

MALABSORPTION OF LEVOTHYROXINE IN A CHILD AFFECTED BY SHORT BOWEL SYNDROME

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Introduction

hypothyroidism is a common problem during childhood generally due to autoimmune thyroid disease. It can also occur in the case of severe urinary loss of serum proteins, as well as in the case presented below. The most accepted practice in the treatment of hypothyroidism consists in the oral administration of levothyroxine (LT4). Many conditions may affect the absorption of LT4 including the adherence to therapy by the patient, fasting state, intake of certain foods, certain drugs and gastrointestinal diseases that impair the integrity of intestinal barrier or reduce the area of absorption.

Case Description

we report an original case of levothyroxine malabsorption in a six-year old child affected by congenital multiple jejunal atresias. He presented TSH 30 μ UI/ml (0,60-6,30) and FT4 0,71 ng/dl (0,7-1,8), TGAb 34,5 (0-40 U/ml) and TPOAb 20,8 U/ml (0-60),so he was administered the LT4 tablet 25 μ g/day (2,5 μ g/kg/day). The US neck showed a normal gland. After one month of treatment, TSH was 80 μ UI/ml and FT4 0,7 ng/dl, consequently the dosage was increased to 25 μ g five days per week and 50 μ g twice (4 μ g/kg/day). Although the dosage was high for the age of patient, after one month TSH increased to >150 μ UI/ml and FT4 0,2 ng/dl. Poor compliance could be ruled out. A severe malabsorption of oral LT4 was hypothesized. The LT4 oral solution, available in Italy, has a more rapid absorption than the tablet in studies done in adult populations and this characteristic would have been an advantage in our patient, so we decided to switch to the treatment with LT4 oral solution at the same dosage. After 4-6 months of treatment the values of TSH and FT4 were within the normal range.

Conclusions

Short bowel syndrome is the most common cause of intestinal failure in children and causes altered absorption of many drugs. In this case we observed how the TSH value decreased only after the switch from the LT4 tablets to the LT4 oral solution. The most important advantage of LT4 oral solution consists of a faster absorption, which is very crucial in a population of patients having a limited absorption of drugs. We can certainly highlight the implications of the liquid formulation of LT4 , a very useful formulation in cases where the absorption of drugs is clearly hindered.