

# Thyroid Watch

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**Thyroid Watch**  
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## **Video-assisted Thyroidectomy**

In this randomized control study, thyroid gland manipulation as measured by serum thyroglobulin levels, surgical stress response as measured by C-reactive protein and white blood cell count, and postoperative outcome in cases of video-assisted thyroidectomy (VAT) and conventional thyroidectomy were compared to verify the safety of VAT. No significant differences were found in any of these indicators. No thyroid capsules were ruptured and no spilled thyroid cells were found. Patients who had VAT experienced less pain, required fewer analgesics, and were more satisfied with the cosmetic result and the surgical outcome. The authors conclude that VAT is as safe as conventional thyroidectomy and is characterized by a less painful postoperative course and by better cosmetic results and postoperative outcome.

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(Head Neck. 2004 Sep 30 Epub ahead of print)

## **Thyroid Hormone Treatment Improves Peri-Operative Cardiac Function In Patients With Poor LV Function Undergoing Cardiac Surgery**

This study looks at whether pretreatment with oral thyroid hormone has beneficial effects in cardiac function and morbidity and mortality after cardiac operations. Eighty patients with a preoperative left ventricular ejection fraction less than 30% who underwent an elective coronary artery bypass grafting took part in this prospective, randomized trial. Patients randomized to the T (3) group received T (3) 125 microgram/day orally for 7 days preoperatively and from the first postoperative day till discharge. Outcome variables included perioperative hemodynamic data, inotropic requirements, morbidity and mortality. Patients in the T(3) group demonstrated a higher cardiac index than patients in the placebo group in the entire post-cardiopulmonary bypass periods ( $P < 0.01$ ). Mean inotropic requirements remained lower in the T (3) group than in the placebo group ( $P < 0.001$ ).

(Eur J Cardiothorac Surg. 2004 Oct; 26(4): 720-5.)

## **Thyroid Dysfunction and Pulmonary Hypertension**

This review article focuses on the association between pulmonary hypertension and thyroid dysfunction. The prevalence generally decreases after correction of hypothyroidism. The association is thought to be due to the influence of thyroid hormones on growth and maturation of vascular cells and also an enhanced catecholamine sensitivity causing pulmonary vasoconstriction.

Recenti Prog Med. 2004 Sep; 95(9): 443-6.

## **RAS Expression and Thyroid Cell Differentiation**

In RAS-transformed FRTL-5 rat thyroid cells, the authors have observed that a clear loss of differentiation was obtained only in the presence of high RAS oncogene expression. In contrast, thyrotropin-independent growth appeared to be induced in the presence of both low and high levels of oncogenic RAS expression. Inhibition of differentiation was seen to be an early RAS-induced phenomenon. Only high doses of RAS oncogenes were able to inhibit the activity of *Ttf1* and *Pax8*, two transcription factors essential for the maintenance of thyroid

differentiation. These results probably represent the first evidence of a dose-dependent effect of RAS oncogenes on thyroid epithelial differentiation.

(Mol Endocrinol. 2004 Sep 23-Epub ahead of print)

### **Hashimoto's Encephalopathy Presenting as Depression**

A 74-year-old female patient with a severe depressive episode who showed no treatment response to citalopram 40 mg/day and venlafaxine 150 mg/day was found to have an abnormal EEG, elevated thyroid peroxidase antibodies (TPO-Ab) and older post-inflammatory changes in thyroid sonography. Hashimoto's encephalopathy manifesting as a depressive episode was diagnosed and treatment with prednisolone 70 mg/day with stepwise dose reduction along with venlafaxine 150 mg/day was administered. Within 4 weeks of treatment, the severe depressive episode as well as the abnormal EEG disappeared. In addition, serum values of TPO-Ab decreased.

(Nervenarzt. 2004 Sep 23 Epub ahead of print)

### **Hypothyroidism and Serum Leptin Concentrations**

This study examined the relationship between hypothyroidism, serum leptin, leptin mRNA levels, and adipose tissue mass and body weight in 20 male rats. Serum leptin concentrations did not show any difference between the two groups, but the fat mass of the hypothyroid rats were lower than the euthyroid rats, although the difference between the groups was statistically not significant. Leptin mRNA level measured in the retroperitoneal white adipose tissue was significantly higher in the hypothyroid group than in the euthyroid group. The change of leptin mRNA expression in white adipocytes was thought to be the direct result of hypothyroidism or a compensatory response to metabolic changes caused by hypothyroidism.

(Endocr Res. 2004 May; 30(2): 247-55.)

### **T3, T4 Levels in Pregnancy**

The authors have tried to establish trimester-specific reference intervals for thyroxine and triiodothyronine in pregnancy in iodine-sufficient women and also compared the results using two different techniques; that is isotope dilution tandem mass spectrometry and immunoassays. For T4, the slope decreased from  $r=0.900$  in nonpregnant women to  $0.802-0.820$  during pregnancy. For T3, correlations between the two methods were weaker in all cases ( $r=0.407-0.574$ ).

Clin Chim Acta. 2004 Nov; 349(1-2): 181-189.

### **Cord Blood TSH Levels and Perinatal Complications in Infants Born to Mothers with GDM**

In a recent study from China, cord blood TSH results were analyzed in 1,578 euthyroid infants from singleton pregnancies with GDM. 103 had elevated TSH ( $>16$  mIU/l) and 1,475 had normal TSH. Maternal characteristics, pregnancy outcome and perinatal complications were compared between the two groups. High cord blood TSH level was found to be associated with the 1-min Apgar score  $<7$ , birth trauma, neonatal jaundice requiring treatment, neonatal sepsis, respiratory complications, neurological complications and overall perinatal morbidity. The study concluded that cord blood TSH level seemed to be a better and independent indicator of the in-utero stress to the fetus in GDM when compared to the commonly used sugar profile result and HbA1c level. Copyright (c) 2004 S. Karger AG, Basel.

(Neuroendocrinology. 2004 Oct 6; 80(2): 124-128)

### **Ultrasound Guided FNAC in Hashimoto's Thyroiditis with Nodular Lesions**

This study found ultrasound-guided fine needle aspiration cytology (FNAC) to be useful in determining whether to do surgery in patients with Hashimoto's thyroiditis with nodular lesions. Two of twenty-four consecutive patients (23 women and 1 man) with such a picture

had papillary thyroid cancer in ultrasound guided FNAC and both were confirmed by operative pathologic findings.

(Acta Cytol. 2004 Sep-Oct; 48(5): 622-9.)

### **Non-Recurrent Laryngeal Nerve and Thyroid Surgery**

The study reiterates that non-recurrent laryngeal nerve, which is a rare anomaly, is very vulnerable during thyroid surgery.

(Zhonghua Er Bi Yan Hou Ke Za Zhi. 2004 Jul; 39(7): 415-8.)

### **Fibromyalgia and Thyroid Auto Immunity**

An association is described between fibromyalgia and thyroid autoimmunity (antithyroid peroxidase and anti thyroglobulin antibodies) and after adjusting for depression and age, the association became stronger.

J Rheumatol. 2004 Oct; 31(10): 2036-40.

### **Malignancy in Completion Thyroidectomy**

The authors have found an incidence of 40% malignancy in the remaining thyroid tissue in 18 patients who underwent completion thyroidectomy for incidentally detected thyroid carcinoma in hemithyroidectomy done for benign pathology. Thus total thyroidectomy is recommended for all thyroid cancers detected as "histological surprise."

(Acta Otorrinolaringol Esp. 2004 May; 55(5): 236-9.)

### **Intra Operative Laryngeal Palpation Helps in Avoiding Recurrent Laryngeal Nerve Injury During Thyroid Surgery**

EMG monitoring of the recurrent laryngeal nerve (RLN) has been found useful in addition to standard visual identification of the nerve during thyroid and parathyroid surgery. In the present study, intra operative laryngeal palpation through the posterior hypopharyngeal wall and identification of posterior cricoarytenoid muscle contraction (laryngeal twitch response) was found to be useful as an adjunct to formal EMG monitoring. Laryngeal palpation was performed in a series of 449 consecutive thyroid and parathyroid surgeries with 586 RLNs at risk. In this series, there was no permanent RLN paralysis. There was one case of temporary RLN paralysis secondary to neural stretch that resolved 6 weeks postoperatively. Intra operative laryngeal palpation of the laryngeal twitch response reliably correlated with normal postoperative vocal cord function. Loss of the laryngeal twitch response occurred in the single case of temporary paralysis in the setting of an anatomically intact nerve. There were no palpation-induced laryngeal injuries or laryngeal edema. There were also no RLN injuries due to repetitive neural stimulation. The authors conclude that besides being safe, it provides important prognostic information regarding ipsilateral vocal cord function at the completion of the initial side of the thyroid or parathyroid surgery. Intraoperative laryngeal palpation allows the surgeon to stage contralateral surgery if RLN damage is diagnosed, thereby avoiding the potential for bilateral vocal cord paralysis.

(World J Surg. 2004 Aug; 28(8): 755-60.)

### **Impulsivity In Early Treated Congenital Hypothyroidism**

Neuropsychological problems occur despite early detection and treatment of congenital hypothyroidism (CH). Claims that early-treated CH is associated with impulsivity were tested with a memory search task. Comparisons were made between 47 children with early-treated CH and 35 controls at the age of 7.5 years. Children with early-treated CH were notably slow and variable in their overall task performance but did not show signs of poor impulse control. Suggested short-term memory problems in these children could not be confirmed.

Dev Neuropsychol. 2004; 26(2):595-610.

### **Thyroid Auto Immunity and Type I DM**

63 children with newly diagnosed type I DM aged 2-14 years were investigated for the presence of thyroid autoimmunity. Anti thyroid peroxidase was present in 11.1%, anti thyroglobulin in 9.5% and thyroid stimulating immunoglobulins in 4.8%. Children with thyroid

antibodies (anti-TPO) were significantly older and developed diabetes later in life ( $P < 0.05$ ) than those without antibodies. Thyroid-stimulating hormone levels, goiter and thyroid dysfunction were higher in children who were anti-TPO + than in diabetic children without thyroid autoimmunity.

(An Pediatr (Barc). 2004 Oct; 61(4): 320-5.)

**Calcifications in thyroid ultrasound -? Marker of malignancy** In a retrospective study, of 159 patients who had undergone a preoperative thyroid ultrasound (TUS), 41.5% had cancer. Of the patients with thyroid malignancy, 78.8% had calcifications noted on ultrasound. Of the 93 patients with benign pathology, 61.3% did not have intra thyroid calcifications. Statistical analysis using a chi-square test showed a strong association between cancer status and calcification, with  $P < .001$ . Calcifications on TUS had a sensitivity of 78.8% and a specificity of 61.3%, with an odds ratio of 5.88.

(Laryngoscope. 2004 Oct;114(10):1753-7.)

**Inter Assay Variability Of 3<sup>rd</sup> Generation TSH Assays** The sensitivity of six different third generation TSH assays were compared. It was found that results were not comparable for serum pools with TSH concentration less than 0.2 mIU/L and for patient results across the analytic measurement range. The authors suggest that additional harmonization efforts are required.

(Clin Chem. 2004 Oct 7 Epub ahead of print)

**Structure Of Amyloid In Medullary Thyroid Cancer** In this study from India, matrix assisted laser desorption ionization-time of flight (MALDI-TOF) mass spectrometric analysis demonstrated full length calcitonin as the constituent of the medullary thyroid carcinoma amyloid from seven patients as opposed to the alternately processed prohormone of calcitonin suggested by an earlier study. The results, according to the authors, unequivocally demonstrate that full-length calcitonin is the sole constituent of amyloid in medullary thyroid carcinoma.

(Endocrinology. 2004 Sep 30 Epub ahead of print)

**A New Thyroid Hormone Analogue In Heart Failure** 3,5 diiodothyropropionic acid (DITPA) is a thyroid hormone analog now in clinical trials for heart failure. It was found that in rats after myocardial infarction, DITPA enhances endothelial nitric oxide and beta-adrenergic-mediated vasorelaxation by increasing nitric oxide in the vasculature. Left ventricular (LV) end-diastolic pressure and LV dP/dt decreased ( $P < 0.05$ ). Treatment with DITPA increased eNOS protein content in aortic tissue and in endothelial cells.

(J Cardiovasc Pharmacol. 2004 Oct; 44(4):453-9.)

**T3 Supplementation In Children Undergoing Cardiopulmonary Bypass** Cardiopulmonary bypass induces marked and persistent depression of circulating thyroid hormones in infants and children, possibly contributing to postoperative morbidity. The Triiodothyronine for Infants and Children Undergoing Cardiopulmonary Bypass (TRICC) study is a multicenter, randomized, clinical trial designed to determine safety and efficacy of triiodothyronine supplementation in children  $< 2$  years of age undergoing surgical procedures for congenital heart disease. Duration of mechanical ventilation after completion of cardiopulmonary bypass is the primary clinical outcome parameter with multiple secondary clinical and hemodynamic parameters. The aim is randomize about 200 patients to receive either triiodothyronine about 200 or placebo using a stratified block randomization according to specific preoperative diagnosis. The TRICC study may provide important data regarding the efficacy and safety of triiodothyronine in this age-specific population undergoing surgery for congenital heart disease.

Am Heart J. 2004 Sep;148(3):393-8.

**Octreotide May Not Be Useful In Treatment Of Differentiated Thyroid Cancer** A case of advanced metastatic follicular thyroid cancer with strong octreotide uptake and reduced

avidity for I(131) is reported. Treatment with the somatostatin analogue octreotide, however, failed to achieve a significant response. This case is probably important as it suggests that although octreotide provides a useful additional imaging modality in differentiated thyroid cancer, it has no therapeutic role.

(J Laryngol Otol. 2004 Aug; 118(8): 653-4.)

**Dietary Iodine Content and Hypothyroidism** Epidemiologic data of 3761 adults in 3 kinds of rural communities in China were analyzed: mild iodine deficiency area, area with more than adequate iodine and area with excessive iodine. More than adequate iodine and excessive iodine were found to be independent risk factors for subclinical as well as overt hypothyroidism. When confounding factors like thyroid peroxidase antibody (TPO Ab) or thyroglobulin antibody (Tg Ab) were accounted for, more than adequate iodine was still a risk factor of subclinical hypothyroidism, but not for overt hypothyroidism. Interaction of more than adequate iodine and positive TgAb significantly affected subclinical hypothyroidism and overt hypothyroidism.

Zhonghua Yi Xue Za Zhi. 2004 Jul 17;84(14):1171-4.