

# Cushing syndrome and diabetes

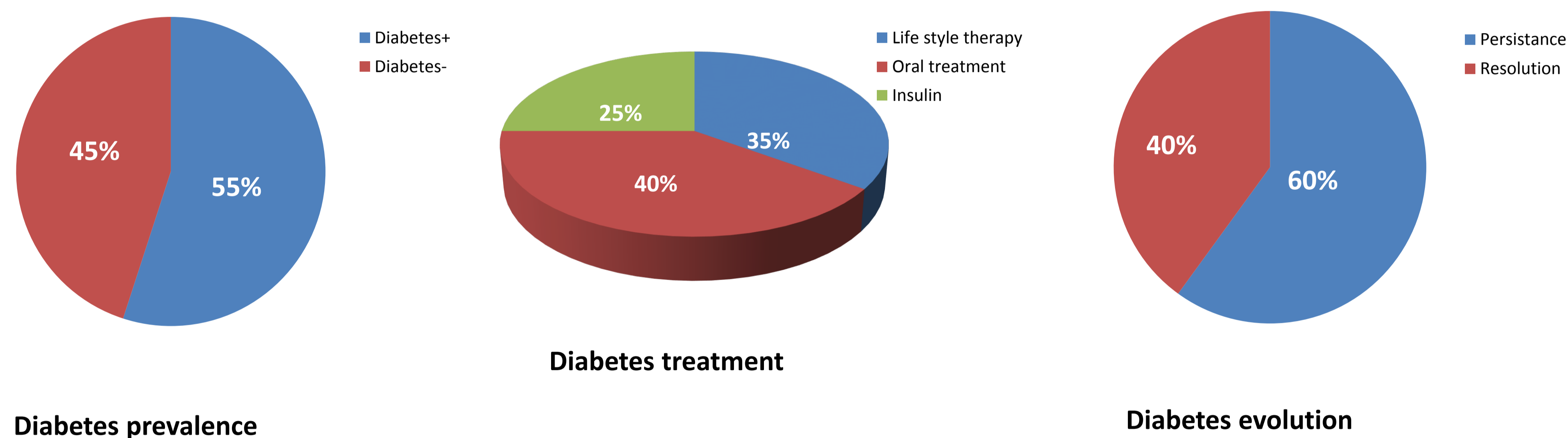
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**Introduction:** Cortisol has numerous actions on glucose metabolism and insulin action which explain the frequency of glucose abnormalities in Cushing syndrome (CS). The aim of our work was to assess the prevalence and characteristics of diabetes in CS.

**Material and methods:** This is a retrospective study concerning 51 CS (44F/7M) in whom we looked for the presence of diabetes either by fasting glycemia or 75 g oral glucose tolerance test. Thereafter we looked for the characteristics of diabetes in CS. CS was secondary to Cushing disease in 82% and to adrenal adenoma in 18%.

**Results:** 55% of patients have diabetes. Among diabetic patients, 39% have high blood pressure and 42% have a family background of diabetes. 40% of diabetics were treated with oral treatment, 25% with insulin and 35% were on life style therapy. Mean age was  $31.92 \pm 10.26$  years; it was  $31.62 \pm 10.54$  years in patients with diabetes vs  $32.45 \pm 10.04$  years in patients without diabetes. Mean body mass index was  $31.47 \pm 7.33$  kg/m<sup>2</sup>; it was  $31.30 \pm 7.77$  kg/m<sup>2</sup> in patients with diabetes vs  $31.89 \pm 6.47$  kg/m<sup>2</sup> in patients without diabetes. Diabetic retinopathy was present in 10% and diabetic neuropathy in 5%. After treatment of Cushing syndrome diabetes resolved in 40% and persisted in 60%.



**Discussion:** Endogenous glucocorticoid hormones excess is associated with many systemic diseases among which diabetes is one of the most frequent complications. The prevalence of diabetes in patients with CS ranges between 20 and 50%, the prevalence reaches 70% if we consider also impaired fasting glycemia and impaired glucose tolerance [1]. Insulin resistance, stimulation of gluconeogenesis and impaired insulin secretion are the main pathogenic factors underlying diabetes and impaired glucose tolerance in CS [2]. Obesity, mainly abdominal obesity is a clue feature of CS, this abdominal obesity leads to metabolic syndrome with its inherent metabolic abnormalities and cardiovascular risk [3]. The mean BMI in our diabetic patients was  $31.30 \pm 7.77$  kg/m<sup>2</sup> and 39% had high blood pressure. The most efficient treatment of diabetes in CS is to relieve the hypercortisolic state. However this is not always possible and it needs time to be effective, in the meantime patients may need treatment. Lifestyle treatment and metformin are the mainstay of treatment as insulin resistance is the main anomaly. Sometimes depending on the severity of the hypercortisolic state patients may need insulin secretagogues or insulin [4].

**Conclusion:** Diabetes mellitus is frequent in cortisol excess states, the high frequency of diabetes in our study may be explained by preexistent undiagnosed diabetes as diabetes persisted in 60% after resolution of Cushing syndrome.

## References:

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