Clinically non-functioning pituitary neuroendocrine tumor

- NOVA2 expression in pituitary gland and in functioning and non-functioning pituitary adenomas: a preliminary study
- Estimating diagnostic delay in patients with pituitary adenomas in Sweden: a cross-sectional study
- Baseline testosterone levels as a predictor of hypogonadism resolution in male patients with isolated hyperprolactinemia
- Treatments for MEN1-associated endocrine tumours: three systematic reviews and a meta-analysis
- Headache as an indication for surgery in non-functioning pituitary adenoma and Rathke's cleft cyst: A systematic review
- Hyperprolactinemia in children and adolescents: clinical characteristics and etiological spectrum
- Symptomatic venous thromboembolism after transsphenoidal surgery in Cushing's disease: incidence and risk factors
- Prevalence and clinical associations of USP8 variants in corticotroph tumours: a systematic review and aggregate data meta-analysis of 2171 cases

Unlike Functioning Pituitary Neuroendocrine Tumor, which produces hormones that cause specific symptoms, non-functioning tumors do not produce hormones that cause specific symptoms.

However, non-functioning pituitary tumors can still cause problems by pressing on nearby structures, such as the optic nerves, which can lead to vision problems, or on the pituitary gland itself, which can disrupt hormone production. Depending on the size and location of the tumor, it may require surgical removal or radiation therapy to manage its effects.

Epidemiology

see Non-Functioning pituitary neuroendocrine tumor epidemiology.

Natural history

Clinically Non-Functioning Pituitary Neuroendocrine Tumor natural history.

Classification

The 2022 World Health Organization classification of tumors of the pituitary gland.

Biomarkers

The immune infiltration-associated differentially expressed genes (DEGs) were obtained based on high/low immune scores, which were calculated through the ESTIMATE algorithm. The abundance of immune cells was predicted using the ImmuCellAI database. WGCNA was used to construct a coexpression network of immune cell-related genes. Random forest analysis was used to select the candidate genes associated with invasion. The expression of key genes was verified in an external validation set using quantitative real-time polymerase chain reaction (qRT–PCR).

The immune and invasion-related DEGs were obtained based on the first dataset of NF-PitNEts (n=112). The immune cell-associated modules in NF-PitNEts were calculated by WGCNA. Random forest analysis was performed on 81 common genes intersected by immune-related genes, invasion-related genes, and module genes. Then, 20 of these genes with the highest RF score were selected to construct the invasion and immune-associated classification model. We found that this model had high prediction accuracy for tumor invasion, which had the largest area under the receiver operating characteristic curve (AUC) value in the training dataset from the first dataset (n=78), the self-test dataset from the first dataset (n=34), and the independent test dataset (n=73) (AUC=0.732/0.653/0.619). Functional enrichment analysis revealed that 8 out of the 20 genes were enriched in multiple signaling pathways. Subsequently, the 8-gene (BMP6, CIB2, FABP5, HOMER2, MAML3, NIN, PRKG2 and SIDT2) classification model was constructed and showed good efficiency in the first dataset (AUC=0.671). In addition, the expression levels of these 8 genes were verified by qRT–PCR.

They identified eight key genes associated with invasion and immunity in NF-PitNEts that may play a fundamental role in the invasive progression and may provide novel potential immunotherapy targets for NF-PitNEts [1].

Pathogenesis

Clinically Non-Functioning Pituitary Neuroendocrine Tumor pathogenesis.

Clinical features

Clinically Non-Functioning Pituitary Neuroendocrine Tumor clinical features.

Scores

Knosp Grade

Diagnosis

Clinically Non-Functioning Pituitary Neuroendocrine Tumor diagnosis.

Differential diagnosis

Clinically Non-Functioning Pituitary Neuroendocrine Tumor differential diagnosis

Treatment

see Clinically Non-Functioning Pituitary Neuroendocrine Tumor treatment.

Outcome

see Clinically Non-Functioning Pituitary Neuroendocrine Tumor Outcome.

Systematic reviews

Non-Functioning Pituitary Neuroendocrine Tumor systematic reviews

Case series

see Clinically Non-Functioning Pituitary Neuroendocrine Tumor case series.

Case reports

Clinically Non-Functioning Pituitary Neuroendocrine Tumor case reports

1)
Wu J, Guo J, Fang Q, Liu Y, Li C, Xie W, Zhang Y. Identification of biomarkers associated with the invasion of nonfunctional pituitary neuroendocrine tumors based on the immune microenvironment. Front Endocrinol (Lausanne). 2023 Jul 14;14:1131693. doi: 10.3389/fendo.2023.1131693. PMID: 37522128; PMCID: PMC10376796.