GROWTH DEVELOPMENT AFTER SUCCESSFUL LIVING DONOR LIVER TRANSPLANTATION IN CHILDREN

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Problems such as growth impairment are now being taken into account as of primary importance for the quality of life of the children after living donor liver transplantation (LDLT).

Purpose: We assessed growth development after LDLT and tried to clarify optimal timing of LDLT.

Methods: Twenty-one children suffering from biliary atresia were divided into 3 groups according to age at time of LDLT: group I (< 2 yr, n=11), group II (2 to 8 yr, n=5), group III (≤ 8 yr, n=5). Height and weight for age Z score, bone mineral metabolism (bone mineral density (BMD), 25hydroxy-vitamine D), and hormonal factor (growth hormone (GH), IGF-1, thyroid hormones) were measured.

Results: 1: Growth in weight and height: Catch up growth was observed between 6 and 24 months after LDLT in group I (Z=-2.3±0.2 to 0.3±0.6 (mean±SE), p<0.001) and group II (-1.6±0.7 to 0.0±0.2, p=0.04). Some patients in group III had poor linear growth in height by the second year after LDLT (-1.1±0.3 to -1.5±0.1). 2: Serum Vitamin D normalized rapidly after LDLT in all groups (45.4±7.8 to 85.7±8.9pg/ml, P<0.02). No patients had abnormal fracture. However, BMD did not reach to enough level by the third year after LDLT in all groups. 3: Much impaired serum hormone levels were normalized at least within 6 months after LDLT (free T3: 2.3±0.2 to 3.9±0.2pg/ml P<0.001, IGF: 22.0±4.8 to 271.6±61.9ng/ml p<0.01).

Conclusion: After successful LDLT, hepatic metabolism rapidly improved and it seemed to contribute to growth development. In addition, children who received living donor liver grafts before the age of 8 years had relative good catch up growth in height and weight.