Global burden of myocarditis from 1990 to 2019 and projections until 2030

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Background: Myocarditis remains a major public health challenge worldwide, which might be increasing with the pandemic of coronavirus disease 2019.

Purpose: This study aimed to examine the myocarditis burden at the global level, and predict the future trend until 2030.

Methods: Incident cases, deaths, disability-adjusted life years (DALYs), and their corresponding age-standardized rates, as metrics of myocarditis burden, were obtained from the Global Burden of Disease Study 2019. The estimated annual percentage changes (EAPCs) were calculated to reveal temporal trends from 1990 to 2019. Bayesian age-period-cohort model was used to make projections.

Results: Increases were noted in incident cases (62.19%) and deaths (65.4%) of myocarditis, with a slight decrease of DALYs (-0.42%). Age-standardized death rate (ASDR) showed a stable trend over time [EAPC: -0.09, 95% confidence interval (CI): -0.38 to 0.2], decreases were noted in age-standardized incidence rate (ASIR) (EAPC: -0.23, 95% CI: -0.26 to -0.21) and age-standardized DALY rate (EAPC: -1.19, 95% CI: -1.33 to -1.04). Males bore more myocarditis burden than females. Almost a third (29.94%) of myocarditis patients resided in countries with a middle sociodemographic index (SDI). Higher ASIRs were observed in regions with higher SDI levels. People aged less than 20 years in low and low-middle SDI quintiles developed myocarditis and died from it earlier than those in other quintiles. Global ASIR and ASDR were predicted to continuously decrease until 2030.

Conclusion: These findings suggested considerable heterogeneity in the epidemiologic patterns of myocarditis, guiding the policymakers to formulate optimal strategies and resource allocation for myocarditis.