Is there a role for medical management in childhood obesity? A review of the Manchester Metabolic Obesity Service

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Background

Childhood obesity is a growing problem worldwide, with serious effects on child health. Obese children are at a higher risk of developing metabolic co-morbidities earlier in life (WHO, 2013). Manchester has worse than national average levels of obesity, with an estimated 14,000 obese children (PHE, 2014).

Aim

- To assess the demographics and frequency of metabolic co-morbidities of our patient cohort.
- To review monitoring standards and audit treatment outcomes.

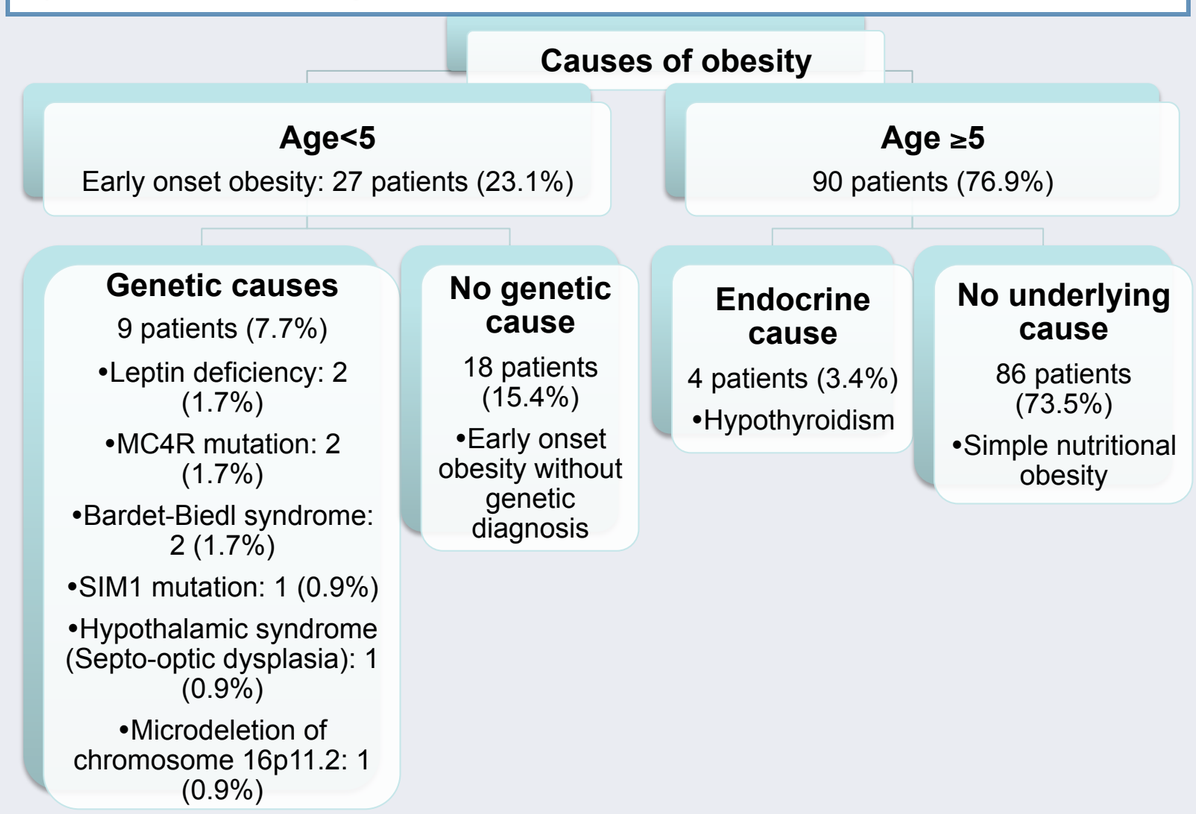
Methods

A retrospective case note analysis of 117 obese paediatric patients, seen in the Tier 3 obesity clinic and endocrine clinics at the Royal Manchester Children's Hospital (RMCH), between March 2012-2014, was conducted.

Results

Patient Demographics

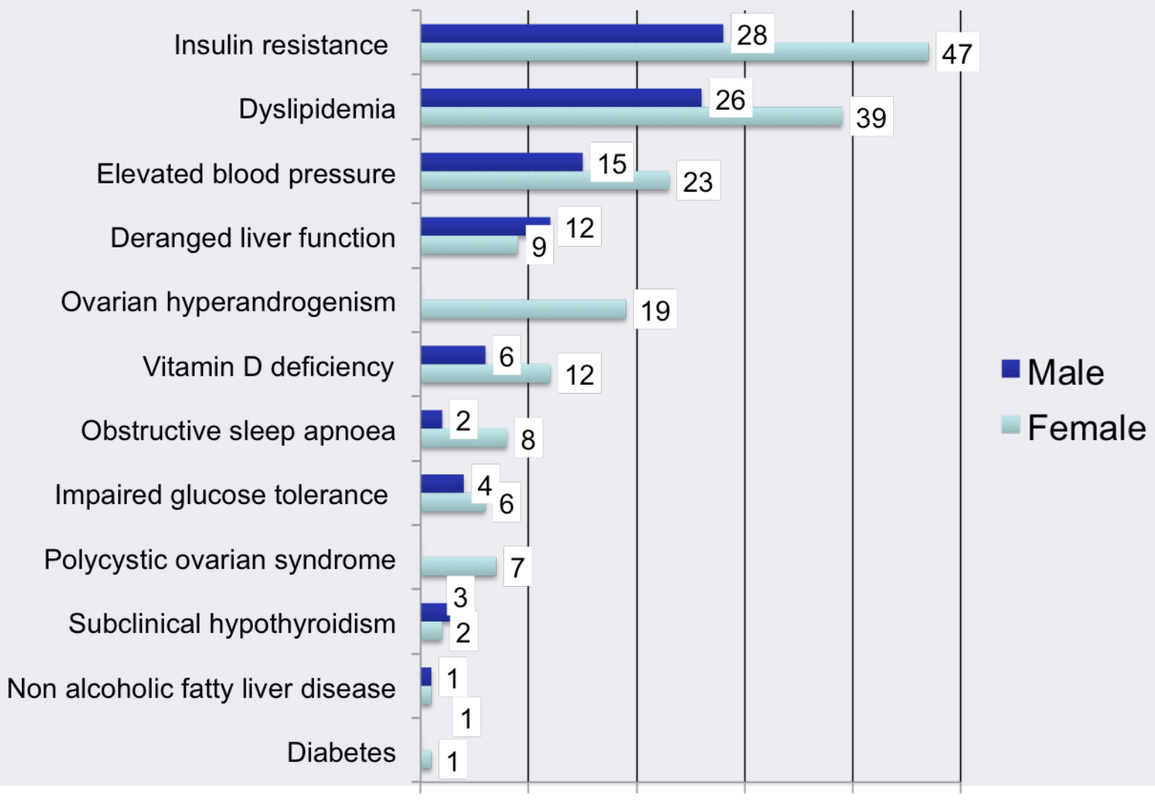
- Only 38.5% of our patients were male, which differs from national statistics, where a greater proportion (52.3%) of obese children are male (NCMP, 2012/2013).
- 90.6% of patients were extremely obese (BMI centile ≥99.6th; BMI SDS ≥2.7), with median age 9.87 (range 0.58-16.88) decimal years and median baseline BMI SDS of 3.43 (range 1.3-6.8).
- 7.7% had a genetic diagnosis of obesity (excluding Prader-Willi Syndrome). (see Diagram 1)



■ Diagram 1: Distribution of patients according to causes of obesity

Metabolic Co-morbidities

- 70.1% had ≥2 metabolic co-morbidities, with insulin resistance (IR), dyslipidaemia and hypertension being the most prevalent (N=75, 65 and 38 respectively). (see Diagram 2)



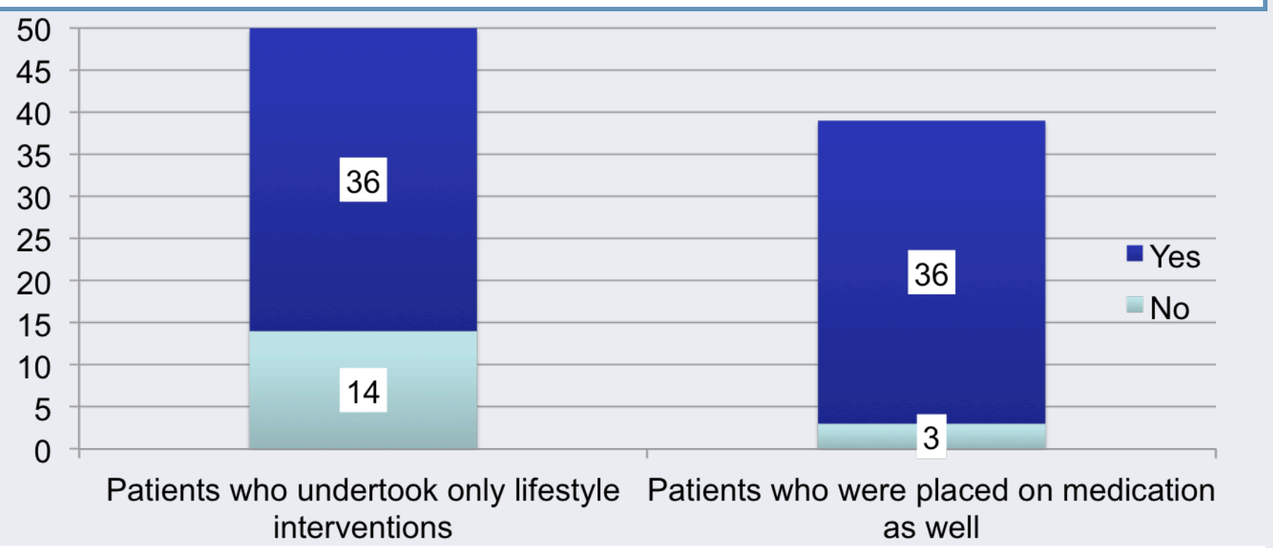
■ Diagram 2. Frequency of metabolic co-morbidities

Treatment Outcomes

- 42 patients were treated with metformin, out of which 18 were rescreened for IR within 24 months of treatment.
- In those rescreened, 72% (13/18) demonstrated improved IR, out of which 10 patients were pubertal. However, we were unable to conclude if improvement in IR was due to the effects of metformin or physiological effects of puberty on IR.

BMI SDS Change

- Out of 89 patients who were analysed for BMI SDS change, 72 (80.9%) demonstrated BMI SDS loss or maintenance.
- 72% of patients on lifestyle interventions (LI) and 92.3% of patients on LI and medication achieved BMI SDS loss or maintenance. (see Diagram 3)



■ Diagram 3: Did patients achieve BMI SDS loss or maintenance?

Maximum BMI SDS change and time taken to achieve maximum BMI SDS change (see Table 1)

- Median maximum BMI SDS change achieved by the 2 groups of patients were similar (LI: 0.22, LI and medication: 0.21).
- Median times taken to achieve maximum BMI SDS by both groups of patients were also similar (LI: 0.80 years, Medication and LI: 0.95 years).

	Max. BMI SDS change achieved	Time taken to achieve max. BMI SDS change (years)
	Median (Range)	Median (Range)
LI	0.22 (0.04-1.47)	0.80 (0.15-7.74)
LI and medication	0.21 (0.00-1.16)	0.95 (0.25-4.73)

■ Table 1:Statistical analysis on maximum BMI SDS change achieved and time taken to achieve maximum BMI SDS change

Conclusions

- Obese male children are likely to be under referred to paediatric services hence attention should be given to this cohort in the community.
- The high prevalence of co-morbidities within our cohort suggests that metabolic screening is indicated in children with severe obesity.
- Metformin treatment in those with IR may improve longer term metabolic outcomes.
- A large proportion of patients within our cohort achieved BMI SDS loss or maintenance, suggesting that there may be a role for medical management in severe obesity.

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