



## EDITORIAL

# Endocrinologic disorders in pediatric cancer survivors

## *Secuelas endocrinológicas en sobrevivientes de cáncer en la edad pediátrica*

Advances in the treatment of oncological diseases in children have allowed for increased progressive patient survival.<sup>1</sup> Some epidemiological studies have documented that ~70-90% of children who received antineoplastic treatments are survivors. Despite this high survival rate, a large percentage of children who survive cancer present endocrine alterations in different axes due to the damage produced at the pituitary level as well as in target organs as a result of underlying baseline disease, treatment or intercurrent diseases. Different series have reported that up to 40% of pediatric patients with oncological diseases may have some endocrine sequelae related to baseline disease, surgery, radiation or chemotherapy.<sup>2</sup> Many of these endocrine alterations present themselves years or decades after cancer treatment. Among the factors associated with a greater risk of endocrine changes in childhood survivors of cancer is the age when the disease began and the treatment administered, gender and time passed since the end of treatment.

In the article by Castilla-Peón published in this issue of *Boletín Médico del Hospital Infantil de México*, the importance of pediatric monitoring of endocrine changes in children who have received antineoplastic treatments is highlighted. Also proposed is a guide for the performance of this type of monitoring. Even though this guide addresses the principal endocrine axis that may be changed after surgical treatment or after radio- or chemotherapy, it is necessary to consider that there may also be disorders of other organs such as neurohypophysis and parathyroid glands, which are not contemplated in this guide. Antidiuretic hormone deficiency (ADH) that causes diabetes insipidus is rare in children who are cancer survivors subjected to radio- or chemotherapy.<sup>3</sup> Generally, it presents itself after surgical excision of tumor masses located near the pituitary or the hypothalamus. It is also possible that diabetes insipidus may occur due to the effect of a primary tumor in cases of dysgerminoma<sup>4</sup> or also in Langerhans cell histiocytosis, even

before receiving treatment for these diseases. Therefore, it is important to evaluate the appearance of classic symptoms of this disease such as polyuria, polydipsia and, in later stages, failure to thrive. Determination of serum and urine osmolarity is required to make a diagnosis and performing a test for fluid deprivation.<sup>5</sup>

Various studies have shown an increase in the risk of hyperparathyroidism due to parathyroid adenomas in the neck region. The latency time may be prolonged from 25 up to 47 years.<sup>6</sup> Another disorder of the parathyroid glands includes hypoparathyroidism secondary to resection of parathyroid glands as a surgical complication in patients with thyroid cancers. This complication presents itself in patients subjected to total thyroidectomy; therefore, postoperative monitoring of serum concentrations of calcium, phosphorus and parathyroid hormone (PTH) is important.<sup>7</sup>

In the guide proposed in the article by Castilla-Peón<sup>8</sup> the importance of monitoring metabolic disorders in pediatric patients who are cancer survivors is mentioned. In our population, special attention should be considered especially due to the high risk of presenting obesity and its co-morbidities. Weight gain in these children is related with various risk factors associated with treatment such as the use of glucocorticoids and concomitant hormone deficiencies (especially growth hormone and hypothalamic damage secondary to surgery or radiotherapy), in addition to other environmental factors such as sedentary lifestyle with decreased physical activity, type of nutrition, rebound of early adiposity and certain genetic factors.<sup>9</sup> In various follow-up studies it has been reported that up to 60% of adult survivors of acute lymphoblastic leukemia are overweight or obese. The main risk factors are brain radiation >20 Gy, female gender and age <4 years at the time of the diagnosis.<sup>10,11</sup> Even though the guide proposes annual monitoring and nutritional recommendations to prevent overweight and obesity, it is necessary to evaluate the risk of changes in glucose metabolism and atherogenic dyslipidemia in those patients who have or develop overweight or obesity

