Thyroid

THYROID CANCER CASE REPORTS I

Efficacy of the Percutaneus Administration, Guided by Ultrasound, of Polidocanol Ablation for Cystic Thyroid Nodules

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Introduction: The cystic thyroid nodule is a variant of nodular disease presentation, it can condition compressive symptoms, drainage is an alternative for its management, but it presents an elevated rate of recurrence, injection of ethanol is an alternative for refractory cases but it requires multiple sessions and is not exempt for recurrence, on the other hand, polidocanol may represent a best alternative for treatment. **Objective:** Determine the efficacy of polidocanol administration for cystic thyroid nodule disease. **Study Design:** An experimental, prospective, comparative of before and after and analytical study was made. **Period and Population:** Patients older than 18 years were selected, with diagnosis of cystic thyroid nodule disease in whom drainage was made with subsequent ablation with polidocanol 1%, considering therapeutic efficacy a reduction of at least 50% in regard of initial volume. **Results:** 39 patients were studied, 33 (84-6%) were women, with an age of 49.0 (15.0) years old. All with palpable nodules, time of identification of 14.1 (11.69) months and a palpable size of 3.53 (2.02) cms. The predominant location was the right lobule (51.3%), 24 (61.5%) referred growth before the procedure conditioning compressive symptoms. The main cystic composition was pure and unique in 20 (51.3%). 10 (25.6%) referred important cosmetic problem/ dysphagia. TSH was 1.73 (1.22) mU/ ml. An initial volume was of 13.99 (11.72) ml and a final volume of 6.6 (12.1) ml, p 0.000 (IC 95% 4.4, 10.2). 3 (7.7%) presented hematoma and 2 (6.1%) pain. Time of follow- up was of 24 weeks. Reduction percentage 78.7 (32). 33 (84.6%) achieved a reduction ≥50% and 21 (53.8%) ≥85% of the initial volume. **Conclusion:** Polidocanol is effective and safe for cystic thyroid nodule disease treatment, its use should be proposed in patients with this pathology.

Adrenal

ADRENAL PHYSIOLOGY AND DISEASE

DLK1 Expressing Cells Contribute to the Zonation of the Adrenal Gland

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The adrenal cortex is a dynamic organ that undergoes self-renewal and remodeling in response to the demand for steroids. In the mouse it is divided into two concentric layers, the outer zona glomerulosa and the inner zona fasciculata (ZF), that secrete aldosterone and corticosterone, respectively. Cell fate mapping studies have shown that the maintenance of the cortex relies on a pool of stem/ progenitor cells located in the capsular and subcapsular compartments. Two interconnected cell populations have been identified, subcapsular undifferentiated cells secreting the morphogen Sonic Hedgehog (Shh) and capsular $Gli1^+$ cells, which can transduce the Shh signal (1); both populations are precursors of steroidogenic cells and newly formed cells migrate in a centripetal fashion to repopulate the gland until they reach the juxtamedullary region where they undergo senescence and apoptosis. Moreover, our lab has shown that the Notch atypical ligand Delta-Like homologue 1 (Dlk1) is expressed in partially undifferentiated cells of the subcapsular region in rat (2)and human (3) adrenals, whilst it is mostly expressed in capsular cells in mice (4,5). To investigate whether Dlk1 expressing cells contribute to the zonation of the adrenal cortex we conducted lineage tracing analyses using a tamoxifen inducible $Dlk1^{CreERT2}$mouse model carrying the R26tdTom reporter. Pregnant dames were injected with tamoxifen at embryonic day (e) 12.5 and pups were culled at postnatal day (p) 10 and p38. Analysis of tdTomato expression showed that 35% (p10) and 24% (p38) of Steroidogenic Factor $1(Sf1)^+$cortical cells were $tdTomato^+$, revealing that capsular $Dlk1^+$cells are steroidogenic precursors. On the other hand, postnatal tamoxifen injections (p0) showed $tdTomato^{+/}Sf1^+$ cells only in 1-2% in cortical cells after 24-months chase, suggesting that the contribution of $Dlk1^+$cells to adrenocortical self-renewal is limited postnatally.However, the $Dlk1^+$population could be reactivated in the adult mouse treated with dexamethasone and was shown to contribute to the regeneration of the ZF once dexamethasone treatment was ceased.

1. King P, et al. Shh signaling regulates adrenocortical development and identifies progenitors of steroidogenic lineages. *Proc Natl Acad Sci*(2009) **106**:21185-211902. Guasti L, et al. Dlk1 Up-Regulates Gli1 Expression in Male Rat Adrenal Capsule Cells Through the Activation of β1 Integrin and ERK1/2. *Endocrinology*(2013) **154**:4675-46843. Hadjidemetriou I, et al. DLK1/PREF1 marks a novel cell population in the human adrenal cortex. *J Steroid Biochem Mol Biol*(2019) **193**:1054224. Guasti L, Candy Sze WC, McKay T, Grose R, King PJ. FGF signalling through Fgfr2 isoform IIIb regulates adrenal cortex development. *Mol Cell Endocrinol*(2013) **371**:182-1885. Heikkilä M, et al. Wnt-4 Deficiency Alters Mouse Adrenal Cortex Function, Reducing Aldosterone Production. *Endocrinology*(2002) **143**:4358-4365

Diabetes Mellitus and Glucose Metabolism

DIABETES TECHNOLOGY

Development of a Machine-Learning Method for Predicting New Onset of Diabetes Mellitus: A Retrospective Analysis of 509,153 Annual Specific Health Checkup Records

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