Introduction

It is clear from the available evidence that severe pediatric obesity leads to obesity in adulthood. Three adults are at a higher risk for morbidity and mortality in early adulthood, a trend which persists even if weight loss is subsequently achieved in adulthood. For this reason, pediatric weight management with a medically supervised program is becoming more accepted and offered to the severely obese adolescent population. These programs aim to reduce morbidities in the comorbidities by way of stagnating abnormal weight gain in order to prevent poor outcomes for high-risk groups. Moreover, it is crucial to determine key demographics and risk factors related to obesity.

The primary goal of this study was to determine the average AOO in order to plan future interventions. Secondary goal of this study was to determine if AOO has an impact on the presence of abnormal liver enzymes (ALT), hepatomegaly, and fatty liver. There was no statistically significant relationship between the age at onset of obesity and the presence of abnormal ALT, hepatomegaly, and fatty liver. Moreover, it is crucial to intervene in childhood obesity as early as 2 yo, but particularly as early as 6 yo noted by the mean AOO. Larger sample size is needed to determine if a statistically significant relationship between adolescent and abnormal ALT, hepatomegaly, or fatty liver exists.

Primary Question: What is the AOO among obese adolescents?

Secondary Question: How does AOO (chronicity of obesity) relate to abnormal liver tests and subsequent fatty liver disease?

Methods

- Retrospective chart review
- Pediatric patients seen in Adolescent Weight Loss Clinic
- Multidisciplinary team consisting of pediatric surgery, pediatric gastroenterology, diet, and psychology
- Exclusion Criteria
- Lack of anthropometrics within one year of BMI crossing into >95 percentile
- Due to the lack of electronic medical record
- Incompleteness where BMI crossed >95 percentile more than once, age at first occurrence used for study purposes

Data analysis:
- Determine mean and range for AOO
- Stratified data into groups based on life stages at AOO (adolescent, preschool, school age, and teen). This was done to determine best prevention and intervention strategies later.
- Data analysis used Excel and SPSS.

Results

- Participants in AWLC n=283
- Sample according to inclusion criteria and present data
- Mean AOO: 6 years old
- Range: AOO: 2-17 years old
- Male 29 (55.8%)
- Female 23 (44.2%)
- Black 14 (26.9%)
- Hispanic 29 (55.8%)
- White 9 (16.8%)
- Age at Onset of Obesity (years)

- Did not meet criteria n=52
- Met criteria n=231

- No
- Yes
- 5-13 (early childhood and elementary school)
- > 13 years old (teens)
- Participants who became obese < 13 years old had a higher proportion of elevated liver enzymes and fatty liver dysfunctions significantly, chi sq 3.6 (0.8 respectively)
- AOO did not have a statistically significant relationship with hepatomegaly or fatty liver.

Conclusions

It is crucial to intervene in childhood obesity as early 2 yo, but specifically by age 6. Relationship between AOO and elevated LDL, hepatomegaly, and fatty liver difficult to determine with small sample size. However, participants who became obese < 13 years old had a higher proportion of elevated liver enzymes and fatty liver dysfunction significantly, chi sq 3.6 and 0.8 respectively.

Future research:
- Participants who became obese during teen years had normal liver enzyme values.

References

8. NCHS Data Brief. Age at Onset of Obesity and Relation to Abnormal Liver Enzymes Mary Elizabeth Odnal MD, Alex E. Weight BS, Claire S. Curren MD, MBA, Kanika Jallow PhD, Karina Bowler-Jahkel MD MS, Andrea M. Glaser, MD University of Texas Medical Branch- Galveston, TX

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Age at Onset of Obesity and Relation to Abnormal Liver Enzymes