Hypothyroidism is a condition in children and adults.

Introduction

Hypothyroidism is a condition that affects the thyroid gland, which produces hormones that regulate metabolism. In children, hypothyroidism may present with symptoms such as delayed development, swallowing difficulties, and poor appetite. Treatment typically involves lifelong thyroid hormone replacement therapy.

Methods

To evaluate the effectiveness of thyroid hormone replacement therapy in children with hypothyroidism, a retrospective review of medical records was conducted. The study included children with hypothyroidism who were treated with thyroid hormone replacement therapy for at least 12 months. The primary outcome was the achievement of optimal thyroid hormone levels as determined by laboratory tests.

Results

Of the 50 children included in the study, 40 (80%) achieved optimal thyroid hormone levels. The remaining 10 children did not achieve optimal levels, with 5 cases attributed to non-compliance with therapy and 5 cases due to undiagnosed congenital hypothyroidism.

Conclusion

Thyroid hormone replacement therapy is effective in managing hypothyroidism in children. However, close monitoring and adherence to the treatment plan are crucial for optimal outcomes.

Key words: hypothyroidism, children, thyroid hormone replacement therapy, diagnosis, treatment, outcome.
versal and perspectives studies have not yet clarified which is the best treatment for this condition. Antithyroid drugs are usually prescribed as a preliminary treatment, in order to control the symptoms of the disease. Radioiodine is used as the first-choice therapy for about 70% of patients and in 10%-15% of the cases after failure of medical therapy or surgical treatment. Surgery is highly recommended for young patients with large diffuse toxic goitres and in case of relapse of hyperthyroidism following antithyroid therapy. In this retrospective study, we describe our experience over the past 26 years on 27 patients younger than 18 years of age undergoing surgery for Graves' disease. Near-total thyroidectomy was performed in 10 cases and total thyroidectomy in 17 cases. Post-operative complications and long-term results were investigated for incidence of recurrent laryngeal nerve injury, hypoparathyroidism and ocular signs. Our results demonstrate the effectiveness of total thyroidectomy in Graves' disease.

Materials and methods

At the Endocrine Surgery Department of Pisa University, from 1975 to August 2001, 450 patients underwent to surgery for Graves' disease: 27(6%) of these patients (22 female (81.5%) and 5 males (18.5%)) were< 18 years of age. Mean age was 16 years (range, 12-18). 5 patients (18.5%) presented familiarity with thyroid pathology (2 Graves' disease, 2 Goiter multinodulare N.F., 1 autoimmune thyroiditis). Mean age of occurrence of hyperthyroid symptoms was 12 years (range, 6-16). The main symptoms consisted in an enlargement of the gland in all cases; thinning and exophthalmos in 12 cases (44.4%); tachycardia in 8 cases (29.6%). The diagnosis of Graves' disease was made according to the common clinical and instrumental criteria. In all cases, surgical treatment was required by the size of the goitre and relapse of hyperthyroidism following suspension of antithyroid drugs. Patients were rendered euthyroid by methimazole treatment before surgery. Ten days before the intervention an iodine-urate Lugol solution was administered to the patients. A "near-total" thyroidectomy was performed in 10 cases (thyroid residuals estimated 2-4 grams) and total thyroidectomy in 17 cases. All patients underwent direct laryngoscopy after surgery to assess the function of vocal chords. The parathyroid function was monitored by dosage of calcemia, phosphoreemia and parathormone hormone, immediately after the operation and during follow up. Relapse of the disease was assessed by dosages of free thyroxine (TT4 normal range 0,7-1,5ng/dl), TSH (normal range 0,4 to 3,7 nU/ml), TRAb (considered positive with values>5 U/l), antiperoxidase self-antibodies (TPOAb) (considered positive with values>1: 1600) and antithyroglobulin antibodies (TGAb).

Results

Histology revealed the presence of a 2 mm differentiated papillary carcinoma in a 16 years old patient (3,7%). One patient undergoing 'near total' thyroidectomy presented monolateral vocal cord palsy due to injury of the left recurrent nerve. 6 patients (22,2%) undergoing total thyroidectomy were treated with calcium and vitamin D for transitory hypoparathyroidism in the immediately post operative period. Supplementary therapy was suspended between three and six month following surgery. Only one patient treated with "near-total" thyroidectomy continued the therapy with calcium and vitamin D a year after surgical treatment. After a follow up of 11,3 years only three patients (11,1%) treated with total thyroidectomy have shown a reduction of ophthalmopathy. None of the patients included in this study presented recurrence of hyperthyroidism. All patients were treated with replacement therapy with levothyroxine (Tab. 1 - 2).

<table>
<thead>
<tr>
<th>Tabella 1</th>
<th>DIFFUSE TOXIC GOITRE (BASEDOW) IN 27 PATIENTS (&lt;= 18 YEARS OF AGE)</th>
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<tbody>
<tr>
<td>Females/Males</td>
<td>22/5</td>
</tr>
<tr>
<td>Mean age of occurrence of symptoms</td>
<td>12 years (range 6-16)</td>
</tr>
<tr>
<td>Mean time between the first symptom and operation</td>
<td>4 years (range 1-9)</td>
</tr>
<tr>
<td>Main symptoms:</td>
<td></td>
</tr>
<tr>
<td>Ophthalmopathy</td>
<td>12 (44,4%)</td>
</tr>
<tr>
<td>Tachycardia</td>
<td>8 (29,6%)</td>
</tr>
<tr>
<td>Enlargement of the gland</td>
<td>27 (100%)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tabella 2</th>
<th>SURGICAL THERAPY IN 27 PATIENTS (&lt;= 18 YEARS OF AGE)</th>
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</thead>
<tbody>
<tr>
<td>Treatment</td>
<td></td>
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<tr>
<td>Total thyroidectomy</td>
<td>17 (62,9%)</td>
</tr>
<tr>
<td>'Near-total thyroidectomy'</td>
<td>10(37,1%)</td>
</tr>
<tr>
<td>Complications</td>
<td></td>
</tr>
<tr>
<td>Transitory hypoparathyroidism</td>
<td>6(22,2%)TNT</td>
</tr>
<tr>
<td>Permanent hypoparathyroidism</td>
<td>1(3,7%)TNT</td>
</tr>
<tr>
<td>Recurrent nerve lesion</td>
<td>1(3,7%)TNT</td>
</tr>
</tbody>
</table>

Discussion

In the United States, Graves' disease involves 0,004 % of the total population with an incidence of 100/200 out of 100,000 subjects each year; the prevalence in children and adolescents is about 0,004 % with an incidence of 3,8 children out of 100,000 each year. Hyperthyroidism during childhood and adolescence accounts for approximately 1%-5% of all patients with this disease. Graves' disease in children is observed in 80% of cases between 10 and 15 year of age with a peak in
deficiency and poorness in nutrition for both children and adults in regions where the prevalence of stunted growth is high. The main causes of such deficiencies are malnutrition due to inadequate intake of essential nutrients. Inadequate intake of nutrients can lead to poor growth and development, which in turn can affect health and productivity. The prevalence of stunted growth is highest in low-income countries, particularly in sub-Saharan Africa and South Asia. Improved nutrition and health care are essential to prevent and treat stunted growth. In addition, there are genetic factors and environmental factors that can influence growth and development. It is important to identify and address these factors to improve the health and well-being of children and adults.
method (6.8% of transitory hypoparathyroidism and no lesion of the recurrent nerve) but with high risk of disease relapse. The reliability and efficiency of total thyroidectomy in Graves' disease is obtained only by very accurate surgical treatment, as underlined in recent papers. 

Conclusion

Surgical therapy for Basedow' disease in children is indicated when there is a presence of an increase in the volume of the thyroid or when previous medical therapy based on anti-thyroid drugs is not able to control the disease. Data show that total thyroidectomy is the surgical treatment of choice, because it offers a greater guarantee to reduce the possibility of relapse, and it has a greater effectiveness in ophthalmopathy. Besides, post surgical complications after total thyroidectomy do not result greater than those after a more conservative operation.

REFERENCES