Obesity paradox

Obesity is a strong risk factor for esophageal adenocarcinoma (EAC). Nevertheless, not all patients with EAC are obese, and a substantial proportion of obese patients don't suffer from poor prognoses. The mechanisms behind the “obesity paradox” that uncouple obesity from dismal outcomes in EAC are unclear. This study aimed to explore the “obesity-guarding” genes (OGG) profiles and their prognostic values in patients with EAC. Methods: Gene expression data and clinical information of patients with EAC were downloaded from The Cancer Genome Atlas (TCGA) database. Enrichment analysis was used to explore the OGG functions and pathways. Cox regression analysis and nomogram model were performed to investigate the OGG prognostic values for overall survival (OS). In addition, relations between OGG and immune cells were assessed by the “CIBERSORT” algorithm and the Tumor IMmune Estimation Resource (TIMER) tool. Finally, the results were experimentally validated in a real-world study. Results: A total of 69 OGG were retrieved, and 17 significantly differentially expressed genes (SDEG) were identified between normal and EAC tissues. Enrichment analysis showed the OGG were enriched in the mitochondrion-related and various receptor pathways. Univariate Cox regression results showed that the MCM6, ATXN2, and CSK were significantly associated with OS (P=0.036, 0.039, 0.046, respectively). Multivariate Cox regression analysis showed MCM6 and CSK were independent prognostic genes for OS (P=0.025, 0.041, respectively). Nomogram demonstrated that the OGG had good predictive abilities for the 1-, 2-, and 3-year OS. Immunity analysis demonstrated that OGG were significantly associated with immune cells (P <0.05). In addition, clinical correlation analysis revealed that the OGG had significant relations with clinical parameters (P <0.05). The experiment results confirmed that the SDEG were significantly different between normal and EAC tissues (P <0.05). Conclusions: We identified the OGG expression profiles that may uncouple obesity from poor survival in patients with EAC. They have prognostic values in predicting patients' OS, and may be exploited for prognostic biomarkers [1)].

As the number of obese people is globally increasing, reports about the putative protective effect of obesity in life-threatening diseases, such as subarachnoid hemorrhage (SAH), are gaining more interest. This theory-the obesity paradox-is challenging to study, and the impact of obesity has remained unclear in the survival of several critical illnesses, including SAH. Thus, we performed a systematic review to clarify the relation between obesity and SAH mortality. Our study protocol included systematic literature search in PubMed, Scopus, and Cochrane library databases, whereas risk-of-bias estimation and quality of each selected study were evaluated by the Critical Appraisal Skills Program and Cochrane Collaboration guidelines. A directional power analysis was performed to estimate a sufficient sample size for significant results. From 176 reviewed studies, six fulfilled our eligibility criteria for qualitative analysis. One study found paradoxical effect (odds ratio, OR = 0.83 (0.74-0.92)) between morbid obesity (body mass index (BMI) > 40) and in-hospital SAH mortality, and another study found the effect between continuously increasing BMI and both short-term (OR = 0.90 (0.82-0.99)) and long-term SAH mortalities (OR = 0.92 (0.85-0.98)). However, according to our quality assessment, methodological shortcomings expose all reviewed studies to a high-risk-of-bias. Even though two studies suggest that obesity may protect SAH patients from death in the acute phase, all reviewed studies suffered from methodological shortcomings that have been typical in the research field of obesity paradox. Therefore, no definite conclusions could be drawn [2)].

Obesity paradox in acute ischemic stroke

A cross-sectional study analysis demonstrates a lower likelihood of discharge to home as well as in-hospital mortality in obese patients following Acute Ischemic Stroke, suggestive of a protective effect of obesity against mortality but not against all post-stroke neurological deficits in the short term which would necessitate placement in acute rehabilitation and long-term care facilities [3].

Patients with acute ischemic stroke (AIS) were assessed for their 3-month functional outcome using the modified Rankin Scale (mRS) score. Predictors for poor outcome (mRS 3-6) were analyzed through binary logistic regression (BLR), and association rule mining (ARM) was performed to find out which combination of risk factors was concurrently associated with good outcomes using maximal support, confidence, and lift values. Among 2580 patients with AIS, being obese (OR [odds ratio], 0.78; 95% CI, 0.62-0.99) had beneficial effects on the outcome at 3 months in BLR analysis. In addition, the ARM algorithm showed obese patients with good outcomes were also associated with an age less than 55 years and mild stroke severity. While BLR analysis showed a beneficial effect of obesity on stroke outcome, in ARM analysis, obese patients had a relatively good combination of risk factor profiles compared to normal BMI patients. These results may partially explain the obesity paradox phenomenon in AIS patients [4].

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