

THE VALUE OF GC-MS STEROID PROFILING IN DIAGNOSTICS OF ADRENOCORTICAL CANCER

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Introduction. Adrenocortical carcinoma (ACC) is an aggressive malignant tumor. Early and precise diagnosis and timely surgery significantly improve the prognosis and survival of patients with adrenocortical carcinoma.

Materials and methods. 28 patients with hormone-inactive adrenal tumors were included in the study: 17 – with adrenocortical adenomas and 11 – with ACC. 18 women and 10 men aged 24–57 years (38.2 ± 9.6). Adrenalectomy was performed in 26 patients, in 2 cases – intraoperation biopsy without surgical treatment (due to the widespread tumor process). Histology was evaluated according to the criteria of Weiss (2001), an immunohistochemical study was performed in all cases. The level of steroids in daily urine was assessed by gas chromatography-mass spectrometry (GC-MS) on a Shimadzu 2060 mass spectrometer prior to surgical treatment.

Results. According to the analysis, an increase in the levels of tetrahydro-11-deoxycortisol, dehydroepiandrosterone, pregnen- $3\beta,16\alpha,20\alpha$ -triol, pregnen- $3\alpha,16\alpha,20\alpha$ -triol, pregnanediol (P2), pregnantriol (P3) and pregnetriol (DR3) was revealed, as well as a change in the P2/P3 ratio, typical for ACC in postmenopausal women and men. In women of reproductive age, an increase in P2 and P3 may be due to the phase of the menstrual cycle, and therefore, in this category of patients, the assessment of these indicators is impractical. The sensitivity of the method for the cumulative assessment of steroidogenesis patterns in the study group was 54.5%, specificity was 70.6%.

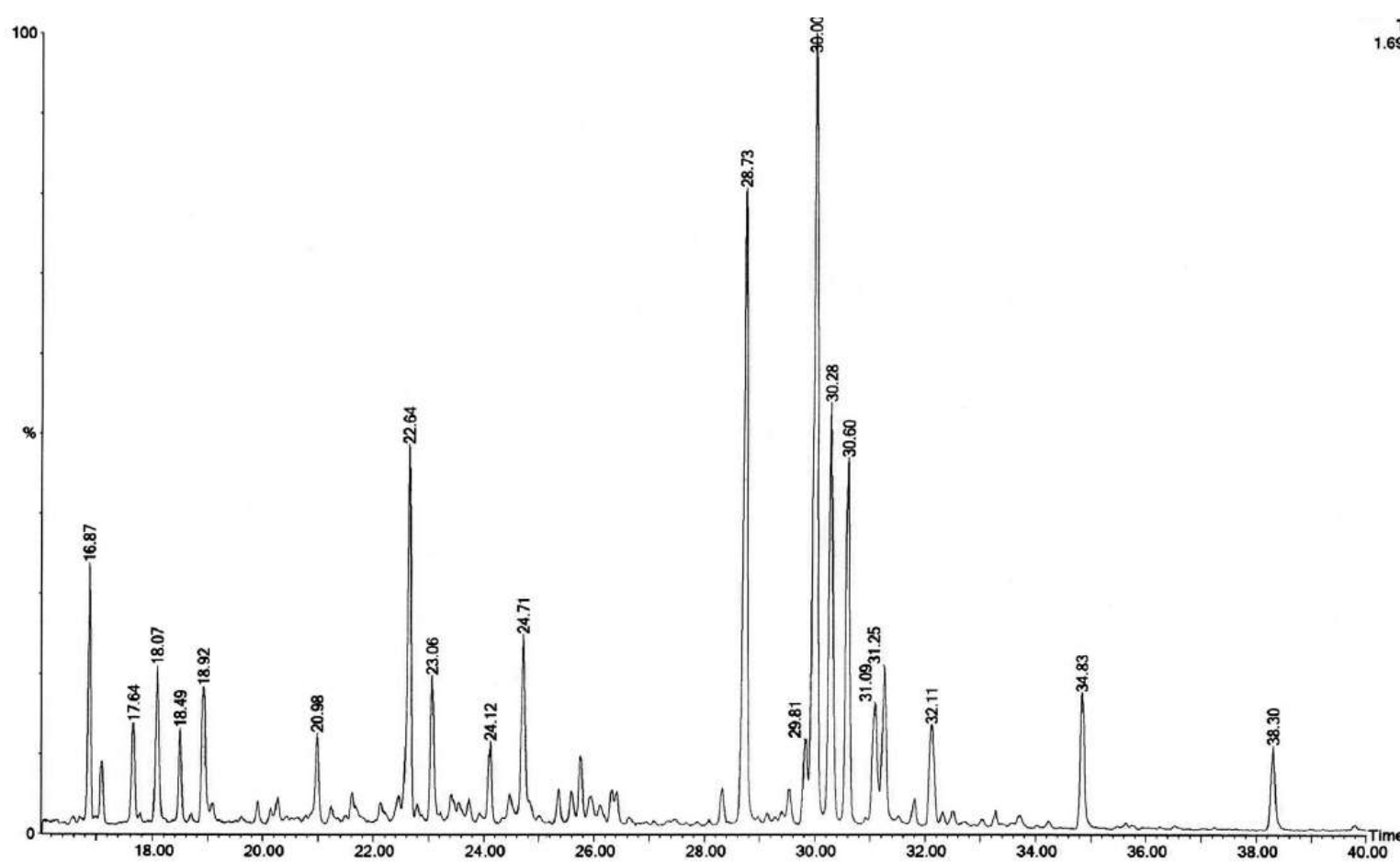


Fig. 1. Urine steroid profile of the patient with adrenal adenoma

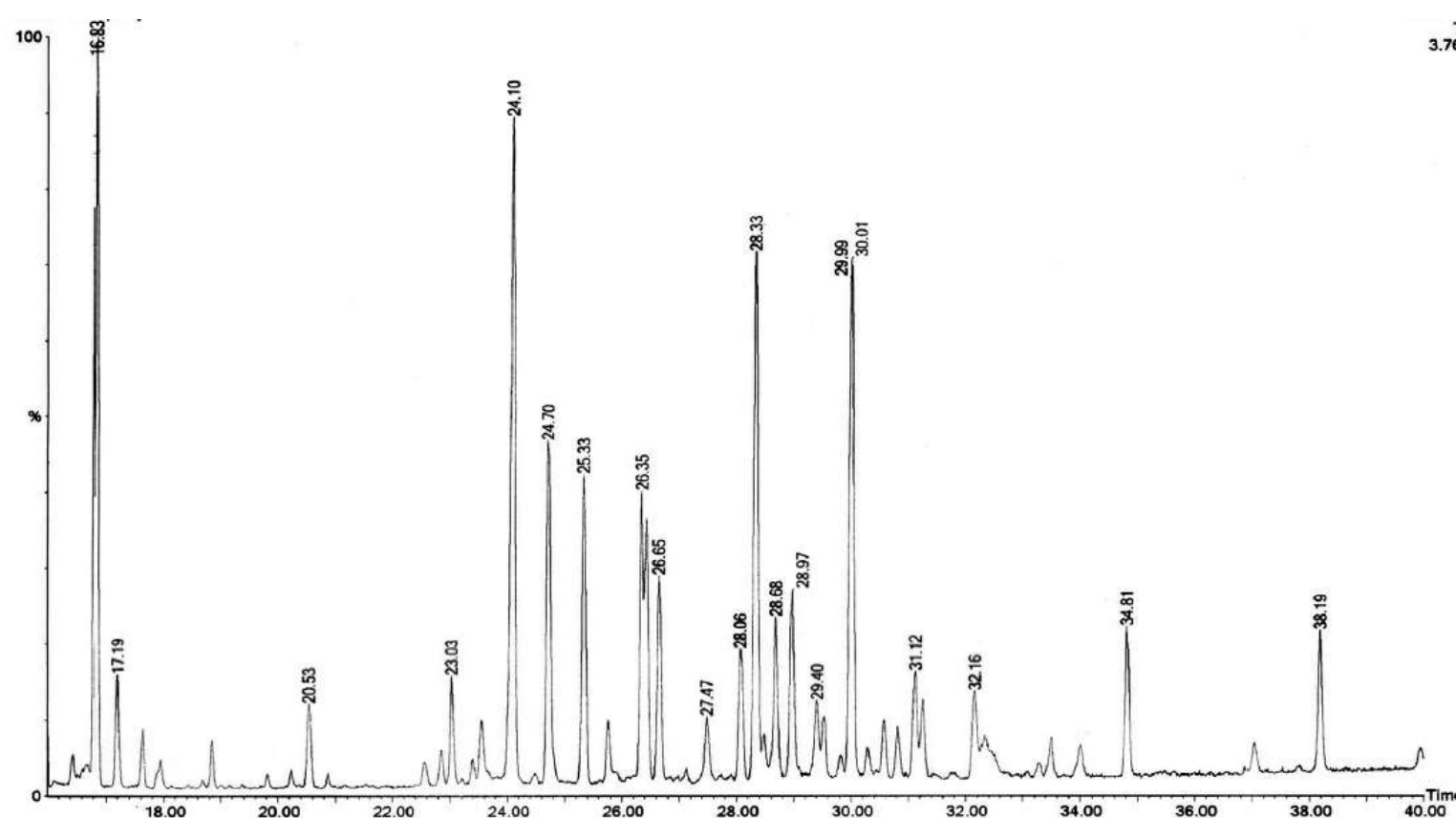


Fig. 2. Urine steroid profile of the patient with adrenal carcinoma

Conclusions. In the studied cohort, the sensitivity of determining the steroid profile of urine by GC-MS turned out to be low. Thus, this method can't be a reliable criterion for preoperative diagnostic of ACC. Nevertheless, the method requires additional research in a larger cohort.