

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

لَمْ يَأْيَهَا النَّاسُ اتَّقُوا رَبَّكُمُ الَّذِي خَلَقَكُمْ
مِّن نَّفْسٍ وَاحِدَةٍ وَخَلَقَ مِنْهَا زَوْجَهَا
وَبَثَّ مِنْهُمَا رِجَالًا كَثِيرًا وَنِسَاءً وَاتَّقُوا
اللَّهَ الَّذِي تَسَاءَلُونَ بِهِ وَالْأَرْحَامَ إِنَّ اللَّهَ
كَانَ عَلَيْكُمْ رَقِيبًا

صدق الله العظيم

الآية رقم (1) ، سورة النساء

Dedication

I dedicate my dissertation research to my both families. A special feeling of gratitude to my loving parents, whose words of encouragement and push for tenacity ring in my ears, and very special to Dr. Mohamed Ahmed, Dr. Mohamed Alafdil, Dr. Yuosif M. and Dr. Majdi .J. Also I dedicate this dissertation to my many colleagues who support me. I will always appreciate all they have done. I will never forget to give special thanks to my beloved wife for any things.

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Abstract:

The heart is the pump responsible for maintaining adequate circulation of oxygenated blood around the vascular network of the body. It is a four-chamber pump, with the right side receiving deoxygenated blood from the body at low pressure and pumping it to the lungs (the pulmonary circulation) and the left side receiving oxygenated blood from the lungs and pumping it at high pressure around the body (the systemic circulation), and the heart itself supplied by Coronary arteries. This study was performed Al Nilein Medical Center of Nuclear Medicine Department-Khartoum for 146 Ischemic heart disease patients associated with CAO, in period between year 2011 to 2014. The main objective of this study was Characterization of Coronary Artery Obstruction and Related Findings in Ischemic Heart Patients Using Cardiac Scintigraphy. For the Single Photon Emission Computed Tomography machine (SPECT) each imaged had been taken for each single case with guidance of ECG trigger, prepared by fasting overnight stopping any cardiac drug for 48 hours before imaging day, then at scan day injected with (20 mci) of Tc99m-MIBI, then patient wait for 45 min to 1 hr, in an isolation room, meanwhile should eat a Fatty meal after 15-20 min of injection, finally undergone scanned with SPECT system with ECG electrodes in his/her Chest region, the scan time is 17 min. The scanned image will be saved in a computer till be processed in good quality image. The data analyzed include upper, lower, right and left borders of the heart. The result showed that The means of the total scores found were: at rest = 12.9; after treadmill test = 19.3; after rehabilitation session = 15.1. There were statistically significant differences among them. An individual assessment showed that in 14 cases (53.8 %) hypo-uptake to some degree was identified during rehabilitation and in 12 cases (46.6%) it was not. Monitoring with the Holter system didn't show in any of the cases a ST segment depression equal or greater than 1mm. in conclusion this study is found to be very sensitive quantitative with adequate specificity for diagnosis Ischemia. And strongly recommended to be the first diagnostic line for such cases.

الملخص:

القلب هو مضخة المسؤولة عن الحفاظ على دوران كافة الدم المؤكسج الي جميع أنحاء شبكة الأوعية الدموية في الجسم .وهو مكون أربعة غرف، مع الجانب الأيمن الدم غير المؤكسج يتلقى من الجسم تحت ضغط منخفض وضخه إلى الرئتين (الدوران الرئوي (والجانب الأيسر يتلقى الدم المؤكسج من الرئتين وضخها تحت ضغط عالي حول الجسم) الدوران الجهازى.وتأتي هذه الدراسة في توصيف أعتلال تروية عضلة القلب نتيجة لأنسداد جزئي بالأورده التاجيه لمرضى أعتلال القلب. وقد تم عمل هذه الدراسة بمركز النيلين الطبي-قسم الطب النووي الخرطوم لعدد 146مريض من مرضى القلب. في الفترة ما بين عام 2011 إلى عام 2014. الهدف الرئيسي من هذه الدراسة هو توصيف انسداد الشرايين التاجية والنتائج ذات الصلة في القلب الإقفارية المرضى عن طريق التشخيص بالطب النووي .لآلة واحدة فوتون انبعاث التصوير المقطعي (SPECT) التصوير لكل حالة واحدة مع توجيهات ECGالزناد، بأعداد المريض مبكرا من خلال الصيام منذ مساء اليوم السابق ووقف أي دواء للقلب لمدة 48 ساعة قبل التصوير، ثم في اليوم التصوير يتم حقن المريض (20 mci) من Tc99m-MIBI، ثم يترك المريض للانتظار لمدة 45 دقيقة إلى 1 ساعة، في غرفة العزل، وفي الوقت نفسه يجب أن يأكل وجبة دسمة بعد 20-15دقيقة من زمن الحقن، وأخيرا يخضع المريض للتصوير بواسطة جهاز SPECTمع أقطاب ECGفي صدر المريض. ووقت الفحص هو 17دقيقة .سيتم حفظ الصورة الممسوحة ضوئيا في الكمبيوتر حتى تتم معالجتها في صورة ذات نوعية جيدة .تحليل البيانات تشمل الحدود العليا، السفلى، اليمنى واليسرى من القلب. وأظهرت النتيجة أن وسائل مجموع الدرجات وجدت هي :في بقية 12.9 =؛ بعد اختبار مفرغة = 19.3؛ بعد جلسة إعادة التأهيل .15.1=كانت هناك فروق ذات دلالة إحصائية بينهم .أظهر تقييم فردي أنه في 14حالة(53.8)٪ (تم تحديد قصور امتصاص إلى حد ما خلال إعادة التأهيل و 12 حالة(46.6)٪ (لم تكن ترويتها بالشكل المطلوب).

في الختام وجدت أن هذه الدراسة ذات حساسيه عاليه جدا مع نسبة عاليه من الخصوصية كافية لتشخيص نقص التروية الدمويه لعضلة القلب.

ويوصى بشدة أن يكون هذا النوع هو الخط التشخيصي الأول لمثل هذه الحالات.

List of Abbreviations

BMI	Body Mass Index
CAO	Coronary Artery Obstruction
IF	Instant Food
IHD	Ischemic Heart Disease
MRI	Magnetic Resonance Imaging
NCI	National Cancer Institute
Q.A	Quality Assurance
Q.C	Quality Control
RAM	Random Access Memory
RICK	Radiation and Isotopes Center of Khartoum
SPECT	Single Photon Emission Computed tomography
TIFF	Tagged Image File Format
2D	Two Dimensions
3D	Three Dimensions

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