of CRBSI in patients with CVL receiving HPN at ASIH Stockholm Södra. In addition, a comparison between the different Home Care Teams at the unit was studied.

Methods: Medical records of all 1022 patients enrolled at ASIH Stockholm Södra at any time during 2017 were reviewed. The patients were evenly distributed on six different home care teams. The study population was defined as the patients who received partial or total parenteral nutrition at home (HPN) at any time during their enrollment at ASIH 2017 and that had a CVL. Collected data included the frequency of receiving HPN, gender, age, diagnosis and kind of CVL. In order to find patients with CRBSI in the study population, all blood cultures in the study population were screened. The criteria for CRBSI included 1) clinical signs of infection, 2) detection of positive blood culture of the same microorganism both from a CVL and a peripheral vein, where the blood culture from the CVL is positive at least two hours prior the blood culture from the peripheral vein and 3) no other obvious source of infection.

Results: 167 patients had received HPN through a CVL at any time during 2017 and were included in the study population. Most of the patients in the study population had a cancer diagnosis (87%). The CVL's included Venous Access Ports (50%), peripherally inserted central catheters (45%) and others (5%). Fifty percent of the study population received HPN "occasionally" defined as more than one single infusion but less than 4 weeks treatment. Eight percent received HPN with 1-3 infusions/week for 4 weeks or longer; 7% received 4-5 infusions/week for 4 weeks or longer and 28% received 6-7 infusions/week for 4 weeks or longer. Thirty-four of the 167 patients were diagnosed with a CRBSI (20%). Twenty-four of these fulfilled all criteria for CRBSI and 10 were diagnosed as a CRBSI and treated as such, but did not fulfill all criteria. Patients who received parenteral nutrition "occasionally" had a statistically significant lower incidence of CRBSI (13 %) compared with patients who received parenteral nutrition 6-7 times a week for a period of 4 weeks or longer (28%) ($p < 0,05$). No correlation between having a CRBSI and gender was found, nor between different kinds of CVL and having a CRBSI. When comparing the home care team with lowest number of CRBSI (8%) and the team with the highest number of CRBSI (33%) the difference was border significant ($p = 0,052$).

Conclusion: We found an unexpectedly high incidence of CRBSI in patients receiving HPN. The risk of developing a CRBSI was related to the frequency of HPN infusions. A trend towards differences in incidence between our home care teams was found, which will be investigated further.