

Epidemiology of Congenital Heart Defects in Kazakhstan: Data from Unified National Electronic Healthcare System 2014-2020

Authors : Dmitriy Syssoyev, Aslan Seitkamzin, Natalya Lim, Kamilla Mussina, Abduzhappar Gaipov, Dimitri Poddighe, Dinara Galiyeva

Abstract : Background: Data on the epidemiology of congenital heart defects (CHD) in Kazakhstan is scarce. Therefore, the aim of this study was to describe the incidence, prevalence and all-cause mortality of patients with CHD in Kazakhstan, using national large-scale registry data from the Unified National Electronic Healthcare System (UNEHS) for the period of 2014-2020. Methods: In this retrospective cohort study, the included data pertained to all patients diagnosed with CHD in Kazakhstan and registered in UNEHS between January 2014 and December 2020. CHD was defined based on International Classification of Diseases 10th Revision (ICD-10) codes Q20-Q26. Incidence, prevalence, and all-cause mortality rates were calculated per 100,000 population. Survival analysis was performed using Cox proportional hazards regression modeling and the Kaplan-Meier method. Results: In total, 66,512 patients were identified. Among them, 59,534 (89.5%) were diagnosed with a single CHD, while 6,978 (10.5%) had more than two CHDs. The median age at diagnosis was 0.08 years (interquartile range (IQR) 0.01 - 0.66) for people with multiple CHD types and 0.39 years (IQR 0.04 - 8.38) for those with a single CHD type. The most common CHD types were atrial septal defect (ASD) and ventricular septal defect (VSD), accounting for 25.8% and 21.2% of single CHD cases, respectively. The most common multiple types of CHD were ASD with VSD (23.4%), ASD with patent ductus arteriosus (PDA) (19.5%), and VSD with PDA (17.7%). The incidence rate of CHD decreased from 64.6 to 47.1 cases per 100,000 population among men and from 68.7 to 42.4 among women. The prevalence rose from 66.1 to 334.1 cases per 100,000 population among men and from 70.8 to 328.7 among women. Mortality rates showed a slight increase from 3.5 to 4.7 deaths per 100,000 in men and from 2.9 to 3.7 in women. Median follow-up was 5.21 years (IQR 2.47 - 11.69). Male sex (HR 1.60, 95% CI 1.45 - 1.77), having multiple CHDs (HR 2.45, 95% CI 2.01 - 2.97), and living in a rural area (HR 1.32, 95% CI 1.19 - 1.47) were associated with a higher risk of all-cause mortality. Conclusion: The incidence of CHD in Kazakhstan has shown a moderate decrease between 2014 and 2020, while prevalence and mortality have increased. Male sex, multiple CHD types, and rural residence were significantly associated with a higher risk of all-cause mortality.

Keywords : congenital heart defects (CHD), epidemiology, incidence, Kazakhstan, mortality, prevalence

Conference Title : ICPCG 2023 : International Conference on Pediatric Cardiology and Genetics

Conference Location : London, United Kingdom

Conference Dates : October 16-17, 2023