OBESITY AND UNDIAGNOSED DIABETES IN THE U.S
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Diabetes Care, Volume 31, number 9, September 2008

PSIDO Journal Club
November 20 2008
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OBJECTIVE

- To study whether obese individuals, who are at higher risk for diabetes and disparities in care than nonobese individuals, are more likely to have undiagnosed diabetes
DESIGN AND METHODS


- Participants were interviewed about sociodemographic and medical data:
  - history of diabetes, age at diagnosis, taking medication
  - examined for height, weight, and fasting plasma glucose level $\geq 126$ mg/dl.
DESIGN AND METHODS

- Categorized participants into normal weight, overweight, and obese according to BMI.

- The prevalence and diagnosis of diabetes across BMI categories was compared.

- Participants were defined as having evidence of diabetes if a doctor told them they had diabetes or if their fasting glucose was $\geq 126$ mg/dl.

- Participants were classified with diabetes as diagnosed if they were aware of their condition.
Examined the association between BMI and undiagnosed diabetes adjusting for relevant confounders:

- age,
- sex,
- race,
- education,
- health insurance,
- usual source of health care,
- number of previous health care visits in previous year.
RESULTS

- Of 5,514 adults, 658 (9.8%) demonstrated evidence of diabetes, representing an estimated 18.6 million U.S. adults
  - 28.1% (estimated 5.2 million) were undiagnosed

- Obese adults had a higher prevalence of diabetes than overweight or normal weight adults ($P \leq 0.001$)

- The proportion of those undiagnosed was comparable between
  - obese (27.4%, 99 of 327)
  - overweight (32.5%, 68 of 225)
  - normal-weight adults (22.2%, 32 of 106; $P = 0.32$)

- Obesity estimation in the U.S. adults of 5.2 million adults with undiagnosed diabetes
  - Obese: 2.7 million of the 5.2
  - Overweight: 1.8 million
  - Normal-weight: 0.7 million
Obesity is a strong risk factor for diabetes

- Obese adults were no more likely to have their diabetes diagnosed than nonobese adults

- Obese adults account for 2.7 million cases, or more than half of the 5.2 million cases, of undiagnosed diabetes each year in the U.S.

- The finding that adults with higher BMI are no more likely than those with lower BMI to have their diabetes diagnosed is somewhat unexpected given the widespread recognition of obesity's predisposition toward diabetes.
CONCLUSIONS & DISCUSSION

Reasons that may explain the disproportionate number of adults identified with diabetes:

- Many normal-weight adults have type 1 diabetes, which often produces symptoms earlier in the disease course.

- Delays in diagnosis in overweight and obese adults who are at higher risk of type 2 diabetes may reflect delays in experiencing, recognizing, and presenting symptoms of diabetes in a timely manner.

- Competing health concerns, social stigma, and health system bias may also contribute.
CONCLUSIONS & DISCUSSION

- Because some guidelines do not recommend systematic screening, clinicians may place lower priority on screening for diabetes.

- Given the higher risk of diabetes, lack of systematic screening has greater implications for obese adults.

- Obese adults comprise only one third of the general population, but they comprise more than 50% of U.S. adults with undiagnosed diabetes.

- Studies suggest that routine screening for diabetes is highly cost-effective.
CONCLUSIONS & DISCUSSION

- Whether pharmacologic treatment of early type 2 diabetes yields benefits that outweigh the potential costs of screening and early diagnosis is not clear.

- Timely diagnosis may lead to indirect benefits, especially among those with overweight and obesity:
  - motivating efforts to control weight
  - initiate lifestyle changes such as improving diet and exercise

- Future studies are needed to examine the public health impact of screening strategies that consider overweight and obesity.
SCREENING FOR DM

ADA recommends screening high-risk people every three years after the age of 45

Risk factors include:

- A family history of Type 1 or Type 2 diabetes
- A personal history of gestational diabetes
- Obesity
- Inactivity
- Delivering a baby weighing > 9 lb
- High blood pressure
- Being of African, Hispanic, Native American, or Pacific Island descent
LIMITATIONS

- Formal diagnosis was based on self-report

- Sample size, particularly among normal-weight adults with evidence of diabetes, was relatively modest

- Underpowered to detect meaningful differences in the likelihood of having undiagnosed diabetes across different BMI groups
SUMMARY

- Obese adults are no more likely to have their diabetes diagnosed than normal-weight or overweight adults.

- Because of their higher disease risk, obese adults account for more than one-half of those with undiagnosed diabetes in the U.S.

- Clinicians and policy-makers may want to consider the underlying risk of diabetes associated with body weight in making decisions concerning whom should be screened for diabetes.