Crimean-Congo hemorrhagic fever-induced liver injury: a systematic review and meta-analysis

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Abstract

Background: Crimean-Congo hemorrhagic fever (CCHF) is a fatal acute tick-borne viral infection and a substantial emerging global public health threat. This illness has a high case fatality rate of up to 40%. The liver is one of the important target organs of the CCHF virus. Objective: The aim of this meta-analysis to evaluate the correlation between CCHF and liver injury and draw more generalized inferences about the abnormal serum markers of liver injury such as alanine aminotransferase (ALT), aspartate aminotransferase (AST) in CCHF patients. Methods: A literature search was accomplished for published eligible articles with MEDLINE/PubMed and Embase databases. All eligible observational studies and case series were included from around the world. The inclusion criteria were articles describing liver injury biomarkers AST and ALT amongst patients diagnosed with CCHF. Results: Data from 18 studies, consisting of 1238 patients with CCHF were included in this meta-analysis. The overall pooled prevalence of at least one raised liver injury biomarker was 77.95% (95% CI, I2 = 88.50%, $p < 0.0001$). Similarly, pooled prevalence of elevated AST and ALT was 85.92% (95% CI, I2 = 85.27%, $p < 0.0001$) and 64.30% (95% CI, I2 = 88.32%, $p < 0.0001$) respectively. Both Egger and Begg-Mazumdar's tests detected no apparent publication bias in all three meta-analyses($p > 0.05$). Conclusion: These elevated liver injury biomarkers have been identified as significant prognostic factors. Hence, Physicians must recognize and continuously monitor these biomarkers, since these aid early stratification of prognosis and the prevention of severe outcomes in infection with such a high case fatality rate.

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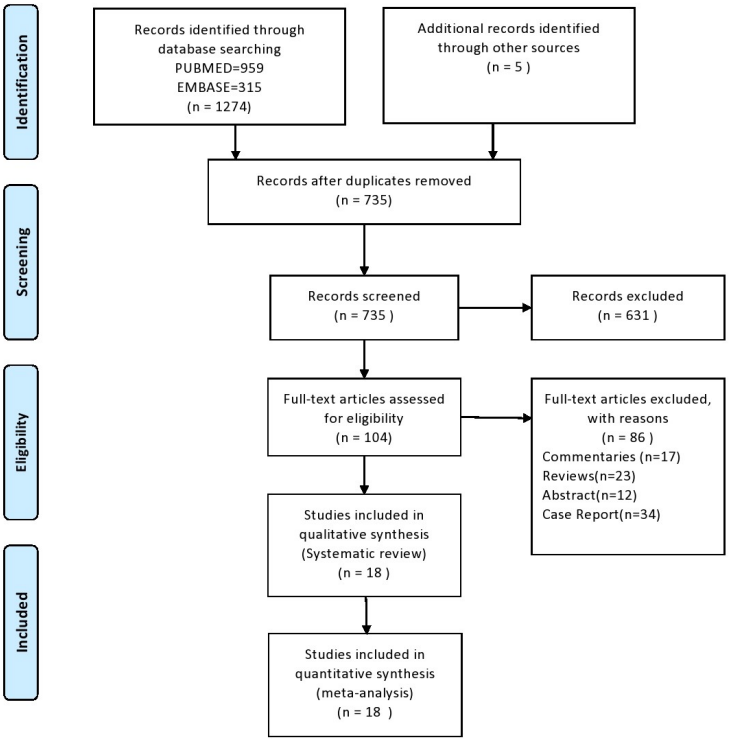

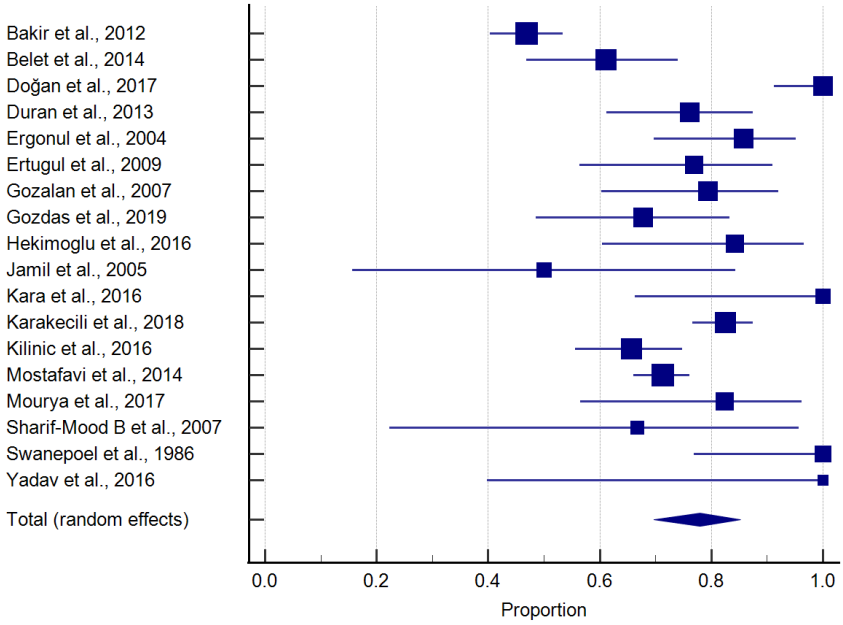

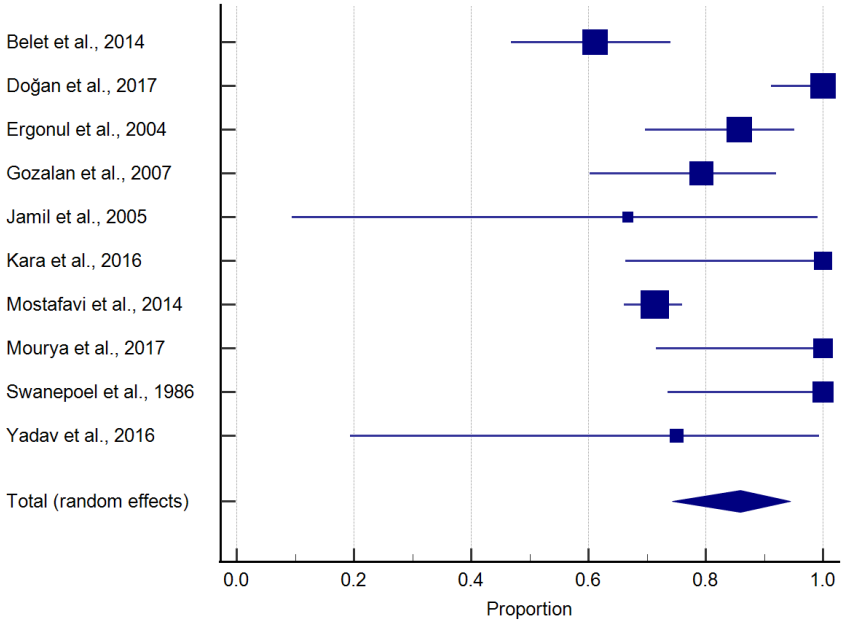

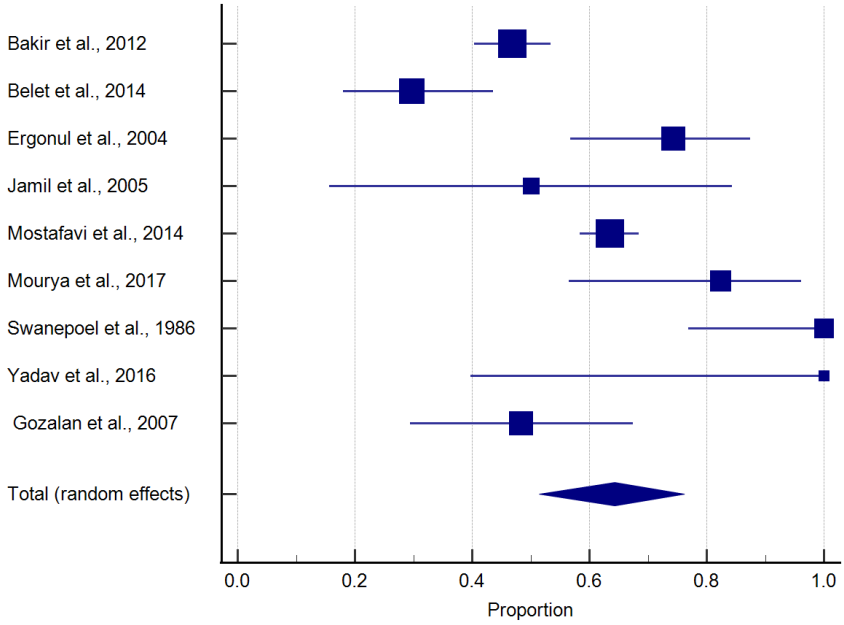

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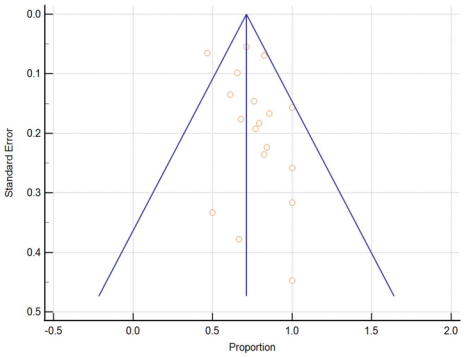

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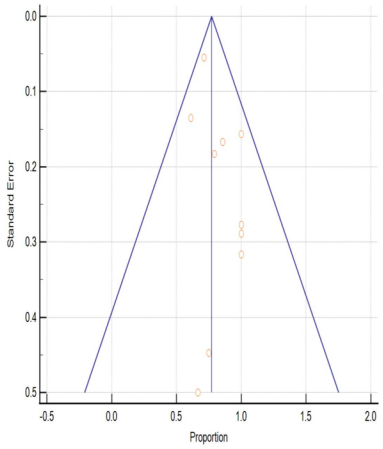

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