

## **Quality of life -growth, development and endocrine features - of children with acute lymphoblastic leukaemia after completion of treatment**

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**Background:** Acute lymphoblastic leukemia (ALL) is the most frequent malignant disease in childhood. A high percentage of survivors (80%) is occurred in past decade, however of aggressive treatment is linked with several acute side-effects with consequence on their growth and endocrine system.

**Aim:** To investigate auxological parameters, pubertal development and evaluate endocrine function in patients after ALL treatment.

**Patients and methods:** Thirty female and twenty male patients successfully treated in past 15 years for ALL according to ALL-BFM 90 and BFM 95 underwent the physical examination, bone age (BA) assesment (Greulich-Pyle), degree of pubertal development (Marshall, Tanner) and biochemical and endocrine screening. Prediction of adult height (PAH) was calculated from the height of both parents. Their median of age in the time of evaluation was 14.5 (5.9 – 27.9) years.

**Results:** The interval from recovery was 5.3 (0.3-11.4) years. Their height SDS score decreased during the chemotherapy from - 0.2 (-2.0 - 2.9) to - 0.7 (-2.5 - 3.2). Actual height was -0.4 (-3.2 – 3.2) SDS and had significantly increased since the recovery. There was no significant difference from PAH excluding five relapsed patients with significantly lower median of actual height (-0.8, (-1.2 - -0.3 SDS)). There was no relation between actual height and (a) age of diagnosis ALL, (b) time after recovery ALL, (c) age of onset of puberty and (d) age of menarche in girls. Body mass index (BMI) was reduced only at time of diagnosis to -0.3 (-2.9 – 3.4) SDS. The age of the onset of puberty was 12.8 (10.5 – 13.5) years in boys and 11.2 (8.5 –14,0) years in girls. The average age of menarche was 12.5 (9.9 – 15,0) years, which does not vary from Czech standard. BA was assessed only in children before growth completion (n=38) and it was appropriate to their chronologic age. Although girls were younger at the start of ALL than boys ( $5,4 \pm 3,4$  vs.  $7,4 \pm 4,5$  years) (mean  $r \pm SD$ ), we found no significant differences in growth, BMI and pubertal development. Endocrine disease was found in two girls (autoimmune thyreoiditis with mild hypofunction), two boys have suffered from hypogonadotropic hypogonadism after testicular relapse of ALL and they have taken hormonal substitution. Growth hormone secretion was normal in all patients.

**Conclusion:** In a long- term perspective, current ALL therapy doesn't seem to influence to the growth, pubertal development and adult height. Severe endocrine dysfunction was found only in relapsed children.