Pituitary neuroendocrine tumor treatment

- Assessing the clinical application of the PANOMEN 3 classification in a large cohort of pituitary tumours
- Association of non-English language preference with tumor characteristics and postoperative outcomes following pituitary neuroendocrine tumor resection:a retrospective review of 1143 cases
- A Bridge Too Far? Towards Medical Therapy for Clinically Nonfunctioning Pituitary Tumors
- Effects of lanreotide autogel immediately after a single injection for thyrotropin-producing pituitary tumor
- Early adjuvant radiation reduces the rate of recurrence following surgery for silent corticotroph pituitary neuroendocrine tumors
- Sample Preparation and Sequencing Efficiency of microRNA Libraries from Pituitary Adenoma Tissue and Blood Plasma of Patients with Acromegaly for the Illumina Platform
- Multimodal Model for Non-Invasive Detection of DRD2, SSTR2 and ESR1 Receptor Profiling in Pituitary Neuroendocrine Tumors: A Retrospective Study
- Application of autologous pedicled nasal mucosal flaps by "three-step" strategy in repairing of cerebrospinal fluid leakage following transsphenoidal pituitary adenoma surgery

Treatment of a pituitary neuroendocrine tumor depends on whether or not it makes excess hormones and, if it does, which hormone it makes. Treatment also depends on whether it is a microadenoma (smaller than 1 centimeter across) or a macroadenoma (1 centimeter across or larger).

Treatment for pituitary tumors may include:

Surgery

Radiation therapy

Medicines that block tumor hormone secretion or block the symptoms caused by these hormones Sometimes a combination of treatments is used. For example, surgery may be done to remove some of the tumor, while drugs can be used to relieve symptoms and sometimes shrink the remaining tumor.

Perioperative management

Though randomized controlled trials (RCT) have not been performed to assess the necessity of steroid coverage, there are several studies that explained the changes of adrenal function during peri-operative peroids.

Studies addressing peri-operative steroids coverage for pituitary neuroendocrine tumors in the Web of Science, Medline and the Cochrane Library and extracted studies about perioperative morning serum cortisol (MSC) levels, morbidity of early postoperative adrenal insufficiency, postoperative diabetes insipidus, relationships between MSC levels and adrenal integrity.

There are 18 studies from 11 countries published between 1987 and 2013 including 1224 patients. The postoperative serum cortisol levels were significantly increased compared with the preoperative one in hypothalamic-pituitary-adrenal axis(HPAA) functions preserved patients($P<0.00001$). The morbidity of early postoperative adrenal insufficiency ranged from 0.96% to 12.90%, with the overall

morbidity of 5.55%(41/739). There was no significant differences of early postoperative diabetes insipidus between no supplementation patients and in supplementation patients(P=0.82). Conversely, there may be some disadvantages of high levels of cortisols such as high incidence of osteopenia and bone derangement and even the increased mortality rate. The patients with MSC levels of less than 60 nmol/l at 3 days after operation is considered as adrenal insufficient and more than 270 nmol/l as adrenal sufficient. To patients with MSC levels of 60-270 nmol/l, we need more clinical data to establish further cortisol supplementation criteria [1)].

Innovation roadmaps are important, because they encourage the actors in an innovation ecosystem to creatively imagine multiple possible science future(s), while anticipating the prospects and challenges on the innovation trajectory. In this overarching context, this expert review highlights the present unmet need for therapeutic innovations for pituitary neuroendocrine tumors (PitNETs), also known as pituitary neuroendocrine tumors. Although there are many drugs used in practice to treat PitNETs, many of these drugs can have negative side effects and show highly variable outcomes in terms of overall recovery. Building innovation roadmaps for PitNETs' treatments can allow incorporation of systems biology approaches to bring about insights at multiple levels of cell biology, from genes to proteins to metabolites. Using the systems biology techniques, it will then be possible to offer potential therapeutic strategies for the convergence of preventive approaches and patient-centered disease treatment. Here, we first provide a comprehensive overview of the molecular subtypes of PitNETs and therapeutics for these tumors from the past to the present. We then discuss examples of clinical trials and drug repositioning studies and how multi-omics studies can help in discovery and rational development of new therapeutics for PitNETs. Finally, this expert review offers new public health and personalized medicine approaches on cases that are refractory to conventional treatment or recur despite currently used surgical and/or drug therapy [2)].

Pituitary neuroendocrine tumor surgery

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Pituitary neuroendocrine tumor stereotactic radiosurgery

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Tohti M, Li J, Zhou Y, Hu Y, Yu Z, Ma C. Is Peri-Operative Steroid Replacement Therapy Necessary for the pituitary neuroendocrine tumors Treated with Surgery? A Systematic Review and Meta Analysis. PLoS One. 2015 Mar 16;10(3):e0119621. doi: 10.1371/journal.pone.0119621. eCollection 2015. PubMed PMID: 25775019.
2)
Aydin B, Yildirim E, Erdogan O, Arga KY, Yilmaz BK, Bozkurt SU, Bayrakli F, Turanli B. Past, Present, and Future of Therapies for Pituitary Neuroendocrine Tumors: Need for Omics and Drug Repositioning Guidance. OMICS. 2022 Feb 16. doi: 10.1089/omi.2021.0221. Epub ahead of print. PMID: 35172108.