ABSTRACT

Nearly 80 % of child oncological patients survive treatment nowadays and live in adulthood. Therefore, one of the main current children´s oncology task is not only to cure the patient but to assure the life after treatment in as highest quality as possible. Related to the quality of life is the adequate adult body height which is in these children after hematooncological treatment ussualy known as impaired. The aim of this diploma thesis was to specify the frequency and level of impaired final body height in children after hematopoietic stem cell transplantation, and find its relation to sex, diagnosis and age at the time of transplantation.

Thesis criteria met 89 children (35 female), who recieved the hematopoietic stem cell transplantation between years 1989 and 2012 in University Hospital in Motol, Prague. Children were observed prospectively in Laboratory of Clinical Anthropology of the Pediatric Clinic of University Hospital in Motol since the date of their transplantation till they reach their final body height. Each survey consists of the measurement of body height and weight, BMI calculation, Tanner pubertal stages and bone age assessment by the TW3 method. These, completed by clinical data about diagnosis, growth hormone deficiency treatment, and menarche in girls, were compared to the current growth standards and evaluate statistically.

The body height of the patiens was impaired by the previous therapy at the time of hematopoietic stem cell transplantation to -0,4 SDS ($p = 0,005$) and the growth retardation compared to the healthy population decreased to -0,9 SDS ($p < 0,001$) after the growth has finished. The difference in body height between the days of transplantation and in adulthood was statistically significant ($p < 0,001$) and the frequency of impaired body height increased from 10,1 to 20,3 %. Difference in adult height in male and female after hematopoietic stem cell transplantation was not approved ($p = 0,714$), as well as the influence of conditioning consists of radiotherapy ($p = 0,106$). Poorest results among the diagnosis observed in the groups recieved transplantation for acute lymfoblastic leukemia (-1,3 SDS) and immunodeficiencies and other diseases (-1,2 SDS) but the difference in-between all diagnosis is not statistically significant ($p = 0,115$). As the strongest and the only significant factor (among the concurrent influence of the age at the time

of transplantation, radiotherapy as a part of conditioning, and sex) affecting the final body height after hematopoietic stem cell transplantation seems to be age at the time of transplantation ($p = 0,030$).

Body height in adulthood of hematooncological patients compared with healthy population is most impared in these patients who underwent the hematopoietic stem cell transplantation in the youngest age.