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Mapping Hepatitis B: A Comprehensive Analysis of Prevalence Patterns Across Gulf Cooperation Council Countries

Background

Hepatitis B virus (HBV) infection remains a significant public health concern globally. This systematic review and meta-analysis aimed to synthesize the available evidence on HBV prevalence across Gulf Cooperation Council (GCC) countries from 2010 to 2024.

Methods

A systematic review was conducted of studies reporting HBV prevalence in GCC countries. Of 131 identified studies, 75 studies provided complete prevalence data with a total sample size of 25,846,210 participants from six Gulf countries (Saudi Arabia, Kuwait, Bahrain, Oman, Qatar, and UAE). Studies were classified based on data completeness, with 57.3% providing complete data (both prevalence rate and sample size), 33.6% providing partial data, and 9.1% providing descriptive information.

Results

The overall pooled HBV prevalence across GCC countries was 1.53%. Country-specific analyses revealed variations in prevalence: Saudi Arabia showed 1.56% (95% CI: 1.56-1.56%) from 67 studies with 24,966,819 participants; UAE reported 1.56% (95% CI: 1.56-1.56%) from 3 studies; Kuwait showed 2.02% (95% CI: 2.02-2.02%) from one study; Bahrain demonstrated 0.58% (95% CI: 0.58-0.58%) from one large study; Oman reported 2.04% (95% CI: 1.51-2.56%) from two studies; and Qatar showed the lowest prevalence at 0.03% (95% CI: 0.03-0.03%) from one study. Temporal analysis revealed an increase in overall prevalence from 0.64% (2010-2014) to 1.59% (2020-2024), with the peak research output occurring during 2015-2019 (58 studies).

Conclusions

This meta-analysis demonstrates relatively low to moderate HBV prevalence rates across GCC countries, with notable variations between nations. Saudi Arabia provided the most comprehensive dataset, showing stable rates around 1.56%. The temporal analysis suggests a slight increase in prevalence over the study period. These findings can inform public health strategies and suggest the need for standardized surveillance across the Gulf region.

Keywords

Hepatitis B virus; prevalence; Gulf Cooperation Council; meta-analysis; epidemiology

Biography

Dr. Einas Osman is an Assistant Professor of Medical Microbiology with a PhD in Molecular Biology from Khartoum University. She specializes in antimicrobial resistance, molecular epidemiology, and clinical microbiology. Her research focuses on multidrug-resistant pathogens, particularly *Klebsiella pneumoniae* and *Acinetobacter baumannii*. She has published extensively in peer-reviewed journals and contributed to One Health initiatives across the Nile Valley. Dr. Osman has received multiple international grants and has presented her work at prestigious conferences including ECCMID. She previously served as a postdoctoral research fellow and consultant in molecular biology laboratories in Sudan.