

CLIPPINGS

Global, regional, and national burden of congenital heart disease, 1990–2017 (*Lancet Child Adolesc Health.* 2020;4:185-200)

This study is the most comprehensive study on congenital heart disease (CHD) burden to date, incorporating data from congenital birth defect registries, hospital administrative data and previous publications including Global Burden of Diseases, Injuries, and Risk Factors Study 2017. Authors described the geographical, temporal, and sociodemographic trends of CHD from 1990 to 2017.

Global prevalence of CHD at birth was estimated to be 1.8 cases per 1000 live births in 2017, an increase of 4.2% from 1990. In 2017, CHD was the underlying cause of an estimated 2,61,247 deaths globally which is a 34.5% decline from 1990. 69% of these deaths were accounted by infants, with highest in countries with low- and low-middle sociodemographic index (SDI). The improvement in CHD mortality in infancy has lagged behind that of other causes and hence, the proportion of all infant deaths caused by CHD has increased. The total years lived with disability due to rheumatic heart disease (RHD) was estimated to be substantially larger than due to CHD.

The study provides important estimates to identify areas in need, and a clearer roadmap to the various stakeholders to guide resource allocation to increase access to cardiovascular care, especially in low- and middle- income countries (LMICs).

Neonatal cardiac surgery in low resource settings: Implications of birth weight (*Arch Dis Child.* 2020;105:1140-45)

This retrospective study examined the implications of low birth weight (LBW) on neonatal cardiac surgical outcomes in a referral pediatric hospital in India. About 22% of 569 neonates who underwent cardiac operation during the 8-year study period had LBW (<2.5kg). Out of these, 21.1% were preterm. There was no correlation between birthweight and duration of mechanical ventilation, ICU and hospital stay. Overall in-hospital mortality was 7.0%, with LBW having twice the in-hospital mortality rate (OR (95%CI) 2.16 (1.1-4.3), $P=0.02$). Birthweight, younger age at operation and palliative operations were independently associated with mortality on multivariate analysis.

The study emphasizes that outcomes of neonatal heart surgery in LMICs are not only dependent on skilled human resources and infrastructure for perioperative care, but also the comorbidities of the patients. Public health initiatives to further improve the maternal health status should remain a priority.

Hydroxychloroquine to prevent recurrent congenital heart block in fetuses of anti-SSA/Ro-positive mothers (*J Am Coll Cardiol.* 2020;76:292-302)

Untreated congenital heart block (CHB) has significant morbidity and mortality both before and after birth. The risk of recurrence of fetal atrioventricular block in subsequent pregnancies is reported to be as high as 18%. This study (PATCH trial) was a multicenter, single-arm, 2-stage clinical trial evaluating efficacy of hydroxychloroquine (HCQ), a Toll-like receptor antagonist, in preventing recurrence of antibody (SSA/Ro) mediated congenital heart block.

Anti-SSA/Ro-positive mothers with a previous pregnancy complicated by CHB were started on daily therapy with 400 mg HCQ, prior to completion of 10th gestational week and were continued throughout pregnancy. The primary outcome was second or third degree heart block in utero or at birth. The authors found that the recurrence rate of CHB was reduced by more than 50%; 18% to 7.4%, by intention-to-treat (ITT) as well as per protocol analysis. The authors suggested prescription of HCQ for secondary prevention of CHB in all anti-SSA/Ro-exposed pregnancies.

Acute heart failure in multisystem inflammatory syndrome in children (MIS-C) in the context of global SARS-CoV-2 pandemic (*Circulation.* 2020;142:429-36)

This is one of the first studies describing MIS-C, a Kawasaki-like illness occurring after exposure to SARS-CoV-2. The study included 35 children admitted for cardiogenic shock, left ventricular dysfunction, and severe inflammatory state in 14 centres in France and Switzerland.

Median age at admission was 10 years and median duration between the first clinical symptoms and symptoms of heart failure was 6 days. None of the patients met criteria for typical Kawasaki disease. About 80% were admitted directly to the intensive care unit due to cardiogenic shock. Two-thirds required invasive mechanical ventilation while one-fourth required use of veno-arterial extracorporeal membrane oxygenation. Echocardiography at admission revealed depressed left ventricular systolic function in all, with normal left ventricular dimensions in 29 of 35 patients. Dilatation of the coronary arteries was found in 17% with coronary aneurysms in none. All patients received intravenous immunoglobulin, with adjunctive steroid therapy used in one-third. Complete recovery of left ventricular function

was observed in 71% of patients 2 days (median) after admission. Median ICU stay was 7 days and no patient died.

The authors postulated that the rapid resolution of systolic dysfunction, together with mild to moderate

troponin elevation, suggests that the mechanism of acute heart failure in children is myocardial stunning or edema, rather than inflammatory myocardial damage as in adults.

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