

The Impact of Total Parenteral Nutrition on Pediatric Stem Cell Transplantation and Its Complications

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Abstract : Background: Nutritional support with total parenteral nutrition (TPN) is usually commenced with hematopoietic stem cell transplantation (HSCT) patients. However, it has its benefits and risks. Complications related to central venous catheter such as infections, and metabolic disturbances, including abnormal liver function, is usually of concern in such patients. Methods: A retrospective charts review of all pediatric patients who underwent HSCT between the period 2015-2018 in a tertiary hospital in Riyadh, Saudi Arabia. Patients' demographics, types of conditioning, type of nutrition, and patients' outcomes were collected. Statistical analysis was conducted using SPSS version 22. Frequencies and percentages were used to describe categorical variables. Mean, and standard deviation were used for continuous variables. A P value of less than 0.05 was considered as statically significant. Results: a total of 162 HSCTs were identified during the period mentioned. Indication of allogeneic transplant included hemoglobinopathy in 50 patients (31%), acute lymphoblastic leukemia in 21 patients (13%). TPN was used in 96 patients (59.30%) for a median of 14 days, nasogastric tube feeding (NGT) in 16 (9.90%) patients for a median of 11 days, and 71 of patients (43.80%) were able to tolerate oral feeding. Out of the 96 patients (59.30%) who were dependent on TPN, 64 patients (66.7%) had severe mucositis in comparison to 17 patients (25.8%) who were either on NGT or tolerated oral intake. (P-value= 0.00). Sinusoidal obstruction syndrome (SOS) was seen in 14 patients (14.6%) who were receiving TPN compared to none in non-TPN patients (P=value 0.001). Moreover, majority of patients who had SOS received myeloablative conditioning therapy for non-malignant disease (hemoglobinopathy). However, there were no statistically significant differences in Graft-vs-Host Disease (both acute and chronic), bacteremia, and patient outcome between both groups. Conclusions: Nutritional support using TPN is used in majority of patients, especially post-myeloablative conditioning associated with severe mucositis. TPN was associated with VOD, especially in hemoglobinopathy patients who received myeloablative therapy. This may emphasize on use of preventative measures such as fluid restriction, use of diuretics, or defibrotide in high-risk patients.

Keywords : hematopoietic stem cell transplant, HSCT, stem cell transplant, sinusoidal obstruction syndrome, total parenteral nutrition

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