

# SALIVARY CORTISOL AFTER OVERNIGHT DEXAMETHASONE SUPPRESSION TEST IN DIFFERENT PATIENT GROUPS

Meral MERT \*, Refik TANAKOL\*\*, Hande KARPUZOGLU\*\*\*, Semra Dođru ABBASOGLU\*\*\*, Ozlem Soyluk Selçukbiricik\*\*, Sema YARMAN\*\*\*, Faruk ALAGOL \*\*\*

\*Bakirkoy Education and Research Hospital, Endocrinology and Metabolism, İstanbul University, Department of Internal Medicine, Division of Endocrinology and Metabolism, İstanbul, Turkey

\*\*İstanbul University, İstanbul Medical Faculty, Department of Internal Medicine, Division of Endocrinology and Metabolism, İstanbul, Turkey

\*\*\*İstanbul University, İstanbul Medical Faculty, Biochemistry, İstanbul, Turkey

## Objectives:

Overnight 1 mg dexamethasone suppression test (DST) is used as a screening test for the diagnosis of Cushing's syndrome. Usually plasma cortisol level is measured after 1mg DST in clinical practice. Being a non-invasive method, salivary cortisol (SC) has been used as a valuable indicator of free plasma cortisol. Salivary cortisol levels may be affected by individual factors such as nutrition, sleep, medication, activity, and gender. The aim of this study was to evaluate the worth of the salivary cortisol after overnight 1 mg DST in different patients.

## Methods:

All patients enrolled into the study underwent a detailed physical examination and their heights and weights, body mass indexes (BMI), waist and hip circumferences, education and exercise status were recorded. Salivary cortisol (SC) and plasma cortisol after 1 mg-overnight DST were measured. Saliva samples were collected at 8.00 a.m to plastic tubes with the help of plastic pipettes, without brushing their teeth, but after rinsing their mouth. Salivary cortisol was measured with luminescence immunoassay kit. Kendall's Tau, Mann Whitney-U tests and Spearman correlation tests were used as statistical analyses.

## Results:

The patient groups of the study consisted of 18 Cushing's syndrome patients, 12 patients with non-functional adrenal incidentaloma, 37 patients with obesity, 16 patients with and 26 healthy control patients. Mean age of the groups were found  $38,92 \pm 13,97$  years in Cushing's syndrome patients,  $24,14 \pm 5,02$  years in patients with hirsutism,  $50,86 \pm 10,7$  years in patients with adrenal incidentaloma,  $34,24 \pm 13,85$  years in patients with obesity,  $43,06 \pm 9,14$  years in healthy control group. Mean values of salivary and plasma cortisol levels after overnight DST are shown in Table-1.

Salivary cortisol levels after overnight DST was found significantly different between all groups ( $P < 0.05$ ) except between patients with hirsutism and obesity and between patients with adrenal incidentaloma and healthy control group ( $p = 0.357$ ). In this context, plasma cortisol levels after overnight DST were not significantly different between patients with hirsutism and control group and between patients with obesity and control patients both, while it was significantly different between all the other groups.

When all the patient groups are evaluated in a whole group there was a significant positive correlation between plasma and salivary cortisol ( $r = 0.542$ ,  $p = 0.0001$ ). In the subgroup analyses, there was no correlation between salivary and plasma cortisol in patients with hirsutism and Cushing's syndrome. In the groups with adrenal incidentaloma and healthy control, highly significant correlation between salivary and plasma cortisol was found ( $r = 0.750$  -  $p = 0.02$ ,  $r = 0,679$ -  $p = 0.008$  respectively).

	Healthy (n:26)	Non-functional adrenal incidentaloma (n:12)	Cushing's syndrome (n:18)	Obesity (n:37)	Hirsutism (n:16)
Salivary cortisol after overnight DST	0,14±0,2	0,10±0,01	0,91±2,26	0,07±0,13	0,52±0,08
Plasma cortisol after overnight DST(µg/dl)	0,77± 0,43	1±0,71	9,66± 7,96	0,66±0,26	0,80±0,27

## Conclusions:

Salivary cortisol after overnight DST may be one of the new non-invasive diagnostic tools for the differential diagnosis of Cushing's syndrome and pseudo-cushing syndrome. However, laboratory test results and clinical findings should be evaluated together in clinical practice.

