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Metabolic parameters in children with syndromic obesity

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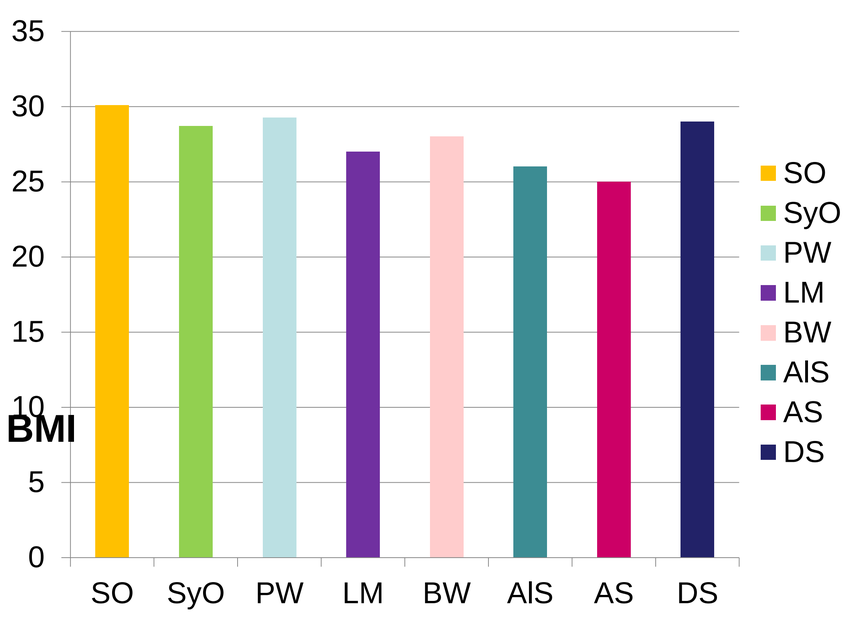
Introduction and objectives

Obesity is a complex disease that have an impact of many organs and systems. Syndromic obesity, although rare separately, encompasses around 70 entities with different phenotypic expression, gene involvement and associated anomalies. There are many genes that can influence obesity, either monogenic or polygenic in basis.
Children with syndromic obesity need additional testing in order to indentify a specific disorder.
Metabolic set up and endocrinological disturbances are variable in comparison with simple obesity.

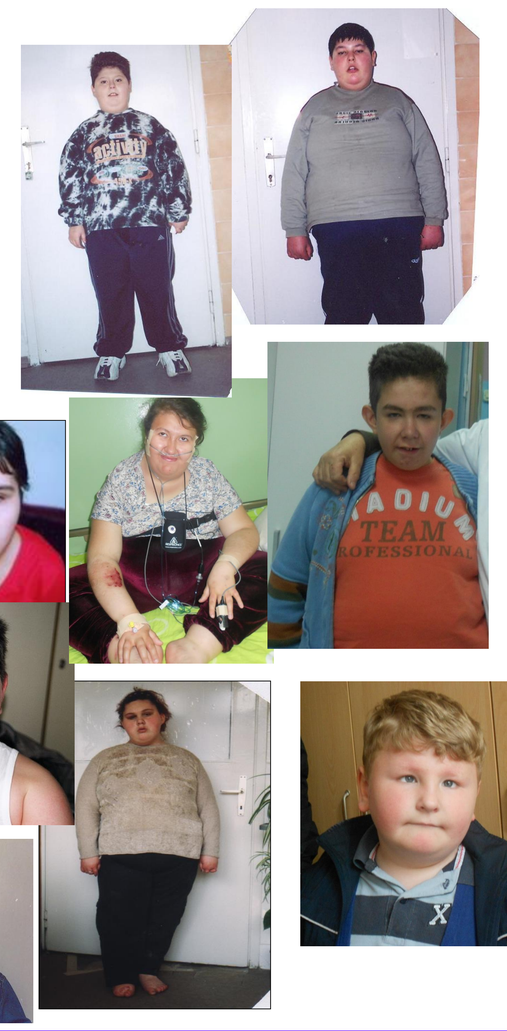
Methods

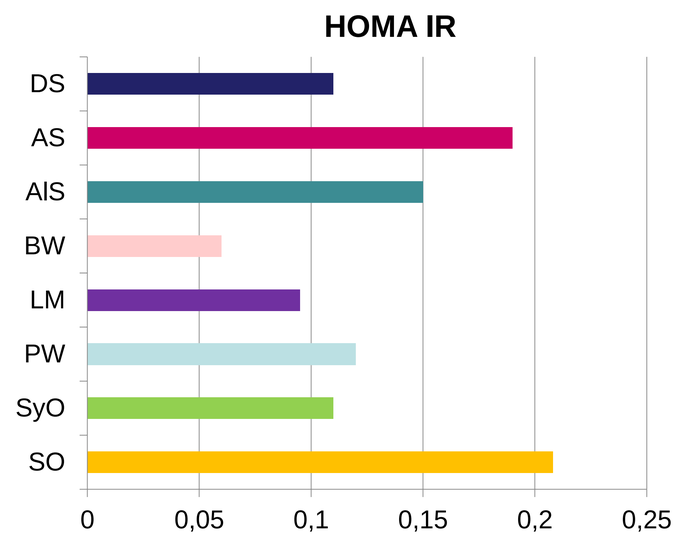
We present a group of 14 patients with various syndromes that have obesity in their clinical presentation, including patients with Prader-Willi syndrome(PW), Down syndrome (DS), Laurence-Moon syndrome(LM),, Albright (AIS) and Alstrom syndrome(AS). General methods in dysmorphology were used, detecting non-random combinations of major and minor anomalies.
Anthropometric measurements were taken in all and were compared to the age and gender matched simple obese (SO) subjects. Fasting and postprandial glycaemia and insulinemia were evaluated from each subject, as well as IGF1, high sensitive CRP, hepatic enzymes, lipid profile and thyroid function screening. HOMA/IR has been performed in all.

Results



Legend
SO - simple obesity
SyO -syndromic obesity
PW -Prader-Willi syndrome
LM - Laurence-Moon syndrome
BW - Beckwith-Wiedemann syndrome
AIS - Albright syndrome
AS - Alstrom syndrome
DS - Down syndrome





Mean body mass index BMI was 28.7 kg/m^2, being the highest in PW group, followed by subjects with DS and BW. Hypogonadism and/or impaired menstrual cycle was most prevalent in PW patients. From all, dyslipidaemia was present in simple obesity group and was correlated with BMI. Lower levels of IGF1 were noticed in PW patients, followed by AIS patient. Among all, postprandial insulin concentrations and HOMA IR index were significantly higher in simple obese patients than in syndromic group, showing less prevalent IR in latter group compared to BMI .

Conclusions

Syndromic obesity has metabolic and hormonal differences from simple obesity and should be recognized as a distinct category. Team approach is required for diagnosis and training of the guardians to help the patient apart from standard treatment recommended in simple obesity.

References

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