A CASE OF HYPOTHYROIDISM POST BONE MARROW TRANSPLANTATION

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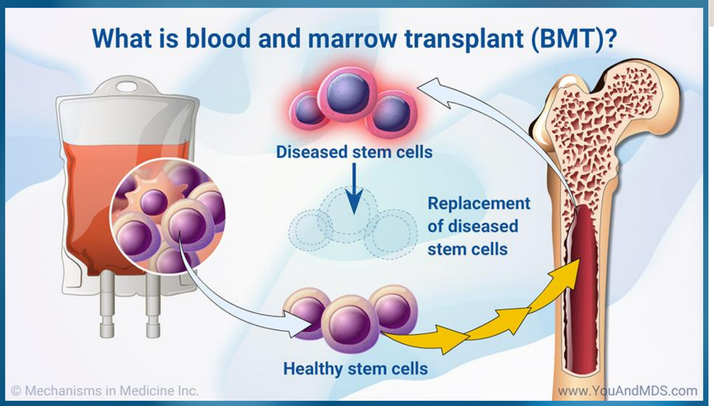

1 Introduction

Changes in thyroid function and thyroid function tests occur in patients with β-thalassemia major (TM). The frequency of hypothyroidism in TM patients ranges from 4% to 29 % in different reports. Bone marrow transplantation (BMT) is based on destruction of the patient's bone marrow with rescue of haematopoietic stem cells from a donor. Chronic graft-vs-host disease (GVH) is the major complication post-BMT and mimics some autoimmune diseases, such as autoimmune hypothyroidism.

2 CASE

We report a case of 7 years old boy with diagnosis of Major beta thalassemia. The height at birth was 3.2 kg, from a consanguineous parents. His old sister had a heterozygote beta thalassemia. The diagnosis of homozygote beta thalassemia was made at age of 3 months. The child beneficied about BMT (Bone marrow transplantation) in 2016 when he was 5 years old. Two years after their mother noticed the appearance of some symptoms such as weight gain, asthenia, constipation and chilliness. the child is referred by his hematologist at our clinic. He was 7 years and 3 months old, their weight 26 kg (+0.73 SD) and their height 122 cm (- 0.16 SD) for a parent target height (H father 180 cm/ M height 155cm TPH= -0.36 SD) so without short stature but with frank signes of hypothyroidism.
After two years of bone marrow transplantation the child presents symptoms of hypothyroidism confirmed by biological assays TSH 100 micro iu FT4 0.3 pmol/l with positive anti bodies anti thyroperoxidase antibody 307 ui/l and anti thyroglobuline antibody 1208 ui/l.
A second confirming assessment is quickly redone and treatment with levothyroxine is initiated combined with 10 mg of hydrocortisone for the first two weeks. The follow-up under treatment is shown in TABLE 1

TABLE 1 The follow-up under treatment

DATES	06/02/2019	21/04/2019	28/09/2019	08/12/2019	02/02/2020	28/06/2020	27/09/2020	2021
LEVOTHYROXINE DOSE micro gramme	NOT YET	75	100	75	100	87.5	75	50
TSH	100	33	0.06	8.89	0.036	0.018	0.036	0.58
FT4 (7.72-15.44)	<0.30			11.06	19.7 high	16.8 high	14.02	13.79
AC ATPO	307 Positive							
AC ATG	1208 Positive							

3 DISCUSSION

The prevalence of posttransplant hypothyroidism is highly variable and is seen in up to 58% of the cases [1,2,3,4,5]. Niedzielska et al. reported on 16 patients after auto-HSCT (hematopoietic stem cell transplantation) and 30 patients after allo-HSCT; hypothyroidism was found in 5 of these patients (3 after allo-HSCT, 2 after auto-HSCT) in their series. Post-transplant hypothyroidism is seen generally after a median of 1.5 to 2 years [3]. Earlier thyroid dysfunction as short as 6 months after HSCT was reported. The current concept of pathogenesis immune thyroiditis after allogeneic transplantation is the transfer of a clone of donor lymphocytes with antithyroidal activity. T cells play an important role in thyroid damage and also complement-mediated injury. Significant hypothyroidism can be seen after autologous transplantation receiving chemotherapy-only condiotioning regimen. High levels of autoimmune markers may suggest the immune etiology.

HSCT can cause thyroid dysfunction more frequently than expected, therefore, the thyroid status of each HSCT patient should be screened before and after the treatment. Further studies are warranted to assess the requirement of screening for thyroid autoantibodies before or after HSCT.

Conclusions

4

These diseases occur mainly in association with chronic GVH. The pathophysiology of chronic GVH and other autoimmune-like diseases post-BMT remains poorly understood. Different mechanisms have been postulated. Most of the autoimmune events (either chronic GVH or more specific diseases) seem to be related to a poor or inadequate immunologic recovery post-BMT with an imbalance between autoregulatory and autoreactive lymphocytes. Microchimerism and molecular mimicry have been recently evocated. A minority of cases (autoimmune thyroid disorders) is attributed to the direct transfer of autoreactive cells from donor to patient (adoptive immunity). Despite physiopathologic uncertainty, these autoimmune-like disorders post-BMT are an interesting model for primary autoimmune diseases.

5 Acknowledgements

I would like to thanks all my colleagues.

7 References

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