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Monitoring the drug toxicity of antineoplastic chemotheraphy in children with cancer

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Abstract

Introduction: Although neoplastic diseases are not very frequent in juvenile pathology (8,600/year in patients under the age of 14 and 3,700/year in patients between the ages of 15 and 18, in the U.S. statistics), antineoplastic chemotherapy continues to be quite aggressive in children despite a good therapeutic results.

Material and Methods: Our study focused on the toxicity of antineoplastic chemotherapy on 42 children between the ages of 3 and 18, with different kind and stages of cancer.The adverse drug reactions (A.D.R.s) were recorded in a special chemotherapy side effects sheet, recommended by World Health Organization. These A.D.R.s are divided into 5 stages (0-4). The data were processed using chi square test.

Results and Discussions: Most patients were diagnosed with acute lymphoblastic leukemia (22; 52.4%). The rest of the patients were diagnosed with Ewing sarcoma (9; 21.4%), Hodgkin lymphoma (7; 16.7%), osteosarcoma (3; 7.1%), and non-Hodgkin lymphoma (1; 2.4%). All patients underwent different antineoplastic chemotherapy treatments according to the type of cancer, its stage and the international protocols on the respective case. Most patients presented hematological toxicity (22, 52.4%) and gastrointestinal toxicity (22, 52.4%). Afterwards come the cutaneous side effects (16, 38.1%) hepatic toxicity (14, 33.3%) and infection (14, 33.3%) complications. Neurological toxicity was present in 5 cases, while renal toxicity was present in 4 cases. As for associated toxicity, most patients (14 respectively) presented three types: hematological, gastrointestinal, and infectious toxicity. Other 8 patients presented 4 associations of toxicity, 6 patients had 5 associations, while other 6 patients had 6 toxicity associations. The toxicity level, on a scale of 0 to 4, appears very high in the case of leukopenia (level 4, under 1000/mm3) [10; 23.8%], in the case of a haemoglobin decrease (level 4, below 6.5g/dl) [5; 11.9%], and in the case of granulocytopenia (level 4, below 55/mm3) [7; 16.7%].

Conclusions: By strict and standard monitoring of the adverse side effects of the antineoplastic chemotherapy, certain correlations can be made regarding a higher or lower toxicity level of certain therapeutic regimens. At the same time, we can select the therapeutic regimens that should accomplish the highest benefit/risk ratio.