SUMMARY

Background: Optimal treatment for Graves’ disease (GD) in paediatric patients is still a matter of controversy. Antithyroid drugs (ATD), radioiodine (RI*) and thyroidectomy (Tx) are the three therapeutic options available.

Aim: The authors report their experience of long-term medical treatment and outcome of paediatric GD.

Methods: A five-year long medical protocol was implemented in 20 children and adolescents with GD. All patients received ATD as the first therapeutic option; patients who did not enter long-term remission received RI* and/or Tx as the definitive treatment.

Results: The mean age at diagnosis was 12 ± 4 years. Only two patients were males, both presenting concomitant type I diabetes. Mean follow-up was 13.8 ± 5.5 years. Long-term remission was achieved in 40% of patients using low ATD doses (mean treatment time was 5.4 ± 1.4 years). Six patients received RI* as definitive treatment and another six underwent Tx after completing medical treatment for 6.8 ± 4.1 and 5.1 ± 2.0 years, respectively. None of the patients requiring high ATD doses to maintain euthyroidism reached long-term remission and they needed RI* and/or surgery.

Conclusions: Implementation of a long-term ATD protocol achieved 40% long-term remission in paediatric patients with GD. Need for maintenance of high doses of ATD could be considered a predictive factor for no remission. When permanent remission was not obtained by medical treatment, radioiodine and/or surgery allowed cure of the disease in all cases.

COMMENT

The study describes the long term experience of the treatment of Graves’ disease (GD) in children and adolescents (15% pre-puberty; 85% post-puberty). Paediatric GD is relatively uncommon, but it is well known that the remission rate obtained with antithyroid drugs (ATD) is lower than in adults. This was confirmed in the present study, showing a long-term remission rate of only 40%, despite an average follow-up treatment period that reached >12 years in the group treated with ATD alone. Another interesting characteristic was that anti-TSH receptor antibodies were positive in only 50% of these children at diagnosis (far below the positivity rate of TRAb usually observed in adults with GD). The authors observed that when high ATD doses were required in the long term in order to maintain euthyroidism, remission could not be obtained. Altogether, 7 patients were eventually cured after thyroidectomy and 5 after radioiodine. The authors did not discuss in detail the methodology used to decide on when radical treatment became necessary nor how they selected the final option between Tx and RI*. They did provide some useful information, however. An alternative therapeutic option (thus, RI* or Tx) was recommended when the patients needed high doses of ATD after 5
years of treatment. Also, RI* treatment was only used after the age of 17 years. One important information missing in this article is the evolution of goiter size. Eighty percent of the cases had a goiter at diagnosis, but there is no information on the changes in thyroid size with time during ATD treatment. In our experience, long term administration of ATD to young patients is almost always accompanied by an increase in goiter size. This increase, in turn, tends to entertain the immune response and maintain high TRAb titers. Therefore, a vicious circle is often created by the long-term administration of ATD, probably explaining in part the low remission rate. Finally, this article also reinforces the notion that administration of RI* can be used safely to cure young patients with Graves' disease.

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See Figure below

![Figure 1. Outcome according to medical therapy, radioiodine or surgery in a cohort of children and adolescents with Graves' disease. Long-term remission rate with ATD was 40%, with radioiodine 85.7% and with surgery 100%. Mean follow-up in the ATD group: 12.5 ± 5.2 y; in the radioiodine group: 16.1 ± 4.6 y; and in the surgery group: 13.1 ± 6.7 y. (In parentheses, mean ± SD of the number of years of ATD treatment.)](image-url)