Endocrine Abstracts

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An analysis of blood parameter changes in cushing's syndrome - a population-based study

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Aim: Glucocorticoids play a significant role in inflammation and immune system disruption. Our study aimed to analyse different biochemical and blood count indices and serum inflammation-based scores in patients with all different causes of endogenous Cushing's Syndrome (CS) in a well-defined population.

Methods: Clinical records of 35 patients diagnosed with CS between 2008 and 2020 at the only central national health service hospital in Malta, were retrospectively analysed. Detailed clinical and biochemical data were obtained for each patient. Correlation and receiver operator characteristics (ROC) curve analyses were used to establish a threshold value for different variables to predict malignant CS.

Results: Malignant cause of CS (ectopic CS and adrenocortical carcinoma) had statistically significant higher cortisol, size of the tumour and lower potassium at diagnosis ($P<0.001$). Additionally, malignant causes had a lower lymphocyte count ($P=0.001$) and eosinophil count ($P=0.008$), and a higher neutrophil-to-lymphocyte ratio (NLR) ($P=0.001$), systemic immune

Spearman's correlation, a positive correlation was noted between cortisol levels (baseline, post-ODST cortisol and 24-hour urinary cortisol) and pre-operative NLR whilst a negative correlation was observed with pre-operative LMR. Using ROC curve analysis to predict malignant cause of CS, a potassium level of < 3.05 was 75% sensitive and 100% specific (ROC-AUC 0.907, P = 0.001), a post-ODST cortisol level of > 841 nmol/l was 100% sensitive and 91% specific (ROC-AUC 0.981, P <0.001), while a NLR ratio > 3.9 was 100% sensitive and 57.7% specific (ROC-AUC 0.885, P = 0.001).

Conclusion: Biochemical and blood count indices and serum inflammatory-based scores remarkably differ between benign and malignant causes of endogenous CS. Such indices can help predict the severity of disease and thus prognosis.

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