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Sheehan's syndrome Females Have a High Incidence of Cardiovascular Morbidity and an Increased Prevalence of Cardiovascular Risk Factors

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Background

While severe Growth hormone deficiency (GHD) is a well-established feature of Sheehan's syndrome (SS), the effects of growth hormone deficiency in these patients has not been extensively investigated. In the present study we evaluated the cardiovascular risk in patients with SS.

Methods

Twenty female with SS and well-treated with cortisone and thyroid hormones was included.

The prevalence of Metabolic syndrome (MetS) was estimated according to IDF-2005 criteria. Insulin resistance was assessed by HOMA-IR based on the following formula : $HOMA-IR = \text{insulin level (mUI/l)} \times \text{fasting plasma glucose (mmol/l)} / 22,5$.

Baseline GH, IGF1 and IGFB3 levels were assessed. GHD was searched based on Glucagon test and defined in adults as GH peak less than 3 ng/ml [1].

Common carotid intima-media thickness (IMT) was measured by B mode ultrasound. IMT is considered high if its average value on the right and / or left is $\geq 75\%$ percentile. Measures were completed by the research of atheromatous plaque to increase the sensitivity for the detection of atherosclerotic disease at a subclinical stage. The plaque was defined as a focus of the wall recess in the light of at least 50% relative to the value of the adjacent IMT (or 0.5 mm), or even by a local thickening > 1.5 mm [2,3].

Cardiovascular risk was assessed by SCORE [4].

Statistic analyzes were obtained by SPSS 18.0. Significance was fixed at the threshold of 0.05.

Results

GHD was found in **95%** of patients.

Hypertension represents the most frequent history of cardiovascular disease. The mean BMI was at 28.10 ± 6 kg / m², 35% of patients were obese. The mean waist circumference was at $99, 5 \pm 15$ cm. Fasting glucose more than 5.5 mmol / l was present in 45% of subjects. Lipid abnormalities are shown in **Figure 1**. A significant positive correlation was found between triglycerides levels and various markers of GH axis (**Figure 2**).

MetS was present in **55%** of cases.

Forty percent of patients had insulin resistance.

IMT was not increased in all cases; the presence of atheromatous plaques was noted in one case.

IMT was positively correlated with diastolic blood pressure and LDL-C (**Figure 3**).

Cardiovascular risk was moderate in 40% of cases and very high in 15% of cases (**Figure 4**). Patients with high cardiovascular risk had higher systolic blood pressure and fasting glucose.

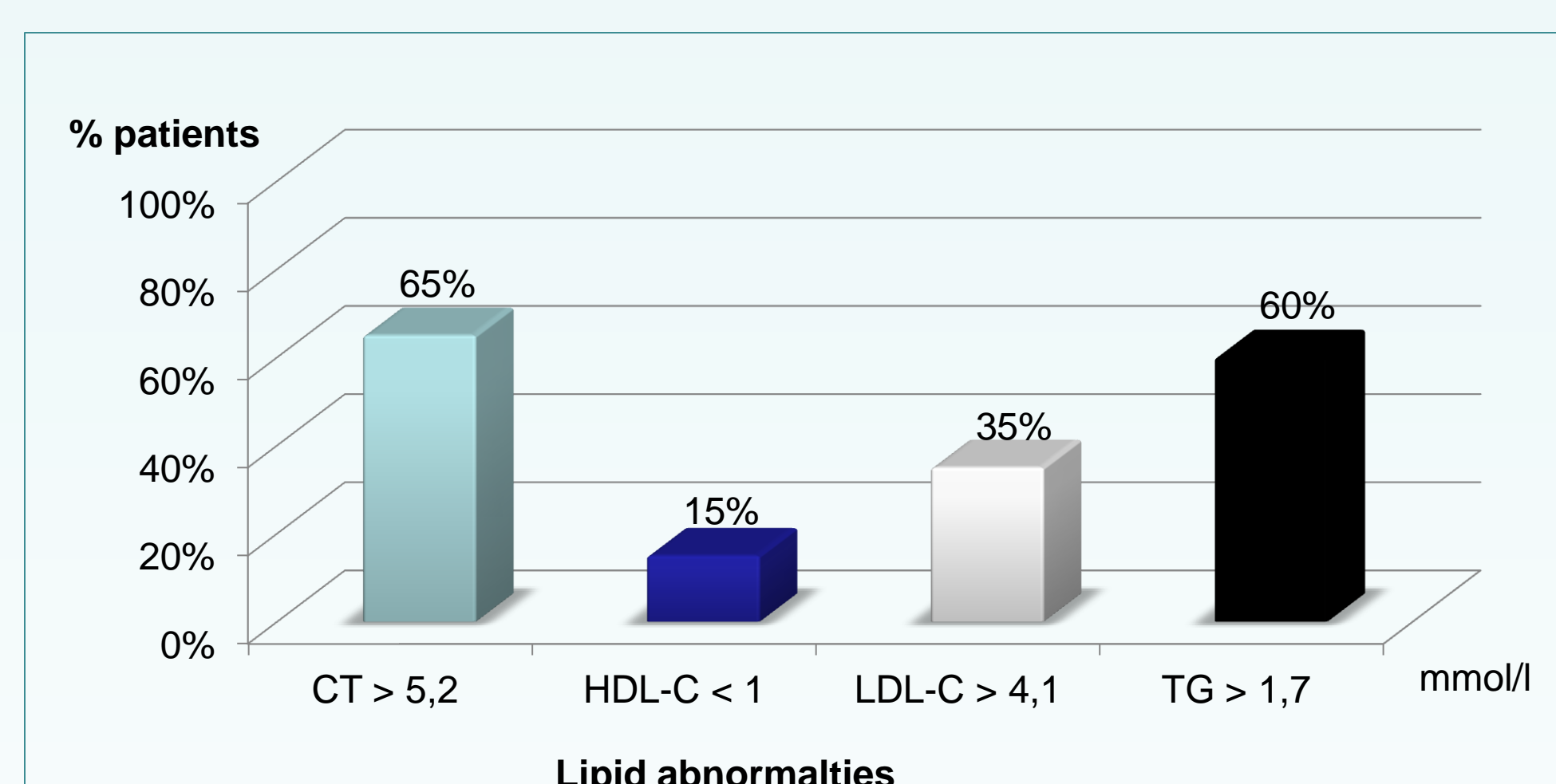


Figure 1 – Prevalence of lipid abnormalities in patients with SS (TC : total cholesterol, TG : Triglycerides)

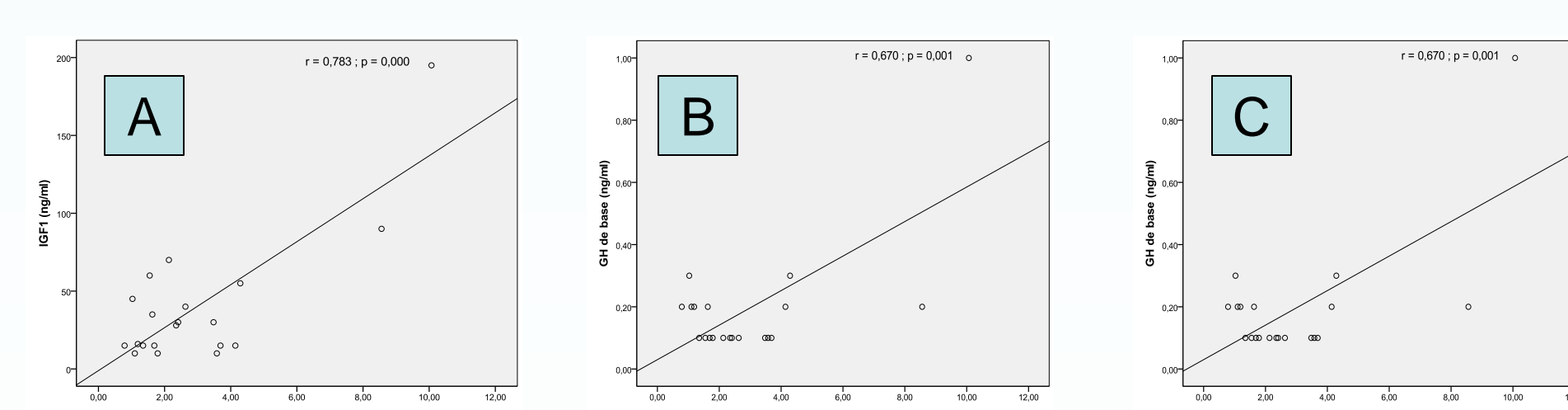


Figure 2 – Correlation between triglycerides and IGF1 (A), baseline GH (B) and GH peak during the stimulation test (C).

Figure 3 – Correlation between IMT and LDL-C

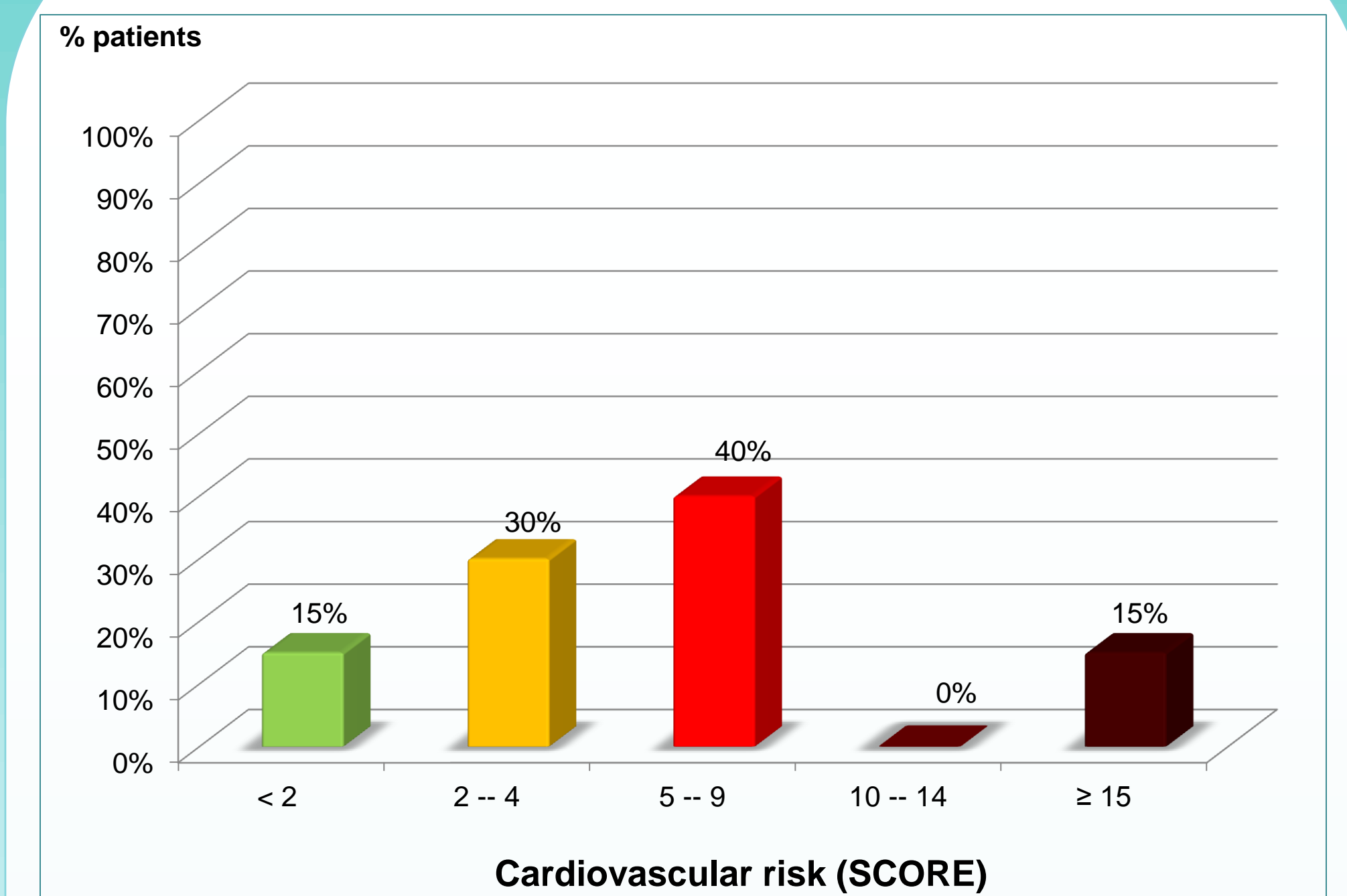
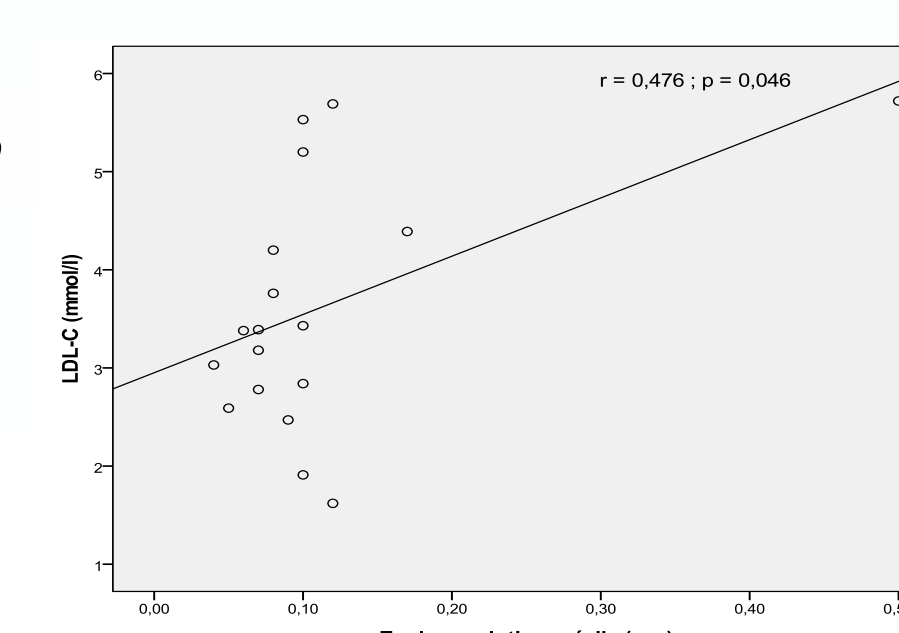


Figure 4 – Distribution of patients according to the classes of cardiovascular risk (RRS) estimated by SCORE.

Discussion

Our results shows clearly the high prevalence of GHD among patients suffering from SS. Indeed, SS occurs as a result of ischemic pituitary necrosis due to severe postpartum hemorrhage and leading to varying degrees of anterior pituitary hormone deficiency [5]. In a study of 1034 hypopituitary adults, SS was the sixth most frequent cause of growth hormone deficiency GHD, being responsible for 3.1% of cases [6]. GH deficiency is very common in SS because somatotrophs are located in the lower and lateral regions of the pituitary gland and are most likely to be damaged by ischemic necrosis of the pituitary .[7]

Our study also showed metabolic disorders and high cardiovascular risk in some patients with SS. This result may be explained in part by GHD as it is known that GHD in adults is characterized by increased cardiovascular morbidity and mortality, premature atherosclerosis with changes in lipid profile and in insulin sensitivity, alterations in body composition including increased fat mass, reduced lean body mass and redistribution of body water, reduced physical performance, osteoporosis and impaired quality of life [8].

Conclusion

These findings highlight the importance of closely cardiovascular and metabolic monitoring of patients with SS unsubstituted in GH and raise the question of the benefit of GH replacement in these patients.

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