Association of ADHD medications with the risk of cardiovascular diseases: a meta-analysis

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Abstract

This meta-analysis was conducted to evaluate the association between Attention deficit hyperactivity disorder (ADHD) medications and risk of sudden death/arrhythmia, stroke, myocardial infarction as well as all-cause death. We searched PubMed, Web of Science and China National Knowledge Infrastructure from 1950 to May 2018. All observational studies that the exposure of interest was ADHD medications, the outcome of interest was sudden death/arrhythmia, stroke, myocardial infarction as well as all-cause death, and the study reported relative risks (RRs) with 95% confidence intervals (95% CIs) were included. Pooled RRs were estimated by random-effects model. Subgroup analyses were conducted to examine the effects of study design, population, Country, follow-up duration, female proportion, covariates adjustment on the risk of sudden death/arrhythmia. Eight articles with ten studies (4,221,929 participants) were included in this meta-analysis about the association between ADHD medications and risk of sudden death/arrhythmia. The pooled RRs with 95% CIs of sudden death/arrhythmia for ADHD medications were 1.39 (1.06, 1.83). The result of the cohort study was 1.24 (0.84, 1.83). The pooled RRs between ADHD medications and stroke, myocardial infarction, all-cause death were 1.00 (0.74, 1.35), 0.91 (0.79, 1.05), 0.89 (0.54, 1.45), respectively. As for methylphenidate, the pooled RRs between methylphenidate and sudden death/arrhythmia, stroke, myocardial infarction, all-cause death were 1.46 (1.03, 2.07), 0.92 (0.70, 1.21), 0.97 (0.77, 1.23), 1.00 (0.49, 2.04), respectively. Based on the results of cohort studies, there was no correlation between ADHD medications and sudden death/arrhythmia, stroke, myocardial infarction and all-cause death. However, some of the confidence intervals do not exclude modest elevated risks, e.g., for sudden death/arrhythmia.