

Background

Solid tumors represent 30% of all pediatric cancers, excepting brain tumors. The management of solid tumours is complex and includes chemotherapy, surgery, radiotherapy and, in high-risk cases, stem cell transplantation (SCT). Oral mucositis (OM) is the most frequent complication of pediatric patients undergoing SCT. In transplant recipients OM can have long-term evolution, sometimes severe.

We analyzed the results of pediatric patients with solid tumours and HSCT treated in Fundeni Clinical Institute between January 2002 and October 2018 to evaluate the median duration of OM episode and grade of severity according to the numbers of procedures performed.

Materials and methods

We retrospectively analyzed patients with solid tumours and HSCT. Patients diagnosis: neuroblastoma (NBL), germ-cell tumour (GCT), Ewing sarcoma, nephroblastoma. Patients were divided into 2 groups: first group with one HSCT and second group with more than one HSCT.

Criteria used to assess severity of OM were, according to WHO: Grade 1 – soreness ± erythema, Grade 2 - erythema, ulcers; patient can swallow solid food, Grade 3 - ulcers with extensive erythema; patient cannot swallow food, Grade 4 - mucositis to the extent that alimentation is not possible.

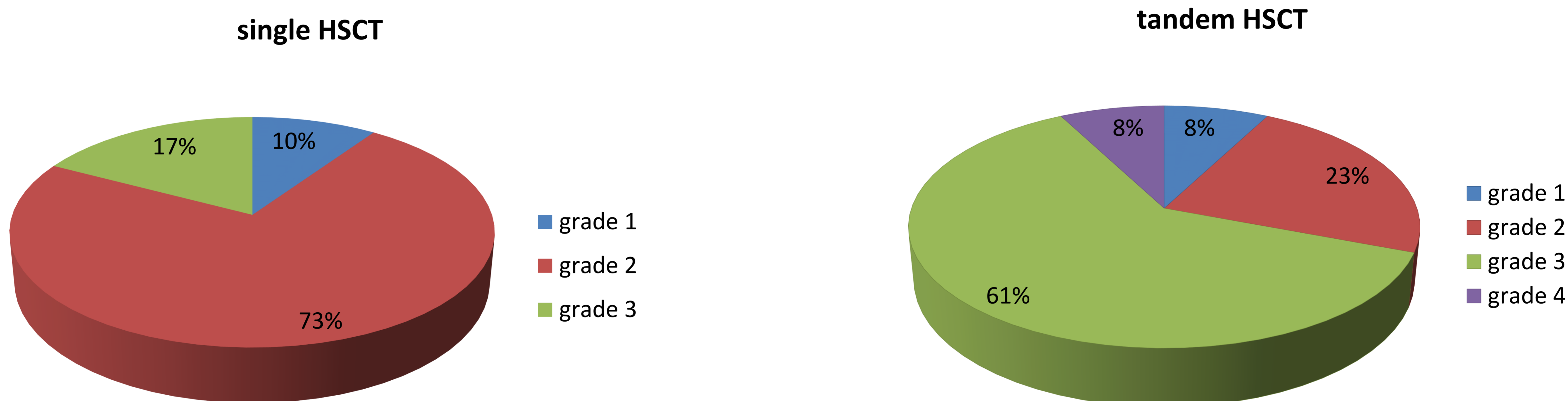
All patients performed prophylactic measurements to prevent OM : mouth cleansing with sodium bicarbonate solution, mouthwash with chlorhexidine, oral spray with Gel X. All patients received antibiotic, antiviral and antifungal prophylaxis, parenteral nutrition and supportive treatment.

All parents signed informed consent forms. We performed the statistical analysis using chi square test.

Results

In our clinic, between January 2002 and October 2018, were performed 67 auto-HSCT procedures to 52 patients: 34 (65.3%) pts with NBL, 9 (17.3%) pts with ES, 6 (11.6%) pts with GCT and 3 (5.8%) pts with nephroblastoma. Patients were divided into 2 groups: first group with a single SCT procedure (79% of pts) and second group with more than one SCT procedure (21% of pts). Patients were diagnosed, staged and received treatment according to international protocols. Sex ratio was 18F/34M. Age distribution: 1-4 y 38% (20 pts), 4-10 y 35% (18 pts), > 10 y 27% (14 pts). Distribution of patients according to grade of OM is represented in Figure 1.

The median duration of OM in the first group was 6 days (range 3 to 17 days), while in the second group was 13 days (range 3 to 21 days). For the first group patients received pain medication for an average of 7 days, whereas for the second group the period increased to 13 days. Also, for the second group we noticed the engraftment period increased, along with the hospitalization and supportive measures. Patients with multiple courses of chemotherapy and with multiple hospitalizations presented increased infectious risk and during the second procedures developed various infectious complications. Patients from both groups presented full recovery of oral mucositis by the time they were discharged.



Conclusion

All patients in our study have developed oral mucositis, though prophylaxis measurements have been used.

We did not find correlations between the severity of OM and age or sex of patients.

The median duration of OM episode is increased in patients with multiple SCT (13 days versus 6 days) .

The incidence of severe OM after the first HSCT was 17%, whereas after tandem HSCT was 69% ($P < 0,0001$).

References

1. Carulli G, Rocco M, Panichi A, et al. Treatment of oral mucositis in hematologic patients undergoing autologous or allogeneic transplantation of peripheral blood stem cells: a prospective, randomized study with a mouthwash containing camelia sinensis leaf extract. *Hematol Rep.* 2013;5(1):21-5. Published 2013 Apr 4. doi:10.4081/hr.2013.e6
2. The Incidence and Severity of Oral Mucositis among Allogeneic Hematopoietic Stem Cell Transplantation Patients: A Systematic Review Chaudhry, Hafsa M. et al, *Biology of Blood and Marrow Transplantation*, Volume 22, Issue 4, 605 - 616
3. Staudenmaier, T., Cenzer, I., Crispin, A. et al. *Support Care Cancer* (2018) 26: 1577. <https://doi.org/10.1007/s00520-017-4000-5>
4. Gabriel, Don & Shea, Thomas & Olajida, Oludamilola & Serody, Jonathan & Comeau, Terrance. (2004). The Effect of Oral Mucositis on Morbidity and Mortality in Bone Marrow Transplant. *Seminars in oncology.* 30. 76-83. 10.1053/j.seminoncol.2003.11.040.

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