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The Impact of Body Mass Index on Mortality after Infection: Cohort study of 18,167 patients hospitalized in Denmark

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Introduction: The association between body mass index (BMI) and mortality remains controversial. From an evolutionary perspective, obesity and associated proinflammatory defenses may protect against death from infections. We examined the impact of BMI on outcome after any acute incident hospital admission for infection in a population-based study.

Methods: We identified 18,167 persons with an incident acute medical or surgical inpatient admission for an infectious disease during 2011–2015 in the Central Denmark Region. We examined risk of death within 90 days after discharge date in association with underweight, overweight and obesity, versus normal weight as reference. We adjusted for potential confounding factors, and examined the influence of recent weight change, comorbidities, cancer, and tobacco smoking on the association between BMI and mortality.

Results: Compared with patients of normal weight, the adjusted 90-day hazard ratio (aHR) of death following infection was substantially increased in patients with underweight: 2.2 [95% confidence interval (CI); 1.8–2.8]. However, no mortality increase was observed among patients with stable underweight, i.e., no recent weight loss [aHR = 1.1 (0.5–2.3)]. In contrast, the aHRs of death were clearly decreased in patients with overweight [0.6 (95% CI; 0.5–0.6)] and in patients with obesity [0.5 (95% CI; 0.4–0.6]. Among patients with obesity, presence or absence of recent weight changes, comorbidities, cancer, or smoking had little impact on the association with decreased mortality.

Conclusion: Overweight and obesity were associated with substantially reduced 90-day mortality following incident hospital admission for infection. An association between underweight and increased mortality was confined to patients