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The roles of ultrasonography and ultrasonography-guided fine-needle aspiration cytology in the planning of management of Thyroid Cancers

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Because of the widespread use of Thyroid ultrasonography, many Thyroid lesions can be early detected. The next step is making the diagnosis by FNAC and under ultrasonography-guided, if there are multiple lesions, or the lesion is small, for the differential diagnosis of benign from malignant lesions. In the cytology, the Thyroid cancers of follicular epithelial cell include well-differentiated and undifferentiated (anaplastic) carcinomas. Well-differentiated Thyroid carcinomas include papillary carcinomas (PTC, 80-90%), and follicular carcinomas (5-10%). Non-follicular Thyroid carcinomas include Medullary Thyroid Carcinomas (10%) and lymphomas (1-2%). Usually, the diagnosis is easy to be determined in the experienced doctors. The difficulty occurs only in the differential diagnosis of malignant from benign follicular lesions. The planning of the management of Thyroid cancers, especially papillary Thyroid cancers, is quite different from the guideline used previously. On the other hand, for the quality of life, early detected Thyroid lesions with low risk and good prognosis should be managed more conservatively, e.g. just lobectomy is performed. For the undetermined lesion by FNAC, the planning should be also different from those with definite diagnosis preoperatively. It is much safe if Thyroidectomy can be done to have pathological proof. The morphological characteristics of each type of Thyroid cancers will be demonstrated. Finally, three examples with complete different management after ultrasonography and ultrasonography-guided FNAC are also depicted.

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The impact of Thyroid function and Thyroid autoimmunity on follicular recruitment and pregnancy potential in infertile women

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Background: Thyroid dysfunction is the most common autoimmune endocrine disorder in women of reproductive years and has been associated with infertility. As hypoThyroidism is associated with menstrual irregularities and anovulation; one can hypothesize that thyroxin may affect follicular growth and development. Assuming such a possibility, TSH levels should influence follicular recruitment, reflected by Anti Mullerian hormone (AMH) levels. Recent animal studies support such an assumption by demonstrating accelerated growth and reduced apoptosis of pre-antral follicles with thyroxin co-culture within physiological ranges. To investigate whether Thyroid function also influences follicular recruitment in humans, the impact of Thyroid function on AMH concentrations in euThyroid infertility patients was investigated.

Methods: This study retrospectively investigated 225 infertile women who underwent work up for fertility treatment at the Center for Human Reproduction in New York City. As part of routine pre-IVF evaluations, AMH, TSH and Thyroid antibodies were assessed. Only women with normal TSH levels (i.e., TSH 0.4-4.5μIU/mL) were eligible for enrollment. Thyroid function was divided into low-normal and high-normal TSH levels with a cut-off of 3.0μIU/mL.

Results: Mean age of the patients was 38.4±5.0 years. Mean AMH levels were 1.3±2.0 ng/mL, mean TSH levels were 1.8±0.9 μIU/mL. Thyroid autoimmunity was present in 11.1% of all patients. Women with TSH <3μIU/mL presented with significantly higher AMH levels compared to their counterparts with TSH levels ≥3μIU/mL (P=0.03). Those findings remained significant when the analysis was adjusted for Thyroid autoimmunity (P=0.02).

Conclusions: TSH levels <3μIU/mL in euThyroid infertility patients appear associated with significantly higher AMH levels than in women with high-normal TSH, suggesting a beneficial effect of lower TSH levels on follicular recruitment. It now remains to be determined whether thyroxin supplementation may enhance follicular recruitment in women with high-normal baseline TSH levels.

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