WG 2 (Preventive Medicine and Healthcare Policies)

Obesity at Recruitment and Risk of Early Discharge and Serious Morbidity During Service

Maya Braun, Yair Zloof, Maya Nitecki, Maya Simchoni, Ofek Adar, Avishai M Tsur, Estela Derazne, Dorit Tzur, Jacob Rotschield, Orit Pinhas-Hamiel, Naomi Fliss Isakov, Hadar Milloh-Raz, Dan Nemet, Dror Dicker, Avi Moyal, Oded Scheuerman, Zivan Beer, Marius Braun, Arnon Afek, Hertzel C Gerstein, George Batty, Gabriel Chodick, Gilad Twig.
Medical Corps Research Institute, Israel Defense Forces Medical Corps.

Background:
Obesity-related morbidities are often influenced by severity and duration. However, the development of serious health conditions in early adulthood among adolescents with obesity remains understudied. This study examines the association between adolescent BMI and the risk of developing serious morbidities before age 25.
Purpose:
We aimed to assess whether BMI in late adolescence is linked to an increased risk of serious health conditions before age 25.
Methods:
This nationwide retrospective cohort study included Israeli conscripts aged 17–21 who underwent pre-recruitment medical evaluations between 1996 and 2017. Participants deemed eligible for service were followed from enlistment until service completion, onset of serious morbidity that disqualified them from service, or December 31, 2021. Baseline BMI was converted into age-specific and sex-specific percentiles using US Centers for Disease Control and Prevention criteria. Cox regression models adjusted for socioeconomic factors were used to estimate hazard ratios (HRs) and 95% confidence intervals (CIs) for serious morbidity across BMI groups.
Results:
Among 1,118,653 participants (55.7% male, 44.3% female), 23,347 cases of serious morbidity were recorded over 2,534,873 person-years. The incidence of serious morbidity increased with higher BMI. Compared to normal BMI, adjusted HRs for males were 0.89 (95% CI 0.83–0.95) for underweight, 1.21 (95% CI 1.16–1.27) for overweight, 1.39 (95% CI 1.32–1.47) for obesity class 1, 2.82 (95% CI 2.60–3.06) for obesity class 2, and 5.14 (95% CI 4.37–6.04) for obesity class 3. For females, HRs were 0.95 (95% CI 0.84–1.09) for underweight, 1.27 (95% CI 1.17–1.37) for overweight, 1.63 (95% CI 1.45–1.82) for obesity class 1, 4.00 (95% CI 3.46–4.61) for obesity class 2, and 7.30 (95% CI 5.65–9.43) for obesity class 3.
Conclusions:
Obesity in otherwise healthy adolescents is strongly associated with increased morbidity risk before age 25.

WG 2 (Preventive Medicine and Healthcare Policies)

Obesity at Recruitment and Long-Term Cardiometabolic Outcomes

Maya Simchoni.
Department of Military Medicine, Faculty of Medicine, Hebrew University of Jerusalem, Jerusalem and the Israel Defense Forces Medical Corps.

Background:
The prevalence of adolescent obesity has risen sharply in recent decades, posing a major public health concern. However, its long-term cardiometabolic effects in young adults remain unclear.
Purpose:
To evaluate the impact of adolescent obesity on cardiometabolic morbidities and mortality using nationwide population-based cohorts.
Methods:
One year prior to mandatory military service, all Israeli adolescents undergo a pre-recruitment evaluation, including weight and height measurements, medical history review, medical examination, cognitive assessment, and sociodemographic data collection. The Israel Defense Forces national database, digitized since 1967, currently includes over 3 million adolescents. This database was linked to national registries to assess associations between adolescent obesity and various health outcomes.
Results:
Cardiovascular mortality risk increased with BMI, with a 3.5-fold higher risk in obese adolescents compared to lean peers. Obesity was associated with early stroke and chronic kidney disease, independent of baseline health status or later development of hypertension or diabetes. Among men, obesity was linked to higher cancer risk (HR=1.26 [1.18–1.35]), while no overall association was found in women due to inverse relationships with cervical and breast cancers (when excluded HR=1.27 [1.13–1.44]). HRs for Type 2 diabetes ranged from 1.7 (50th – 74th BMI percentile) to 25.8 (severe obesity) in men and from 2.2 to 44.7 in women, with earlier onset in those with higher baseline BMI. Adolescent obesity was linked to type 1 diabetes as well. Population Attributable Risk for these outcomes ranged from 5.3%-60%.
Conclusion:
Adolescent obesity is strongly associated with increased cardiometabolic risks by early adulthood, even in the absence of baseline comorbidities. Rising obesity prevalence may further elevate the burden of obesity-related diseases and underscore the need for early prevention strategies.