

WORLD CONGRESS ON RHEUMATIC HEART DISEASE

2-4 November 2023 • Abu Dhabi



Submission Id: 86

Title: PAROXYSMAL ATRIAL FIBRILLATION WITH HOLTER ECG MONITORING IN PATIENTS WITH SEVERE RHEUMATIC MITRAL STENOSIS IN SINUS RHYTHM AT TIKUR ANBESSA SPECIALIZED HOSPITAL, AAU: PROSPECTIVE CROSS-SECTIONAL STUDY

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Background & Aims: Rheumatic mitral stenosis (MS) is a common etiology of chronic valvular heart disease in Ethiopia and is one of the major risk factors for atrial fibrillation (AF) in younger age groups. Many patients with severe MS apparently in sinus rhythm during clinical follow-up could develop systemic thromboembolic events (stroke and limb ischemia) before paroxysmal AF is diagnosed. Accordingly, utilizing rhythm monitoring devices in ambulatory settings could potentially aid in the earlier diagnosis of paroxysmal AF not apparent during clinical visits

Methods: A prospective study of 24 hours ambulatory Holter ECG monitoring in patients with severe rheumatic mitral stenosis in sinus rhythm was conducted from June 1, 2022 to October 1, 2022 at Tikur Anbessa Specialized Hospital

Results: 55 patients with severe rheumatic MS, defined as mitral valve area (MVA) of 1cm² or less, and apparently in sinus rhythm underwent 24 hours ambulatory Holter ECG monitoring with 7 leads.

The participants' mean age was 29.6 ± 9.75 years, with a range of 15 to 60 years, and the majority of the study participants were females (63.6%). The majority of study participants came from Addis Ababa and its surrounding Oromia region 45.5% and 27.4% respectively.

As secondary prophylaxis, 87.2% of patients were on Benzathine penicillin intramuscular injections on a regular basis. More than half of these patients were on rate-controlling drugs, primarily beta-blockers, with only one patient taking beta blockers and digoxin simultaneously. None of the patients were on other anti-arrhythmic drugs. The study participants had severe mitral stenosis and their mean MVA, determined by transthoracic echocardiogram, was 0.825cm². The majority of patients had pulmonary hypertension, with severe pulmonary hypertension (systolic pulmonary arterial pressure of 60mmHg or higher) accounting for 47.5% of cases. With 24-hour Holter monitoring, paroxysmal atrial fibrillation was identified in 27.3% (15/55) of patients. This study, predominantly young females, found that patients with severe rheumatic mitral stenosis apparently in sinus rhythm had a significant incidence of paroxysmal atrial fibrillation which was not detected during routine clinical follow-ups.

None of the study participants had prior surgical or percutaneous mitral valve intervention.

Conclusions: Subclinical atrial fibrillation is common in young patients with severe rheumatic mitral stenosis based on this study finding and active surveillance of this rhythm abnormality beyond physical examination and surface ECG is recommended when it is feasible.