

Liver aminotransferase and risk of incident type 2 diabetes : a systematic review and meta-analysis

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Abstrak

We evaluated the associations of liver aminotransferases with risk of type 2 diabetes (T2D) in general populations by conducting a systematic review and meta-analysis of published prospective studies. Studies were identified in a literature search of PubMed, EMBASE, and Web of Science from 1950 through October 2012. Of the 2,729 studies reviewed, 17 studies involving 60,359 participants and 3,890 incident T2D events were included. All of the studies assessed associations between alanine aminotransferase (ALT) level and T2D, with heterogeneous findings ($I^2 = 88\%$, 95% confidence interval (CI): 82, 92; $P < 0.001$). The pooled fully adjusted relative risk of T2D was 1.26 (95% CI: 1.14, 1.41) per 1-standard-deviation change in log baseline ALT level. This association became nonsignificant after trim-and-fill correction for publication bias. Nine studies evaluated associations between aspartate aminotransferase (AST) levels and T2D risk, with a corresponding relative risk of 1.02 (95% CI: 0.99, 1.04). The relative risk of T2D per 5-IU/L increase in ALT level was 1.16 (95% CI: 1.08, 1.25). Available data indicate moderate associations of ALT with risk of T2D events, which may be attributable to publication bias. There was no evidence for an increased risk of T2D with AST. Large prospective studies may still be needed to establish the magnitude and nature of these associations.