and hypothyroidism 1.69%). The rates of subclinical hypothyroidism and hyperthyroidism were 5.5% and 1.4% respectively. The prevalence of positive thyroid antibodies, at least one of them was 28% in females and 14% in males (2:1 ratio). 97.3 % of subjects who testet negative for antibodies had normal thyroid function compared to 73.5% in antibodies positive group. There was a significant difference for subclinical hypothyroidism and other thyroid disorders between antibodies positive group and antibodies negative group (p value <0.0000119% of individuals(from 5047 examined) had normal thyroid function and resulted positive for anti TPO or anti TG. **Conclusions:** Undiagnosed biochemical thyroid dysfunctions were common in subjects living in a mild to moderate iodine-deficient area especially subclinical hypothyroidism. TSH level correlated well with the presence of antibodies resulting in significant difference in thyroid function between 2 groups. We found a high prevalence (19%) of thyroid antibodies in euthyroid subjects. TPO antibodies in euthyroid subjects can be used to identify subjects with increased risk for hypothyroidism such as women who are pregnant (to predict first trimester or postpartum thyroid dysfunction), patients with other autoimmune diseases, subjects on drugs like amiodarone or relatives of patients with autoimmune thyroid diseases.

Thyroid

FROM HYPO- TO HYPERTHYROIDISM

Interfering Medications in Older Adults on Thyroid Hormone Replacement: Who Is at Risk?

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Background: Thyroid hormone prescriptions have steadily increased in the past few years with levothyroxine being one of the most frequently prescribed medications in the United States. Population-based studies have shown that older age is a significant predictor for thyroid hormone initiation, with use continuing long-term. Thyroid hormone management in older adults is complicated by the presence of comorbidities and polypharmacy, particularly due to medications that can interfere with thyroid function tests. However, the prevalence of concurrent use of thyroid hormone and interfering medications in older adults and patient characteristics associated with this practice remain unknown. **Methods:** We conducted a population-based, retrospective cohort study of 538,137 thyroid hormone users aged ≥65 years from the Corporate Data Warehouse of the Veterans Health Administration (2004-2017). First, we described the prevalence of concurrent use of thyroid hormone and medications that commonly interfere with thyroid function tests (i.e., prednisone, prednisolone, carbamazepine, phenytoin, phenobarbital, amiodarone, lithium, interferon-alpha, tamoxifen). Then, we performed a multivariable logistic regression analysis to determine patient characteristics associated with concurrent use of thyroid hormone and at least one interfering medication during the study period. Covariates included in the model were patient age, sex, race, ethnicity and number of comorbidities. **Results:** Overall, 170,261 (31.6%) of patients were on at least one interfering medication while on thyroid hormone during the study period (median follow up 56 months). Non-white race [odds ratio (OR) 1.18, 95% confidence interval (CI) 1.15-1.21], compared to white race), Hispanic ethnicity (OR 1.11, 95% CI 1.08-1.14, compared to non-Hispanic), female sex (OR 1.12, 95% CI 1.08-1.15, compared to male sex), and presence of comorbidities (e.g. Charlson-Deyo Comorbidity Score ≥2, OR 2.47, 95% CI 2.43-2.52, compared to zero) were more likely to be associated with concurrent use of thyroid hormone and interfering medications. Older age (e.g., ≥85 years, OR 0.47, 95% CI 0.46 - 0.48, compared to age 65-74 years) was less likely to be associated with concurrent use of thyroid hormone and interfering medications. **Conclusions:** Almost one-third of older adults on thyroid hormone were taking medications that have been known to interfere with thyroid function tests. Our study highlights the complexity of managing thyroid hormone replacement in older patients, many of whom are at risk for adverse effects in the context of polypharmacy and comorbidities.

Thyroid

FROM HYPO- TO HYPERTHYROIDISM

Intravenous Thyroxine Administration in Hospitalized Patients, a Common but Unreported Practice: a Single Institution Recent Experience

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Background: Intravenous levothyroxine (IVT4) is FDA-approved for the treatment of myxedema coma (ME). ATA guidelines also acknowledge other rare situations, mostly such where oral/enteral access is compromised for prolonged periods, in which IVT4 may be appropriate. We noticed that at our hospital, IVT4 is administered more frequently than expected. **Aim of study:** To assess the extent of IVT4 administration, the indications for such a treatment, and its outcome at a tertiary facility. **Study design and Methods:** A retrospective study of IVT4 administered to adult inpatients at Tel Aviv-Sourasky Medical Center between January 2017 and July 2020. A list of dispensed T4 vials during the period of interest was generated from the hospital pharmacy computerized database. Patients' charts were searched for relevant clinical and laboratory data. **Results:** 107 patients (62 W/45 M), age 62.5±17.3 y (range 20-97) received IV T4, in the course of 113 hospitalizations. 94 subjects had primary hypothyroidism (PH), 10 had central hypothyroidism, while 3 subjects had no documented evidence of hypothyroidism. ME was likely ***in only 4 cases*** (3.5%). The leading stated indication for IVT4 was profound hypothyroidism in 57 instances (50.4%), jeopardized enteral route in 11 (9.7%), while no clear or justifiable indication was found in 39 cases (34.5%). An official endocrine consult backed treatment 74 times (65.5%). In subjects

with PH, median serum TSH prior to treatment was 36.4 mIU/L (IQR 8-42), while free T4 was 0.4 ng/dl (IRQ 0.22-0.61, normal 0.8-1.7). In subjects with no ME, altered consciousness was present in 19%, bradycardia in 6.3% and 4.5% were hypothermic. The median initial dose of IV-T4 was 150 μg (range 20-500). Repeated administrations ranged from 1 to 29 times, with a median cumulative dose of 250 μg (IQR 150-400, range 20-3300). We could not identify adverse events directly attributable to IV-T4. Of the 113 admissions, 61 ended in patient's recovery and discharge (54%), 22 (19.5%) in transfer to a rehab or nursing facility, while there were 30 cases of death (26.5%). Only one of the 4 patients with presumed ME died. In a logistic regression model, that also included age, gender, and ICU admission, the only variable that significantly predicted death was a need for artificial ventilation (OR:27.8, CI 3.5-189). In contrast, free T4, TSH, hospitalization length, altered consciousness, and other potential variables, were excluded from the equation. **Conclusions:** IVT4 administration is a common practice at our hospital. In a small minority of cases (13.2%), it is given for approved clinical conditions, while in all the others it appears to be unjustified. Reports on this practice are all but absent from the literature. Studies from other institutions are needed to determine its global extent, safety, and efficacy. Until it is proven safe and cost-effective, greater caution should be exercised before allowing it.

Thyroid

FROM HYPO- TO HYPERTHYROIDISM

Oral Liquid L-Thyroxine (L-T4) May Be Better Absorbed in Comparison to L-T4 Tablets in Patients With Lactose Intolerance

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In patients with lactose intolerance (LI), L-thyroxine (L-T4) malabsorption is often present, that leads to the necessity to use elevated L-T4 doses in the substitutional treatment of hypothyroidism. After excluding non-compliance, the differential diagnosis should include such disorders as LI, atrophic gastritis, coeliac disease, and others. In case of a diagnosis of LI, a low lactose diet and a lactose-free L-T4 preparation should be administered, to decrease the dose of the L-T4 formulation, and restore euthyroidism. We report the normalisation of circulating thyrotropin (TSH) levels in 8 patients with LI who received L-T4 tablets, after switching to an oral liquid lactose-free formulation. After switching from oral tablets to the liquid L-T4 (at the same dose, 30 minutes before breakfast) TSH was significantly reduced (TSH, evaluated 1-3 months after the switch, decreased: from 7.5±3.1 to 3.2±2.4 μIU/mL, P<0.05). The return back to tablets (at the same dosage, 30 minutes before breakfast) caused thyrotropin levels to worsen again. This result leads us to believe that the absorption of oral liquid formulation of thyroxine is greater in these patients. In conclusion, these data suggest that the L-T4 oral liquid formulation could bypass the issue of malabsorption in patients with lactose intolerance.

Thyroid

FROM HYPO- TO HYPERTHYROIDISM

Patterns of Body Weight Changes in Patients With Hypothyroidism, a Retrospective Study From Basrah, Southern Iraq

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Background: Weight gain is one of the most important hypothyroidism-related concerns among patients with hypothyroidism. However, not as expected, thyroxine replacement does not necessarily result in body weight (BWT) reduction among those patients. The study aimed to assess the patterns of BWT changes through time in patients with hypothyroidism. **Method:** A retrospective database study from Faiha Specialized Diabetes, Endocrine, and Metabolism Center. A total of 346 adult patients with hypothyroidism, 192 newly diagnosed and 154 known, who had 1 visit every 3 months, 5 visits per one year. From those patients, 116 new and 69 known had completd 9 visits per two years. Each visit involved thyroid-stimulating hormone (TSH) and BWT measurements. Patients with chronic liver or renal disease, diabetes mellitus, thyroid cancer, or other malignancies, pregnancy, and on steroid or hormonal therapies were excluded. The patients were further subdivided based on average TSH levels into controlled (TSH≤4.2 μIU/mL) and uncontrolled TSH>4.2 μIU/mL. Repeated measures ANOVA with a Greenhouse-Geisser correction and Post hoc tests using the Bonferroni correction were used to evaluate BWT changes through the study. **Results:** Both newly diagnosed and known hypothyroidism, over one and two years, in patients with average TSH>4.2 μIU/mL, BWT increased significantly through visits. For newly diagnosed over one year, ($F(2.41, 321.60) = 3.28$, $p = 0.03$), and mean BWT increase = 1.4 ± 0.38 kg from 3rd to 12th month visits, ($p = 0.004$). For newly diagnosed over two years, ($F(3.10, 263.89) = 9.08$, $P < 0.0005$), mean BWT increase = 3.02 ± 0.77 kg from 3rd to 24th month visits, ($p = 0.007$). And for known hypothyroidism over one year, ($F(2.56, 187.47) = 7.11$, $p = 0.0003$), mean BWT increase = 1.97 ± 0.64 kg at 12th month visit, and over two years, ($F(2.35, 77.56) = 4.67$, $P = 0.009$), mean BWT increase = 3.78 ± 1.26 kg at 24th month visit. While in all other patients with average TSH≤4.2 μIU/mL, the BWT changed non-significantly through visits. For newly diagnosed patients over one year and two years ($p = 0.10$, 0.34 respectively), and known patients over one year and two years ($p = 0.47$, 0.34 respectively). **Conclusion:** In contrary to what is believed, adequate treatment with thyroxine does not associate with weight reduction. Instead, either the patient kept on the same weight or continued to gain more weight.