

The association between obesity, overweight and body mass index and the risk of three kinds of urinary cancers: an overview of systematic reviews

Background:

Several meta-analysis have investigated the effect of BMI increased on the incidence and mortality of cancers, but there are considerable differences in the conclusion of the associations between obesity, overweight and body mass index and different urinary cancers.

Methods:

The PubMed, EMBASE, and Cochrane Library were searched to identify relevant meta-analysis and systematic reviews. The methodological quality was assessed by the AMSTAR checklist, and the reporting quality was assessed by the PRISMA checklist. The association between obesity, overweight and body mass index and urinary cancers were estimated by computing the pooled effect size and its 95% CI in this overview. The heterogeneity between studies was assessed by the I² statistic.

Conclusions:

Our comprehensive quantitative analyses provides an extension of the available evidence, the overweight or obesity is a strong risk factor for the incidence and mortality of urinary cancers. According to re-analysis, the genders, study location, age, hypertension, and alcohol are significant factors affecting the association between body mass index increment and urinary cancer incidence.

Objectives:

This overview aimed to assess the methodological and reporting quality of systematic reviews that evaluated the association between obesity, overweight and body mass index and urinary cancer risks.

Results:

The median (Range) AMSTAR scores were 8.0 (4.0 to 9.0); the median (Range) PRISMA scores were 21.5 (12.5 – 25.5). Obesity was associated with the incidence of kidney cancer (RR=1.68,95% CI:1.47–1.92), bladder cancer (RR=1.14,95% CI:1.07–1.13) and prostate cancer (RR=1.14,95% CI:1–1.31) at the same time. Overweight was associated with the incidence of kidney cancer (RR=1.37,95% CI:1.26–1.48), bladder cancer (RR=1.07,95% CI:1.03–1.1) and prostate cancer (RR=1.05,95% CI:0.95–1.06). As for dose-analysis, the RR (per 5 kg/m² increased) of BMI was associated with kidney cancer (RR=1.24,95% CI:1.2–1.28), bladder cancer (RR=1.03,95% CI:1.02–1.05) and prostate cancer (RR=1.03,95% CI:1.02–1.04). The mortality of bladder cancer (RR=1.05,95% CI:1–1.11), kidney cancer (RR=1.21,95% CI:1.14–1.29) and prostate cancer (RR=1.15,95% CI:1.11–1.2) were associated with BMI increased (per 5 kg/m² increased). The genders, study location, age, hypertension and alcohol consumption are significant factors affecting the association between obesity and urinary cancer incidence (P<0.05).

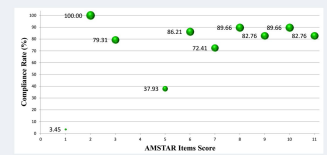


Fig. 1 Datasets by quality assessment score, size of circle is proportional to numbers of study, name around circle is proportional to first author of SRs and meta analysis, the color of the bubble represents the type of cancer the SRs and meta-analysis evaluated.

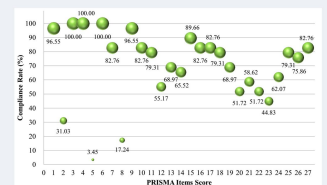


Fig. 2 Datasets by PRISMA items score, size of circle and numbers around circle are proportional to compliance rate(%).

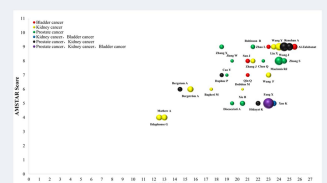


Fig. 3 Datasets by AMSTAR items score, size of circle and numbers around circle are proportional to compliance rate(%).



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