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35 YEARS IN ASSESING THE IMPACT OF HEALTHCARE RESEARCH

6th International Conference on Cardiology

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e-Poster Presentation

35 YEARS OF EXCELLENCE IN MEDICAL PUBLISHING

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From muscles to misery: The hidden danger of anabolic steroids on cardiac health- a compelling case study

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We present a case of anabolic steroid/testosterone-induced cardiomyopathy in a 31-year-old male who was admitted to our tertiary hospital with hemoptysis, atrial fibrillation (AF), new-onset left-sided heart failure, and cardiogenic pulmonary edema. The patient, a successful bodybuilder, had been using testosterone 500 mg weekly as part of his regimen but increased his dose to 1000 mg weekly three weeks prior to presentation. Prior to admission, he had normal ECGs and no cardiac abnormalities. On admission, the patient exhibited atrial flutter with rapid ventricular response, jugular venous distension, and a grade II/VI apical systolic murmur. He required intubation and mechanical ventilation due to acute respiratory distress. Imaging studies revealed interstitial pulmonary edema and moderate mitral regurgitation. Further evaluations showed severely reduced left ventricular ejection fraction, biatrial enlargement, and absence of thrombus. Cardioversion and pharmacologic therapy were initiated to maintain sinus rhythm. Investigations ruled out secondary causes of cardiomyopathy, and the patient's medication regimen included angiotensin-converting enzyme inhibitors, β-blockers, and aldosterone antagonists. He was subsequently extubated and planned for cardiac MRI and serial echocardiograms. Anabolic steroid-induced cardiomyopathy is a recognized but uncommon condition associated with the misuse of androgenic-anabolic steroids. This case highlights the potential cardiovascular complications of steroid abuse, particularly in athletes and bodybuilders. It emphasizes the importance of recognizing and monitoring cardiac function in individuals using anabolic steroids and the need for patient education regarding the potential risks. Further research is needed to better understand the mechanisms and long-term outcomes of this condition.

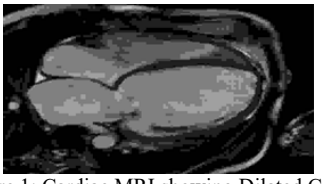

Figure 1: Cardiac MRI showing Dilated Cardiomyopathy

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Biography

Archana Ramalingam is an Internal Medicine Resident at Marshall University. She also works as a Consultant Cardiac Anaesthesiologist at Apollo Hospitals in Secunderabad. Previously, she served as an Anesthesiologist at CARE Hospitals, Quality CARE India Limited in Hyderabad, Telangana, India.

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Beyond the Beats: Leveraging AI and Big Data in Empowering Atrial Fibrillation Patients for a Life of Quality - A Comprehensive Review

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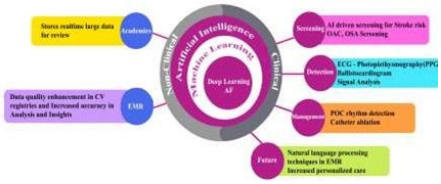
Abstract: Atrial fibrillation (AF) is a common cardiac arrhythmia associated with reduced quality of life (QoL) and increased morbidity and mortality. With advancement of technology and integration of big data and artificial intelligence (AI) presents new opportunities to enhance AF management and patient outcomes. This abstract summarizes the findings of multiple studies from last decade exploring the role of AI and big data in AF diagnosis, treatment optimization, and QoL improvement. The comprehensive review highlights the diverse applications of AI in AF screening, detection, AF management and its potential in this field. Leveraging big data, early diagnosis, personalized care, advanced technologies, and patient-centered approaches, minimizing need for human input in data management, AI demonstrates promise in improving AF outcomes by allowing for timely interventions to prevent disease progression and optimizing QoL for affected individuals. Leveraging Big Data Sources such as electronic health records, wearables, and diagnostic tests enables early detection of AF episodes, Machine learning algorithms assist in optimizing treatment strategies by predicting stroke risk and guiding anticoagulation therapy decisions, leading to better outcomes and reduced risk of debilitating outcomes. AI-supported technologies such as remote monitoring systems and decision-support tools empower patients to actively participate in their care, ultimately improving QoL outcomes. The review also evaluates the cost-effectiveness of AI-driven screening strategies for identifying undiagnosed AF in primary care, screening for AF in populations with obstructive sleep apnea using AI-based methods, data quality enhancement in cardiovascular registries, signal analysis, and symptom evaluation.

Conclusion: Integration of AI and big data in AF management holds great promise for improving QoL in affected individuals. Early AF detection, personalized treatment strategies, and patient- centric care contribute to enhanced outcomes. Further research and implementation of AI-driven interventions are necessary to fully exploit their potential in AF management and QoL improvement. By harnessing the power of AI and big data, healthcare providers can optimize AF management, reduce symptom burden, and ultimately improve the QoL of patients living with this chronic condition.



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1. Han HC, Farouque O, Hare DL. Steroid-induced cardiomyopathy. Med J Aust. 2015 Sep 7;203(5):226-7.e1

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Accepted Abstracts

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Cardiac amyloidosis with dominant autonomic involvement

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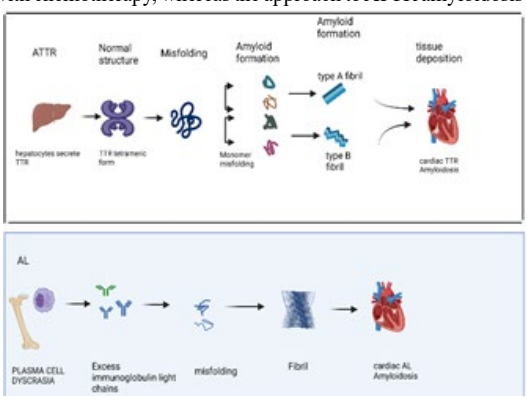
Cardiac amyloidosis is a disease caused by deposition of amyloid fibril in the extracellular space of the heart. It can present with signs and symptoms of cardiac involvement or may be diagnosed whilst screening patients who present with extra-cardiac signs of amyloidosis.

The two most common types of cardiac amyloidosis are Transthyretin amyloidosis (ATTR amyloidosis) and Light chain amyloidosis (AL amyloidosis).

A 78 year old female presented with symptoms of dizziness on standing and deteriorating mobility. She reported a two year history of postural hypotension - initially controlled with fludrocortisone, however due to poor tolerance, later changed to midodrine. Her only other past medical history included bilateral carpel tunnel syndrome that had been operated on previously and bilateral total hip replacements. General physical, cardiovascular and abdominal examinations were normal. Vital signs were within normal parameters with the exception of a heart rate of 139 beats per minute. Electrocardiogram showed evidence of fast atrial fibrillation. Baseline blood tests were normal. NT-proBNP was raised at 2243 ng/L and cardiac Troponin T at 20 ng/L. Echocardiography findings were normal taking into consideration the tachycardia. Radioactive technetium-99m (99m Tc) and 3,3-diphosphono-1,2-propanodicarboxylic acid (DPD) scanning showed perugini grade 2 abnormal cardiac uptake, with features on cardiac MRI suspicious for cardiac amyloidosis. Endomyocardial biopsy was negative. Chemotherapy was commenced following MDT discussion given a high index of clinical suspicion for cardiac amyloidosis.

Cardiac amyloidosis is caused by deposition of amyloid fibril in the extracellular space of the heart. Presentation may either be with signs and symptoms of cardiac involvement or incidentally whilst screening patients presenting with extra-cardiac features.

- A monoclonal protein in the presence of echocardiographic or CMR features may support a diagnosis of cardiac amyloidosis. Tissue biopsy is not required when other findings are diagnostic for the presence and type of cardiac amyloidosis.
- AL amyloidosis is usually treated with chemotherapy, whereas the approach to ATTR amyloidosis currently remains upportive.



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A systematic review of disease-causing mutations in ryanodine receptor 2 and calsequestrin 2

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Background: Mutations in RYR2 and CASQ2 can cause sudden cardiac death, but the genotype-phenotype correlation for these two genes has not been thoroughly researched. Therefore, the primary aim of this study is to investigate the genotype-phenotype correlation for RYR2 and CASQ2. The secondary aim is to compare the diseases caused by the mutations in RYR2 and CASQ2.

Methods: The literature was searched from 1946 to October 2021. Search terms included 'RYR2', 'CASQ2', 'Mutation', 'Heart' and 'Sarcoplasmic reticulum'. The mutation location, type of mutation, disease type and severity were documented, while mutations linked to the deamination of CpG dinucleotides were also identified. Where applicable, a chi-square test was carried out to evaluate the data.

Results: The results of RYR2 in this study demonstrate that there is mutation clustering in the central domain, the channel domain, the helical domain 1, and the N-terminal domain. Importantly, mutations in helical domain 2 are more likely to cause severe phenotypes compared to the other domains. In addition, CpG dinucleotide linked mutations are more likely to occur in the central domain. No mutation clustering was found in CASQ2, although mutations in Domain III were more likely to lead to severe CPVT2.

Conclusion: This study suggests that in RYR2 and CASQ2, a correlation exists between mutation location and disease outcome. In RYR2, CpG dinucleotide linked mutations are more common in some domains, suggesting that there is a high GC content in those domains.

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Poor knowledge about hypertension and its effect on health rn, rctn

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This study will focus on poor knowledge of hypertension and its effect on health among adult living in Abuja Nigeria.

According to world health organization, hypertension is an elevated blood pressure is a serious medical condition that significant increases the risk of heart, brain, kidney and other diseases.

Elevated blood pressure is a chronic disease can be easily ignored due to its asymptomatic in nature. In Nigeria which is one of the largest population in African, there have been a continuous increase in the number of complications arises from hypertension such as stroke, acute kidney injury, retionpathy to mention but few.

W.H.O started that, 46% of adult with hypertension are unaware that they have the condition, less than half of adult {42%} with hypertension are diagnose and treated, Approximately 1 in 5 adult (21%) with hypertension have it under control.

One of the ways to keep reducing this prevalence of hypertension in our society most especially in Nigeria is to increase the awareness rate on hypertension and its effect on their general wellbeing as a person.

Increase awareness will not only enlighten the public but aim at early diagnosis, prompt management and reduction in the mortality caused by the complication arises from high blood pressure.

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Electrocardiographic predictors of left ventricular diastolic dysfunction

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Statement of the Problem: Diastolic dysfunction (DD) is the primary cause of heart failure for half of cases, resulting in major adverse cardiac events. By looking at the prospect of early interventions based on electrocardiographic changes that foretell diastolic dysfunction, when echocardiography, the only existing diagnostic tool, is not accessible, it is expected to greatly improve the speed and accuracy of diagnosis. We aim to access the electrocardiographic indices which may predict DD.

Methodology & Theoretical Orientation: In this cross-sectional-analytical study, we examined electrocardiographic indices, including P wave dispersion, P-duration, P-wave terminal force in v1 (PTFV1), QT interval, QTc interval, PR interval, QRS interval, TpTe interval, P wave voltage in D1, R wave voltage in aVL, S wave voltage in V1, R wave voltage in V5, R-Wave axis and Fragmented QRS complex in 384 patients who had already underwent an echocardiographic examination. Patients were divided into two groups with and without diastolic dysfunction according to the result of echocardiography.

Findings: R voltage in AVL, PTFV1, Fragmented QRS and QT interval had a strong association with cardiac diastolic dysfunction, and were recognized as risk factors. Meanwhile, after multivariate analysis, considering intervening variables, QTc interval with a cut point of 0.395s and age were the strongest predictors of DD. The cut point of QT interval was determined as 0.35s with 67.4% sensitivity and 50% specificity. The average values of QTc interval were significantly higher in women than in men, while the average values of QT interval were significantly higher in men than in women. And also electrocardiographic diastolic index (EDI) values >7.7 found as predictors of DD.

Conclusion & Significance: Electrocardiographic variables including QTc interval with a cut point of 0.395s and EDI values >7.7, as accessible and easy to use diagnostic tools were found to be the strongest predictors of DD.

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