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Gender and age-matched case control study of a cohort of adrenal adenomas

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Background: The majority of adrenal incidentalomas are benign and patients can be reassured, but a personalized and multidisciplinary approach is required when dealing with these lesions, since they might be linked with various comorbidities. The aim of our study was to carry out an in-depth analysis of the biochemical workup of adrenal incidentalomas and comparing the results with controls.

Methods: 252 patients with an incidentally discovered adrenal adenoma were identified. A retrospective cross-sectional analysis of this cohort was carried out. A corresponding cohort of 252 gender and aged-matched patients (+/- 5 years) who underwent a CT scan for a similar indication and on the same day as the cases was recruited. A comparison of numerous parameters was carried out.

Results: From a total cohort of 252 patients, 55.8% were females. The mean age at diagnosis was 69 years (IQR 60-75 years). 84.1% had an overnight dexamethasone suppression test (ODST) performed, out of whom 65.1% had a cortisol post-ODST <50nmol/l. The median longest radiological diameter was 20.0mm (IQR16.0-26.0). From the patients with an adenoma, there was a

following parameters: MCV ($P=0.008$), Urea ($P=0.046$), Age ($P=0.006$) and T4 ($P=0.009$). When comparing cases with controls, statistically significant different results were observed in lymphocytes ($P=0.002$), higher in cases, and total cholesterol ($P=0.036$), neutrophil-to-lymphocyte ratio (NLR)/monocyte ratio ($P=0.006$) and NLR/monocyte/platelet ratio ($P=0.001$), lower in cases. In our cohort, mortality was highest amongst the controls, compared to cases ($P=0.015$). Among all cases and controls, the following parameters were found to be significantly higher in those still alive at the end of the study: haemoglobin ($P<0.001$), lymphocytes ($P<0.001$), total cholesterol ($P=0.047$), LDL-c ($P=0.008$), Lymphocyte-monocyte ratio (LMR) ($P<0.001$) and eGFR ($P=0.003$). On the other hand, the following parameters were higher in those deceased: Neutrophils ($P=0.004$), urea ($P<0.001$), ALP ($P=0.001$), fasting blood glucose (FBG) ($P=0.008$), Age ($P<0.001$), Neutrophil-lymphocyte ratio (NLR) ($P<0.001$), Platelet-lymphocyte ratio (PLR) ($P=0.009$), Systemic immune inflammatory index (SII) ($P<0.001$), NLR/monocyte ratio ($P<0.001$), NLR/monocyte/platelet ratio ($P<0.001$) and creatinine ($P=0.002$).

Conclusion: Our cohort of adrenal adenomas did not exhibit a higher mortality rate compared to controls and some of the haematological parameters linked with increased mortality were more favourable among the adenoma cohort.

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