

ADA 2014

Highlights

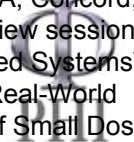
Dr. Diane Cleverley

Personal Healthcare Information



Artificial Pancreas edges closer to reality

- This year, researchers at Boston University, Harvard Medical School and Massachusetts General Hospital presented on developments for an artificial pancreas
- Researchers are ready to begin testing this summer, and may use patients in camps and hospital settings to test the devices
- An artificial pancreas, which sometimes is referred to as a closed-loop system because it doesn't require user input, but there are requirements:
 - It applies sophisticated computer algorithms to decide how much insulin is needed at any given moment.
 - The device has to be able to continuously detect patients' blood sugar levels and know whether the levels are trending up or down.
 - The device must store and delivers insulin.
 - The device needs to adjust for low blood sugar levels.
 - The device needs to deliver not only insulin but glucagon to raise blood sugar as well.



Are metabolically healthy obese a myth?

- Can some obese people be healthy and have reduced risk of diabetes and cardiovascular disease?
- Metabolically Healthy obese (MHO) (of BMI >30) must meet three criteria for untreated healthy biometrics of:
 - low blood pressure below 130/85
 - low fasting blood sugar (<100 mg/dl or HbA1c <5.7%)
 - low blood lipids (triglycerides <150 mg/dl, total cholesterol <240 mg/dl, and HDL ≥40 mg/dl in men and ≥50 in women)
- Two papers were published that showed data around increased long-term risk with increased weight for CVD and diabetes for the MHO
- This year at ADA, still a number of abstracts showing data around MHO having a lower risk of diabetes and CVD despite having excess weight
- Another paper showed that slightly obese individuals (BMI of 30-34.9) had no increase risk in mortality
- Why the differences?
- Move forward to an understanding that BMI alone is NOT the best measure for assessing risk
- Subcutaneous vs. Visceral fat may be a much better indicator of mortality and disease risk

Men gain more when they lose with bariatric surgery

The majority of bariatric surgery patients are women

However, men are the more likely to have improved blood sugar and blood lipid profiles after bariatric surgery

In this study:

- But men had a slightly higher but not significant excess BMI loss compared to women (73.7 ± 23.2 vs $66.4 \pm 29.8\%$; $p = 0.064$). Before surgery men had significantly more often type 2 diabetes (37.7% vs 15.8%) equal frequency of patients with prediabetes (19.7 vs 19.5%)
- After surgery, only 1.6% of the male and 2.6% of the female patients had diabetes and 6.3% vs 6.7% had prediabetes



SEARCH for Diabetes in Youth

- Large, observational study launched in 2000 that is focused on learning more about diabetes in children and adolescent
- 188 000 total children and adolescents with diabetes in the US:
 - 168 000 with type 1 diabetes
 - 19 000 with type 2 diabetes
- The prevalence of type 1 diabetes in children younger than 20 years of age increased 23%
 - up from 1.7 cases per 1000 individuals in 2000
 - 2.1 cases per 1000 individuals in 2009



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Can you be BMI defined obese and healthy (MHO)?

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- Recent paper in Ann Intern Med says not possible
- In one study, MHO patients as compared with the MUO ones had lower prevalence of insulin resistance and didn't have an abnormal glucose tolerance test
- A study found that MHO did not show a significantly increased risk of diabetes
- IN another, (17.4%) MHO patients were younger and had lower BMI than the 957 MUO patients and had non-significant differences for
 - microalbuminuria
 - cardiac autonomic dysfunction
 - fatty liver index ≥60
 - prevalence of LDL cholesterol ≥ 4.9 mmol/L