Adolescent Obesity in Israel and Its Future Consequences on Morbidity and Mortality

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Adolescent overweight and obesity have increased substantially in recent decades, affecting a quarter of the population in some developed countries, creating major concerns. Obesity early in life is considered a risk factor for all-cause mortality and cardiovascular disease mortality in midlife[1-4]. Such large scale obesity epidemic may limit the anticipated increase in life expectancy otherwise achieved.[5,6 ,7] Indeed, despite progress in prevention and treatment of cardiovascular disease, cardiovascular mortality among young adults has declined more slowly over recent decades in several developed countries coincident with the obesity epidemic. Some,[1,2,8] although not all,[9] studies suggest that body mass index (BMI) within the upper normal range in adolescence is associated with an increased risk for cardiovascular mortality, though there is uncertainty regarding specific BMI threshold associated with increased risk for adverse cardiovascular events.

Recently, the association between adolescence BMI and mortality attributed to cardiovascular mortality has been assessed in a large cohort of Israeli Adolescents.[10-13] These studies were based on a national database of 2.3 million Israeli adolescents who were assessed prior to military conscription and their records were linked to mortality data of the Israeli Ministry of Health. Primary outcomes were cardiovascular and non-cardiovascular. The large cohort allowed a dissection of the entire BMI range beyond to that applied by accepted definitions of normal range BMI. Multivariable analysis showed a graded increase in all cardiovascular outcomes, and in non-cardiovascular and all-cause mortality starting from the 50th BMI percentile. Causes of cardiovascular outcomes other than coronary disease or stroke were analyzed separately (given their opposing worldwide trends), but yielded similar results. Findings persisted in extensive sensitivity analysis. Applying multivariable-adjusted spline models, the estimated minimum risks of stroke, diabetes, sudden and cardiovascular deaths were all at BMI values below 20 kg/m^2, whereas the association with coronary mortality was monotonic. Sex-specific differences and updated data (2016) regarding associated major comorbidities such as type 2 diabetes and hypertension will be presented as well.

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