DETERMINING THE AGE OF ONSET OF CHILDHOOD OBESITY

ICAHN
Illinois Critical Access Hospital Network

THE CENTER FOR RURAL HEALTH PROFESSIONS

OBESITY

- Determined by Body Mass Index (BMI)
  - Weight (kg)/height(m^2)
- National Health and Nutrition Examination Survey (NHANES) Cross sectional, stratified, Multistage probability sample of US population
  - I (1971-74) 5.5% obesity in children
  - II (‘76-’80) Unchanged
  - III (’88-’94) 11%
  - IV (’99-’00) 15.5% (ages 12-19); 15.3% (ages 6-11)

HEALTHCARE IMPACTS

- Tripled in last 20 years ($35 mil to $127 mil)
- Discharge Diagnosis related with Obesity
  - 197% increase in obesity
  - 228% increase Gallbladder disease
  - 436% increase in Sleep apnea

Relationship to Adult Obesity[1]

- Children ages 3-9, both their BMIs and parents BMIs are predictors of later obesity
- 80% of adolescents 10-14 with one obese parent remains obese (only 20% at 4 years old)
- Also have increased risk of CV disease risk factors (HTN, DM II, hyperlipidemia)
  - 60% have 1
  - 25% have 2

Other Health Problems

- Pulmonary: OSA, Restrictive lung disease
- Orthopedics: Slipped capital femoral epiphysis (50-70% obese), flat feet, bowing of tibias
- GI—Gallstones (4.2 times more likely in females 14-20)
- Neurological—Pseudo tumor cerebri
- Metabolic: DM II, menstrual irregularities
- No established link to Cancer
- Psychological: Self esteem, somatoform, mood, pain, anxiety disorders

WHY?

- Medical Causes (> 10%, Hypothyroid, Cushing's, Prader-Willi, Cohen, Growth Hormone deficiency)
- Genetics
  - If patient has linear growth cause is unlikely to be genetic
- 2 Factors contribute the most
  - Increasing Energy content of food
  - Increasing sedentary lifestyle

BACKGROUND

- The project took place at the Rural Health Clinic in Pecatonica, IL.
  - Population: 1997
  - Medical Services: The health clinic has one doctor, one nurse practitioner, and 2 nurses at he time of the project. It has since expanded, offering simple X-ray and employs a second doctor.
  - The town is mostly blue collar, with agriculture and related business the major employers. A growing percent of the town works in either Rockford or Freeport as well.

Purpose and Methods

- The purpose of this project was to determine if obesity was a problem in this community and if there is a particular age group when children become obese.
- All charts of patients born between 1987-2000 were pulled and reviewed. Height, weight, age and sex were recorded. BMI was calculated and was graphed against age.

Results

- Overall, 1350 data points were pulled from the charts. 622 points were male, 728 were female.
- 3.1% of children were found to be overweight (BMI > 25) - National estimate is 15%
- Males had a higher percentage of being overweight (15% vs. 11%)

Results

- Of the Overweight population in males, 43% were defined as obese (BMI >30), 28% of overweight females were obese
- The 9 and 10 year old age groups had a large increase in the number of overweight children (see graph)
- The 12-14 year old group showed an increase in the number of children that were obese

Discussion

- The prevalence of obesity in this community is close to national estimates.
- Physical activity and healthy eating need to be encouraged more a schools and at home.
- However, recent evidence shows no benefit in screening children for obesity.[2]

Discussion

- Underestimation of obesity in Pecatonica
  - Most of the results were taken from sports physicals. This could skew the results as this tends to favor the more physically active children.
  - Obese children may choose not to be weighed as they get older and become more socially aware of their body habitus.

Other Factors to consider

- The only fast food restaurant in town was Subway, the nearest McDonalds was 6 miles outside of town. This may show a relationship that obesity is related more to inactivity than diet, since fast food was not easily available and the children were still overweight.
- Activity level (such as sports/work), social class, insurance status, and parents BMI were not looked at, all of which are known to influence obesity.

What to do about it

- The plan is to speak with 6th graders about healthy eating and active lifestyles so that they have this knowledge before they begin to become obese(12-14 y/o range). It will also focus on less TV time for children. This is still in progress.

References

- 1. Griffen, Kyle W. MD, Faculty Physician, Cox Family Medicine Residency "Childhood Overweight and Obesity"
- 2. US Preventative Services Task Force, "Screening and Interventions for Overweight in Children and Adolescents: Recommendation Statement." American Family Physician, Jan 1 2006 Vol 73 # 1, pg 115-119