

Obesity Metabolic Comorbidities with Associated Disease Burden in Children and Adolescents

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Abstract:

Introduction: Limited data exist describing demographics, weight categories and disease burden in youth with overweight and obesity.

Aim: To study the prevalence rates of obesity metabolic comorbidities and disease burden in 2-18 year olds referred to WOW: a pediatric multidisciplinary weight management program using BMI% and obesity class.

Methods: Demographics, anthropometric measures, laboratory values collected at baseline in 383 children referred to WOW participating in IRB-approved protocol. Descriptive statistics based on the percentage of the 95th percentile and stratification analyses based on age, gender and initial BMI percentiles were conducted.

Results: 383 youth enrolled; 6% 2-5 years, 56% 6-11years, 24% 12-14 years, 14% 15-18 years. 15.4% overweight; 19.6% obesity Class I; 35.5% severe obesity Class II; 29.5% severe obesity Class III. Insulin: 42.3% of 281 children abnormal fasting insulin; 24.4% pre-diabetes per impaired fasting glucose and/or elevated HbA1c levels. Vitamin D: 71.2% of 281 insufficient or deficient. Triglycerides: 71% of 352 borderline or high; Cholesterol: 42% of 324 borderline or high; HDL: 54% of 319 borderline or low; LDL: 29.3% borderline or high. Abnormal insulin: 9% 2-5 years, 32.7% 6-11 years, 60.9% 12-14 years, 63.2% 15-18 years. Abnormal HbA1c: 16.8% 6-11 years, 15.9% 12-14 years, 11.4% 15-18 years. Abnormal LDL: 45.5% 2-5 years, 47.7% 15-18 years. Abnormal cholesterol: 58.4% 2-5 years. Abnormal triglycerides: 69% 2-5 years, 72% 6-11 years, 72% 12-14 years, 78% 15-18 years.

Conclusion: Children with BMI > 95th percentile in each age category (including 2- to 5-year-olds) present with significant disease burden, particularly hyperinsulinemia, hypertriglyceridemia, and Vitamin D deficiency. Data highlight the existing (not "at risk for") abnormal laboratory data/disease burden in pediatric patients with obesity presenting to WOW. Providers caring for children > 95th percentile should consider laboratory assessment for specific obesity-related comorbidities and earlier referral to higher-intensity interventions.