

Summary of Phd Thesis by Chinceșan Mihaela- Ioana:
NUTRITIONAL STATUS IN CASE OF CHILDREN WITH CANCER

Introduction: The survival rate of children with cancer has increased substantially during the past decades. The main reasons are related to the early diagnosis, the multimodal treatment and the supportive therapy. Both malnutrition and obesity represent increasing risk factors with children suffering of malignant diseases. The alteration of the nutritional status is related to the reduction of tolerance to chemotherapy, the increase of sensitivity to infections as well as the inferior response to treatment. Even though the precarious nutritional status can affect the prognosis and tolerance to treatment negatively, its evaluation is often neglected with cancer patients.

Objectives: The present study aims to evaluate the nutritional status with children suffering of malignant diseases, defining the best methods of evaluation in order to observe the prevalence and severity of malnutrition and in order to identify the alteration of the nutritional status in early stages. In addition, the study aims to emphasize the negative impact of malnutrition on the evolution of the malignant disease, framing malnutrition as a factor of unfavorable prognosis.

Material and method: The study of prospective type was developed within the Pediatric Clinic I in Targu –Mures in the period between January 2009 and July 2012 on a group of 155 patients (study group and control group). The study group is made up of 64 patients aged between 0–18 years, newly diagnosed with different types of malignant diseases in the Department of Hematooncology of the Pediatric Clinic I.

The control group was represented by 91 patients of the same age interval interned in the Pediatric Clinic I with different non- malignant pediatric diseases. The nutritional status was evaluated on the basis of anthropometric, hematological and biochemical parameters and divided into three categories: adequate nutritional status, risk of malnutrition and severe malnutrition.

The study has been divided into two sections. In the first part, the nutritional status of children with malignant disease has been observed comparatively since the onset of the disease as reported to children without cancer. In the second part the nutritional status of patients with

cancer of malignant type has been evaluated since the onset of the disease as well as on the period of the intensive chemotherapy

Results: The nutritional status has differed significantly within the two groups of patients ($p = 0,0001$); 39.1 % of patients with malignant disease presenting severe malnutrition versus 5.5% of patients with pediatric diseases and only 7.8% of the patients with cancer presenting adequate nutrition as compared to 51.6% of patients with pediatric diseases. The evaluation of the nutritional status for children with cancer at the onset of the disease emphasizes a more strenuous effect level with patients presenting solid tumors and lymphomas (out of 18 patients with lymphomas, 50 % showed severe malnutrition signs and 50% a risk of malnutrition; out of 20 patients with solid tumors only 5% had an adequate nutritional status, 45% being with severe malnutrition and 50% with risk of malnutrition). The nutritional status was more altered at the age group 6 – 12 years of age and for the male sex. Under chemotherapy and through nutritional intervention, the nutritional status has been altered as compared to the onset of the disease, so that at the end of the intensive treatment 22.2% of patients presented adequate nutritional status and only 13.3% severe malnutrition. Severe malnutrition at the onset of the disease has influenced negatively the evolution of the malignant disease, patients with altered nutritional status presenting a much more reduced survival rate ($p=0.007$) and a more inferior disease remission ($p=0.02$) as compared with those of an adequate nutritional status.

Conclusions: The nutritional status of children with cancer has been altered at the onset of the disease in a very high percentage, but has been improved up to the end of the treatment through nutritional intervention and the control of the malignant disease through chemotherapy. The weight and the BMI with the children with cancer have underestimated the prevalence of malnutrition compared with the mid upper arm circumference and the triceps skinfold thickness which proved to be more sensitive indicators for detecting nutritional deterioration.

The best methods to evaluate the nutritional status with children with malignant disease have been anthropometric parameters of the arms in association with serum proteins, both the whole ones as well as the albumins and IGF-I. In case of children with cancer, malnutrition represented an unfavorable prognosis factor which influenced the remission of the malignant disease negatively together with the death rate.

The division of the cancer patients since the onset of the disease into the three nutritional categories and the regular monitoring of the nutritional status is important since it identifies the

alteration of the nutritional status in early stages, allowing an adequate intervention regarding the nutritional support which improves the quality of life in case of children with cancer and alters the prognosis of the disease.

Key words: child, cancer, anthropometric parameters, biochemical parameters, nutritional status.