

Case Report

Complete Heart Block in the Developing World: Diagnosis and Management Challenges in Tanzania

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Developing nations, Tanzania inclusive are witnessing a rapid rise in non communicable diseases (NCDs) with cardiovascular conditions topping up the list [1, 2]. Such impoverished nations which still harbors a disproportionate share of infectious diseases are currently facing overstretch of an already overstretched and exhausted health sector in this era of NCDs [3].

Complete heart block (CHB) affects about 0.04% of the global population and complicates approximately 10% of acute myocardial infarctions [4, 5]. This disorder is characterized by a complete absence of atrioventricular (AV) conduction (i.e. none of the supraventricular impulses are conducted to the ventricles). Whether congenital or acquired, CHB is multifactorial and patients are frequently hemodynamically unstable with variable presentations ranging from vertigo to sudden death. Diagnosis is usually reached based on history and distinctive electrocardiographic (ECG) features (i.e. P waves occur at a faster rate and lacks coordination with the QRS complexes). Permanent pacing is the desired intervention that normalizes the heart rhythm leading to symptom alleviation, lesser hospitalizations, better quality of life and improved survival prospects [6, 7].

Located in East Africa, Tanzania has a population of about 50 million people that depend on a single specialized cardiovascular centre (Jakaya Kikwete Cardiac Institute) with just a 100 bed capacity. Over two-thirds of Tanzanians continue to live with less than \$2/day while barely one-fifth of the population has health insurance [8, 9]. Despite of their generally poor health seeking behavior, it is estimated that between two-thirds and three-quarters of Tanzanians seek traditional healers as their first option regarding health matters [10, 11].

On average, 35 patients out of over 200 cases/year of CHB (i.e. 17.5%) that reach our institution undergo permanent pacing.

A large majority of these patients are referred from district and regional hospitals all over the country majority of which lacks the availability of ECG facilities [12]. Furthermore, even in the few health facilities fortunate to have the ECG machines, the challenge remain the frequently out of stock of ECG papers. Moreover, ECG interpretation in Tanzania like it has been documented in other resource limited settings remain a challenge [13-16]. Among patients who manage to reach our institution, the major challenge remains funding of the pacing procedure. For instance, a single and dual chamber pace maker insertion procedure costs about \$4250 and \$5250 respectively and over 99% of paced patients are covered by insurance which is possessed by the minority. Ultimately, over 80% of CHB cases who require a pacemaker in Tanzania are denied pacing due to financial reasons. Additionally, even among those covered by insurance, pacing procedure is usually delayed between weeks to months because pacemakers remain unavailable locally and are always ordered on demand from overseas.

To conclude, CHB is frequently encountered in the developing world however a myriad of diagnosis and management challenges exist thus leading to both its underdiagnosis and underreporting. Electrocardiogram though a basic investigation in the developed world remains a considerable obstacle in the developing world both in terms of its availability and interpretation. Furthermore, NCDs management (CHB inclusive) is costly and unaffordable to majority of persons living in resource poor settings who continue to battle with malnutrition and infectious diseases. In view of this, developing nations should strategize and prioritize to make health insurance an absolute right to its people while medical training should be tailored to empower trainees on the practical aspect of ECG interpretation. Moreover, the weak and bureaucratic procurement strategies that currently exist in health sectors among resource limited nations need major transformation to improve health care delivery and achieve better health outcomes.

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