

الآية

بسم الله الرحمن الرحيم
سَنُرِيهِمْ آيَاتِنَا فِي الْآفَاقِ وَفِي أَنْفُسِهِمْ حَتَّى
يَتَبَيَّنَ لَهُمْ أَنَّهُ الْحَقُّ أَوَلَمْ يَكْفِ بِرَبِّكَ أَنَّهُ عَلَى
كُلِّ شَيْءٍ شَهِيدٌ

صدق الله العظيم
سورة فصلت (53)

Dedication

This thesis is dedicated to:

The sake of Allah, my Creator and my Master, My great teacher and messenger, Mohammed (May Allah bless and grant him), who taught us the purpose of life, My great

parents, who never stop giving of themselves in countless ways, My beloved brothers and sisters; I also would like to express my whole hearted thanks to my family for their generous support they provided me throughout my entire life and particularly through the process of pursuing the master degree. Because of their unconditional love and prayers, I have the chance to complete this thesis, my friends who encourage and support me, All the people in my life who touch my heart, I dedicate this research.

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I am very appreciative to my colleagues in the ROYAL CARE HOSPITAL and ALAML HOSPITAL Last but not least; deepest thanks go to all people who took part in making this thesis real.

Abstract

This study was a descriptive study type designed to evaluate the efficacy of multislice computerized tomography (MSCT) in imaging the lower limb arterial tree to diagnose the ischemic and other vascular disease in diabetes patient, the data was collected from radiology department of ROYAL CARE INTERNATIONAL HOSPITAL, AL ALMAL NATIONAL HOSPITAL, the study was carried out in the (Sudan–Khartoum state). The study duration from March 2014 to February 2015: the patient population consists of 18 females and 22 males with the mean of the ages is 64y and the male percent 55% was more than females 45.0 %. In the study the disease prolongation categorized as (>1 y, 1-5y, and <5 y and percent 7.5%, 85.0%,

7.5% and the common finding was Atherosclerosis ,total , stenosis, occlusion and collateral.

40 diabetes patient s have undergone CT angiography of the lower limb by Multidetector (Toshiba Aquilion 64 CT Scanner) . with symptoms of peripheral vascular disease, All patients were scanned in the supine position with A detector configuration of 64 x 0.5 mm is used, and 0.5 mm thick sections are reconstructed at 0.3 mm intervals, acquisition timing for optimum opacity is achieved by using automatic bolus tracking (Sure Start technology, Toshiba Medical Systems), with 135-140 cc of low osmolar non-ionic contrast medium (Omnipaque 300) with a flow rate between 5-6 cc/sec, via a pressure injector ,by using tow boxes of the scan protocol 52.5 % to excluded the false positive and one box scan protocol 47.5 % . Axial images were then reconstructed with 50 percent overlap and then transferred to a dedicated workstation for 3-D reconstruction and analysis; in maximum intensity projection (MIP), volume rendered (VR) and (MPR), the correlation between CTA finding and Contrast Media Flow Rate were insignificant at the p value 0.483, the Rt side is more affected , A correlation between CTA finding and Size of lesion, total occlusion and collateral the percent 42.5%, Atherosclerosis and stenosis the percent 27.5% there were an association at the P value 0.000, and the most common used technique is the MIP and VRT 65% were significant at the p value 0.005, the Crosstab between C.M flow rate and scan protocol significant study at the P value 0.000, the Crosstab between C.M flow rate and scan protocol significant study at the P value 0.000.

Our initial experience CT angiography with multislice has clearly demonstrate efficacy as a promising new, fast, accurate, safe and non-invasive imaging modality of choice in cases of diabetes peripheral vascular diseases for diagnosis, for grading, for potential usefulness and as a treatment planning tool and are the key to communicating the findings to

the treating physician, decisions making (surgical versus transluminal revascularization, or, intervention, conservative treatment).

الخلاصة

هذه دراسة وصفية تهدف إلى تقييم فعالية التصوير المقطعي المحوسب (MSCT) في تصوير وتشخيص أمراض الأوعية الدموية الطرفية السفلية لمرضى السكري، و قد تم جمع البيانات من قسم الأشعة من رويال كير العالميه ومستشفى الامل الوطني ، و قد أجريت هذه الدراسة في (دولة السودان-الخرطوم). وكانت مدة الدراسة من مارس 2014 إلى فبراير 2015 حيث كان عدد المرضى 18 من الإناث و 22 من الذكور بمتوسط أعمار هو 64 سنة ونسبة الذكور كانت 55% أكثر من الإناث 45.0%. في دراسة إطالة أمد المرض تصنيفها على أنها (< 1 سنة ، 1-5 سنة، وأكثر من خمس سنين بنسبة 7.5%، و 85.0%، 7.5%، والنتيجة المشتركة تصلب الشرايين، الكلبي، تضيق، وانسداد. 40 مريض من مرضى السكري خضعوا لفحوصات الاشعه المقطعية للشرايين الطرفية السفلية. تم مسح المرضى بجهاز أشعة مقطعية متعدد الشرائح مع تكوين كشف 0.5 ملم يستخدم و 0.5 ملم تم بناؤها من أبواب سمكة كل 0.3 ملم ، ونظام إقناء التعقيم الأمثل باستخدام تتبع تلقائي (توشيا للأنظمة الطبية)، مع 135-140 سم مكعب من وسيط تباين غير متأين (Omnipaque 300) مع معدل حقن بين 5-6 سم مكعب / ثانية، عن طريق حقن الضغط الآلي واستخدام بروتوكول مسح من مربعين 52.5% وذلك لاستبعاد النتائج غير الحقيقية ومربع واحد بروتوكول بنسبة 47.5%. ثم إعادة تكوين

وتركيب للصور وجعلها ثلاثية الابعاد و (VR)، (MIP)، و (MPR)، مجموع انسداد بنسبة 42.5٪، تصلب الشرايين و بنسبة 27.5٪ والتقنية المستخدمة الأكثر شيوعا هي MIP وارتى بنسبة 65٪، ويوجد معدل ارتباط 0.005، ومعدل التدفق بين المادة الملونه وبروتوكول المسح بقيمة P 0.000 . الاشعة المقطعية متعددة الشرائح تعتبر من الاجهزة التى لها القدر الفائقة لتصوير الاوعية الدموية بشكل دقيق وفعال من أجل تحقيق التشخيص للمرضى ويجب ان نراعي في استخدام اجهزة التصوير المقطعي متعدد الشرائح توخي الحذر بالحفاظ على بيئة منخفضة الإشعاع للحد المطلوب وذلك باتباع الطرق المثلي في اعادة التكوين في تصوير الأوعية الدموية للاطراف السفليه , وكذلك لها القدرة على تحديد درجة وكثافة تصلب الشرايين وهى تعتبر من طرق التصوير الامنه ولا تحتاج لتدخل جراحي . الاشعة المقطعية متعددة الشرائح تعطي نتائج عن المرض في اقل زمن ممكن وغير مكلفة وتعطى معلومات حيويه لمرض الاوعية الدموية الطرفيه .

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List of abbreviations

DM	Diabetes mellitus
NIDDM	non-insulin-dependent diabetes mellitus
MDCTA	Multidetector computed tomographic angiography.
DSA	digital subtraction angiography
VR	volume rendering
MIP	Maximum Intensity Projection
3D-CTA	three-dimensional CT angiography
CLI	Critical limb ischemia

