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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Abstract

This study was a descriptive study type designed to study the efficacy of multi slice 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 Modern Medical Center , ALMoalem Medical City , the study was carried out in the (Sudan–Khartoum state).The study duration from November 2017 to May 2018: the patient population consists of 20 females and 30 males with the mean of the ages is 65y and the male percent 60% was more than females 40%. In the study the disease prolongation categorized as (>1y, 1-5y, and<5yandpercent7.5%, 85.0%, 7.5%).

And the common finding was Atherosclerosis, total stenosis; occlusion and collateral.50 diabetes patient s have undergone CT angiography of the lower limb by Multi detector (GE Optima 16 CT Scanner). with symptoms of peripheral vascular disease, All patients were scanned in the supine position with A detector configuration of 16 x .625mm is used, acquisition timing for optimum opacity is achieved by using automatic bolus tracking (Smart prep technology, GE Medical Systems), with 120-130cc of low osmolar non-ionic contrast medium (Omni opaque 300) with a flow rate between4-4.5 cc/sec, via a pressure injector, by using one box of the scan protocol. 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). Our initial experience CT angiography with multi slice 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 trans-luminal revascularization, or, intervention, conservative treatment.

مستخلص الدراسة

هذه دراسة وصفية تهدف إلى تقييم فعالية التصوير المقطعي المحوسب (MSCT)في تصوير وتشخيص أمراض الأوعية الدموية الطرفية السفلية لمرضى السكري، وقد تم جمع البيانات من قسم الأشعة من المركز الطبي الحديث ومدينة المعلم الطبية، وقد أجريت هذه الدراسة في جمهورية السودان-الخرطوم).وكانت مدة الدراسة من فبراير 2018 إلى مارس 2018 حيث كان عدد المرضى 20 من الإناث و 30 من الذكور بمتوسط أعمار 64سنة ونسبة الذكور كانت 60٪ أكثر من الاناث40 % بحيث يتم دراسة مدي تاثير مرض السكر علي الشرايين وفقا لإطالة امد المرض عليهم كانت النتائج وفقا لتصنيف فئات الأعمار 41- 51سنة كانت 14%، ومن 52-62سنة كانت 26% ومن 63-70سنة كانت 40% ومن 72-75% سنة كانت20%. والنتيجة المشتركة ضيق و تصلب الشرايين الكلي، وانسداد كامل,لعدد 20 مريض من مرضى السكري خضعو للفحوصات الاشعة المقطعية للشرايين الطرفية السفليه بعد عملية تركيب الصور وجعلها ثلاثية الأبعاد (VR) ، (MIP)،(MPR) ويجب ان نراعي في استخدام اجهزة التصوير المقطعي متعدد الشرائح توخي الحذر بالحفاظ علي بيئة منخفضة الإشعاع للحد المطلوب وذلك بإتباع الطرق المثلي في إعادة التكوين في تصوير الاوعية الدموية للأطراف السفلية وكذلك لها القدرة على تحديد درجة وكثافة تصلب الشرايين وهي تعتبر من طرق التصوير الامنة ولا تحتاج الي تدخل جراحي الاشعة المقطعية متعددة الشرائح تعطي نتائج عن المرض في اقل زمن ممكن وغير مكلفة وتعطي معلومات حيوية لمرض الاوعية الدموية الطرفية.

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Abbreviation	**Meaning**
DM	Diabetes mellitus
NIDDM	Non-insulin-dependent diabetes mellitus
MDCTA	Multi-detector computed Topographic Angiography.
DSA	Digital subtraction angiography
VR	Volume rendering
MIP	Maximum Intensity Projection
3D-CTA	Three-dimensional CT angiography
CLI	Critical limb ischemia