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Research Article

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[An empirical study on factors responsible for Rheumatic Heart Disease \(RHD\) and its severity levels amongst the Bhutanese populace](#)

Background and objectives: This paper is aimed at excavating the factors responsible for RHD events and vis-à-vis establishing severity levels of RHD patients referred to Jigme Dorji Wangchuck National Referral Hospital (JDWNRH) in Thimphu's capital city of Bhutan.

Methods: By taking notorious advantage of the data gathered over the past five years (2016-2020) from RHD patients across 20 districts of Bhutan, about 232 RHD patients are involved in this study recorded in JDWNRH by the Cardiology Department. Besides descriptive methods, multivariate linear regression models augmented by the multinomial logistic regression models had been applied to establish the causal links.

Results: The findings revealed that RHD prevailed amongst the young populace of Bhutan, especially females. Variables like age, frequency of visits, number of diagnostics, levels of education and region had been found as predictors of RHD prevalence. Other socio-demographic factors like occupation and status of employment did not affect the RHD prevalence. The multinomial logistic regression results indicated that higher levels of education as an important factor for not making the patient fall into the category of 'severe.' Age has been constantly found to be a highly significant variable contributing to RHD events and a quadratic relationship is revealed between age and the severity of RHD.

Conclusion and implications for translation: This study pigeonholed the significant factors responsible for RHD events and entailed severity levels by gender and age. The findings of this study also provide additional important insights into developing public health policies and programs.

Review Article

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[Clinical utility of intracardiac echocardiography in transvenous lead extraction](#)

The epidemics of heart failure and an aging population resulted in an exponential rise in the use of cardiac implantable devices (CIEDs) in developed countries. This is paralleled by the increased rate of complications such as system infection or malfunction. The higher number of complications, and longer patient life expectancies, are followed by an increase in the need for lead extractions.

Research Article

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[Single-center experience in sutureless aortic valve implantation using two aortic valve prostheses](#)

Background and aim of the study: Sutureless aortic valves are used to reduce operation time. However, the stent implantation might cause postoperative ECG alterations and a higher risk of paravalvular leakage. In literature, some cases of thrombocytopenia are described after implantation. We investigated the Sorin Perceval S Sutureless Valve and the Edwards Intuity Sutureless Valve.

Material and methods: Seventy-nine patients underwent aortic valve replacement using a sutureless valve in a single center between 2015 - 2018. Thirty-seven patients received Sorin Perceval S (Group A) and 42 Edwards Intuity (Group B). Simultaneous bypass surgery was performed in 23 patients in Group A and 22 patients in Group B. We compared the groups regarding postoperative TTE and paravalvular leakage, postoperative ECG alterations, need for pacemaker implantation, postoperative platelet count, and 30-day mortality

Results: Only in Group B 2 patients had paravalvular leakage, and one was reoperated within the same hospital stay. In Group A, nine patients suffered from postoperative atrial fibrillation, and in Group B, 16 patients. Left bundle branch block (LBBB) was observed in 5 patients in Group A, and 13 patients in Group B. Two patients in Group A needed a definite pacemaker, and five patients in Group B. Tachy-Brady Syndrome and LBBB were observed more frequently in Group B as well as ECG alterations. One patient died within 30 days in Group A due to multiorgan failure. This patient was older and multimorbid compared to the average. Regarding platelet count, we saw a statistically significant decrease in both groups. There were no major bleeding complications or reoperations due to hemorrhage.

Conclusion: Our data shows that sutureless aortic valve replacement is associated with new postoperative ECG alterations, which are self-limiting in most cases. Compared to the literature pacemaker implantation rate in Group B is higher.

Observational Study

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[Posterior pericardiotomy in heart valve surgery: is it still performed or neglected?](#)

Background: Posterior pericardiotomy (PP) is helpful to prevent arrhythmia; especially atrial fibrillation (AF), and cardiac tamponade postoperative cardiac valve surgery. The incidence of postoperative AF is increased due to postoperative pericardial effusion (PE). This study aimed to investigate the early outcome of PP after heart valve surgery.

Methods: In this prospective study, 120 patients underwent elective valve heart surgery at our center from January 2020 until April 2022. Patients were followed up for AF and pericardial effusion, and reopening due to tamponade.

Results: The mean age of patients was 35.26 years, 70.2% were female and 29.8% were male. Surgery was elective and all were valve surgery. The incidence of postoperative AF was 2%, and pericardial effusion was seen in 1% of patients. Tamponade was not seen in any case. Left PE needed intervention tube drainage of 2%.

Conclusion: Posterior pericardiotomy is a simple and safe procedure during valve heart surgery, and it is effective in reducing the incidence of atrial fibrillation, pericardial effusion, and tamponade.

Literature Review

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[A Wolff-Parkinson-White \(WPW\) Electrocardiographic Pattern in Asymptomatic Patient – State-of-the-Art-Review](#)

A comprehensive approach to asymptomatic adults with Wolff-Parkinson-White (WPW) pattern discovered incidentally on routine electrocardiography (ECG) is debatable. The objective of this review article is to update the most recent evidence on the management of young patients with asymptomatic WPW patterns. A substantial proportion of adults with WPW patterns on ECG may remain asymptomatic but the lifetime risk for fatal arrhythmias still exists. The inherent properties of the accessory pathway determine the risk of sudden cardiac death. A low-risk pathway is considered when the pre-excitation is intermittent on ambulatory monitoring or when it disappears completely or abruptly during exercise testing. On the other hand, a high-risk pathway in EP study is suggested by the presence of the shortest pre-excited RR interval (SPERRI) during atrial fibrillation of ≥ 250 ms or accessory pathway effective refractory period (APERP) ≥ 240 ms. The cardiac evaluation may thus be considered in asymptomatic patients with WPW to determine the individual risk for future symptomatic arrhythmia. A shared-decision making must be performed before offering catheter ablation whose procedural success rate is high.

Research Article

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[Associations of arterial stiffness with left ventricular mass index and carotid intima-media thickness in the hypertensives](#)

Background: Arterial stiffness has been considered an independent predictor of cardiovascular disease in addition to the traditionally known cardiovascular risk factors.

Objectives: This study aimed to investigate the associations between arterial stiffness with left ventricular mass index and carotid intima-media thickness in the hypertensives.

Methods: A descriptive cross-sectional study compared a control group in 210 study subjects (105 hypertensives and 105 normotensives). Measuring left ventricular mass index by echocardiography and carotid intima-media thickness by carotid doppler ultrasonography. Pulse wave velocity was measured using the Agedio B900 device and the Agedio K520 application. The manual method was measured by the ankle-brachial index.

Results: There was a statistically significant positive correlation between pulse wave velocity and age ($r = 0.922$, $p < 0.001$). The ankle-brachial index had a statistically significant positive correlation at a weak level with left ventricular mass index and carotid intima-media thickness, in which the coefficient r was equal to 0.219 ($p < 0.05$) and 0.250 ($p < 0.001$), respectively. Pulse wave velocity also had a statistically significant positive correlation at a weak level with left ventricular mass index and carotid intima-media thickness, in which the coefficient r was equal to 0.188 ($p < 0.05$) and 0.289 ($p < 0.001$), respectively. Pulse wave velocity had a multivariable linear correlation with gender, pulse, mean blood pressure, and ankle-brachial index with statistical significance; and they were written in the form of the following equation: Pulse wave velocity ($R^2: 41.3\%$) = $0.641 * (\text{Gender}) - 0.027 * (\text{Pulse}) + 0.043 * (\text{Mean blood pressure}) + 8.378 * (\text{Ankle-brachial index}) - 3.254$.

Conclusion: Arterial stiffness was statistically correlated with left ventricular mass index and carotid intima-media thickness in the hypertensives. Through the above research results, we suggest that the hypertensives should be combined with the evaluation of hemodynamic parameters and arterial stiffness for contributing to the diagnosis and detection of cardiovascular complications, thereby improving the quality of monitoring and treatment in hypertensive patients.
