

Management of pregnancy and the possibility of normal delivery in pregnant women with thyroid cancer in Armenia

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Abstract

Thyroid disorders are common in Armenia, and especially so in women of reproductive age group. This review aimed to identify the maternal and fetal implications during thyroid cancer and management this situation in low- and middle-income countries, such as Armenia. Materials: The material of this study was a review of literature data from the following databases: PubMed, Web of Science and Scopus without time limits. The keywords for the search were the following terms: thyroid cancer, risk factors, incidence and outcomes, as well as a combination of these terms. The study included case and follow up of a pregnancy woman with thyroid cancer undergo partial thyroidectomy, registered at the Erebouni Medical Center during last year. Results: Based on international clinical guidelines and our experience, we have developed an algorithm for managing pregnancy with a history of thyroid cancer. Conclusion: The results of this study indicated that thyroid cancer in pregnancy is an uncommon phenomenon but one which poses dilemmas for patients and their physicians. A multi-disciplinary approach is recommended for optimal clinical-decision making.

Keywords: Thyroid Cancer; Pregnancy; Management of Pregnancy; Possibility of Normal Delivery

1. Introduction

Differentiated thyroid cancer (DTC), the most common endocrine malignancy, is often detected in reproductive age group due to its association with estrogen and human chorionic gonadotropin. About 10% of DTC occurring during the reproductive years are diagnosed during pregnancy or in the early post-partum period [1-4].

Thyroid disorders can be divided into (sub) clinical hyperthyroidism, (sub) clinical hypothyroidism and/or thyroid autoimmunity. Hyperthyroidism is found in 0.1- 0.4% of pregnant women and is most commonly caused by Graves' disease [5]. Graves' disease in pregnancy is associated with miscarriage, preeclampsia, preterm birth, placental abruption and fetal hyperthyroidism [7].

Disease-free survival among pregnant women with DTC generally does not differ from that in non-pregnant women of the same age with similar disease.

The prevalence of clinical hypothyroidism is 0.3 –0.5% in pregnant women [8]. Hypothyroidism in women of reproductive age is most commonly caused by an autoimmune thyroiditis and Hashimoto's disease [6]. Hypothyroidism in pregnancy is associated with miscarriage, placental abruption, neonatal intensive care unit admission and lower intelligence scores [7-9]. Treatment with levothyroxine is therefore recommended and considered safe in pregnancy. The prevalence of subclinical hypothyroidism, defined biochemically by the combination of elevated serum thyroid-stimulating hormone level and a free thyroxine level within the reference range, is 3–5%. There is a strong association with pre-eclampsia and perinatal mortality and lower intelligence scores in the offspring [10-12]. The ESCPG

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'Management of Thyroid dysfunction during Pregnancy and post-partum' advises hormone replacement therapy in pregnant women with subclinical hypothyroidism and reports the evidence as fair for pregnancy outcomes but poor for neurological outcome [11].

Thyroid autoimmunity is defined as the presence of thyroid antibodies against thyroperoxidase (TPO-Ab) and/or thyroglobulin (Tg-Ab) in combination with a normal thyroid function or euthyroid state. This has an incidence of 8 - 14% among women of fertile age [9]. The presence of thyroid autoantibodies in euthyroid women is associated with a significant risk for unexplained subfertility, miscarriage, recurrent miscarriage, preterm birth and maternal postpartum thyroiditis [10-12]. Women with thyroid autoimmunity who are euthyroid in the early stage of pregnancy are at risk of developing hypothyroidism in the course of pregnancy and should be monitored [4].

The high prevalence of thyroid autoimmunity and subclinical hypothyroidism makes it an important health problem. These conditions are not diagnosed without an active screening strategy because they present without any symptoms. The ESCPG guideline supports selective screening in patients who are at increased risk for thyroid disease [6]. Universal screening of thyroid function in pregnancy is under debate and is currently not recommended because of lack of evidence on the effect of treatment interventions, especially for subclinical hypothyroidism and thyroid autoimmunity.

However, thyroid cancer detected during pregnancy may cause anxiety about the optimal timing of recommended treatments and about both maternal and neonatal morbidity, as well as pregnancy following a diagnosis of thyroid cancer obviously needs both maternal and fetal management [4-6].

According to the literature data, in patients receiving suppressive or replacement therapy with thyroxin, the growth of the fetal thyroid gland is normal on ultrasound, the state of the thyroid gland of the newborn is normal, and the incidence of maternal morbidity does not depend on pregnancy. Thyroid cancer patients often undergo total thyroidectomy and thus need adequate supplementation of both calcium and thyroxin. Thus, pregnancy following thyroid cancer needs both maternal and fetal control.

The optimal timing of treatment, however, is still controversial, with some authors advocating surgery during the midtrimester whilst others recommend waiting until after delivery [3–5, 12]. We reviewed our experience, algorithm for managing pregnancy with thyroid dysfunction and the case and follow up of a pregnancy woman with thyroid cancer undergo partial thyroidectomy.

2. Case Report

Patient - J.P., born on January 1, 1987.

Diagnosis: The pregnancy 16-20 week, history of thyroid carcinoma, partial thyroidectomy (the right lobe and strait of the gland), condition after 2016 surgery. After surgery, despite the L-thyroxin therapy, the patient had an exacerbation of the disease, diffuse changes in the left lobe of the thyroid gland, right cervical lymphadenopathy, more likely MTS lesion, recommended by FNA, and metastases. When she visiting a gynecologist on the basis of preliminary analyzes and clinical history a tumor board was convened. Oncologist surgeon suggested termination of pregnancy, total thyroidectomy, and radioactive iodine therapy. Only after stabilization of the condition, you can think about a possible pregnancy. The patient did not agree to terminate the pregnancy. It was decided to conduct pregnancy under strict control of the tumor board until the possible term for caesarean section, then thyroidectomy, radioiodine therapy. The delivery was normal, but the patient refused surgery and radiotherapy in order to feed the baby. Currently, oncologists are trying to convince the patient for treatment in order to save her life. So far, there is no evidence of thyroid dysfunction in the newborn.

3. Discussion

The protocol for examining pregnant women or women planning pregnancy includes the study of thyroid function. Pregnancy is a unique period during female life that often requires specific decision-making with respect to health. Thyroid nodules and thyroid cancer deserve special consideration in this context. Thyroid nodules are common and should undergo a comprehensive evaluation when discovered during pregnancy that includes clinical examination, serum thyrotropin measurement, ultrasonographic assessment, and ultrasound-guided fine needle aspiration biopsy when indicated to determine the risk of malignancy.

Sometimes women or their family members in Armenia try to hide the fact that they have an underactive or overactive thyroid in order to maintain an existing pregnancy and not receive therapy.

When a tumor of the thyroid gland is detected, for further management of the patient in Armenia, the convocation of a tumor board is practiced. The entire further protocol of pregnancy management (depending on the type of tumor, severity, presence of metastases, therapy taken) and / or its termination (for further surgical intervention and radioiodine therapy) is made by the decision of the team of specialists.

4. Conclusion

Thyroid cancer first diagnosed during pregnancy is typically low-risk and should be managed conservatively because most thyroid cancers will not show evidence of progression during gestation. The risks of thyroid surgery are higher in pregnant compared to nonpregnant women, such that surgery can be delayed until after delivery to minimize fetal and maternal risks. In rare circumstance of highly aggressive malignancy or compressive symptoms requiring urgent treatment, surgery is performed in the second trimester. Radioactive iodine ablation for adjuvant therapy of thyroid cancer should not be used during pregnancy. Levothyroxine therapy after thyroidectomy requires active management during pregnancy to ensure increases in dose maintain thyrotropin in the appropriate range. Through a balanced and informed approach to the clinical care of this unique population, outcomes can be optimized for both the mother and the fetus.

Compliance with ethical standards

Acknowledgments

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Statement of informed consent

Written informed consent was obtained from the patients for publication of these case reports.

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