

Invited Speaker Plenary 5: Obesity/Diabetes/Metabolic Syndrome

Can the obesity epidemic be stopped?

J Proietto

Department of Medicine Repatriation Hospital Heidelberg VICTORIA

Australia, together with many other parts of the world, is experiencing an epidemic of obesity. Recent surveys have shown that 52% of adult women and 67% of adult men are either overweight or obese (BMI > 25 kg/m²).¹ Of these, 20% of both men and women are obese (BMI > 30 kg/m²). This increase in the weight of the population is causing grave concern in the community since obesity either causes or aggravates a long list of disorders including type 2 diabetes, dyslipidaemia, hypertension, sleep apnoea, arthritis, polycystic ovary disease and more. Not surprisingly with a condition that afflicts over half of the population, there is much debate about the public health measures that should be taken to stem the tide. Will public health measures work?

The Minnesota Heart health study was a comprehensive 5-city study designed to reduce cardiovascular risk. There were 3 intervention and 2 control communities. It was shown that in one of these communities, Mankato, after 2 years of participation, the inhabitants were significantly more exposed to activities promoting cardiovascular disease prevention compared to control cities most designed to lose weight, eat healthy foods and be active.² Surprisingly the end result was that while some cardiovascular risk factors improved, there was no difference in the rate of weight gain between the intervention and study communities. Why? The authors blamed competing unhealthy messages that were airing at the same time such as advertisements for junk food, coke? Is it possible to put out healthy messages and at the same time reduce unhealthy ones. I will argue that this scenario is at present impossible in capitalist democracies, that the required changes in society such as the banning of television junk food advertisements to children, reduction in use of cars, etc cannot be legislated without heavy political fallout. In addition, positive changes such as the building of bicycle paths, school exercise programs, workplace activity programs will not work since they do not reproduce the obligatory activity that was a feature of life before the technological revolution we are living through now.

Apart from the social, political and cultural barriers to a successful reversal of the obesity epidemic, there are also biological impediments that need to be overcome. Firstly there is evidence that body weight is homeostatically regulated and that individuals who lose weight will put in place mechanisms to return to their previous weight.³ Secondly, the evidence that body weight is genetically regulated is overwhelming.^{4,5} Several genes that can cause severe obesity have already been identified these include the genes for leptin, the leptin receptor, and more commonly the melanocortin 4 receptor.⁶ Those opposed to the idea of a genetic basis of body weight regulation ask how can the obesity epidemic be genetically based when the prevalence of obesity has risen from 7.1% to 18.4% between 1980 and 2000? The answer may lie in animal data suggesting a true gene-environment interaction in which exposure to fatty foods in youth will cause (only in genetically susceptible animals) the development of obesity that, once established, is defended. These genetically obesity-prone rats do not become obese if fed a low fat chow diet from birth.⁷

It is concluded that the challenges facing us in stemming the obesity epidemic are such, that any public health measure proposed should be first investigated before general implementation.

References

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