Sudan University of Science and Technology

College of Medical Radiological Science

Determination of CT Number of Normal Spleen in Sudanese Population Using CT Scan

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الآيـة

اللَّهُ لَا إِلَٰهَ إِلَّا هُوَ الْحَيُّ الْقَيُّومُ ۚ لَا تَأْخُذُهُ سِنَةٌ وَلَا نَوْمٌ ۚ لَهُ مَا فِي السَّمَاوَاتِ وَمَا فِي الْأَرْضِ ۗ مَنْ ذَا الَّذِي يَشْفَعُ عِنْدَهُ إِلَّا بِإِذْنِهِ ۚ يَعْلَمُ مَا بَيْنَ أَيْدِيهِمْ وَمَا خَلْفَهُمْ ۖ وَلَا يُحِيطُونَ بِشَيْءٍ مِنْ عِلْمِهِ إِلَّا بِمَا شَاءَ ۚ وَسِعَ كُرْسِيُّهُ السَّمَاوَاتِ وَالْأَرْضَ ۖ وَلَا يَئُودُهُ حِفْظُهُمَا ۚ وَهُوَ الْعَلِيُّ الْعَظِيمُ

الآية [255] - سورة البقرة

Dedication

To my father, I always felt his presence beside me and also to my dear mother, who encouraged me until I reached this success.

To my soul mate TASABIH BADAWI

For the world you are just a person, but for me you are the whole world

I DEDICATED YOU THIS WORK.

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Firstly I thank my God for His help to finish this work successfully.

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Abstract

The objective of this study was to determine the normal spleen in Sudanese population using computed tomography (CT) scan by measuring the normal spleen, liver and vertebrae CT number as well as to correlate the spleen readings with patients age, gender and race as well as to correlate the spleen readings with liver and vertebrae CT numbers in order to find out the normal standard value as local refrence for Sudanese and to compare the findings with other population and literature. The study was descriptive analytical study conducted during the period extended from March up to November 2019. CT measurements were performed at Albugga hospital for 50 normal Sudanese subjects. The data were collected prospectively by measuring the spleen, liver and lumber vertebrae CT number using CT machine and the data were analyzed using SPSS. The majority of participants were male 34 (68%).

The mean CT number of spleen among the males was found to be 57.24±7.98 HU , and that among females was 56.19±10.77 the mean different was found to be 1.05 which was statically insignificant within p-value of 0.932 .When the patients age was correlated to the CT number of spleen , the relationship was found to be a weak positive relationship with correlation coefficient of r=0.027 , this relationship was found to be statically significant within p-value of 0.932 .

The mean of CT number of normal spleen among Sudanese patients was found to be 56.90±8.87 HU , the CT number of normal spleen is not affected by gender , age affects Spleen CT number with a weak direct relationship .

خلاصة الدراسة

إن الأهداف والمقاصد من هذه الدراسة العلمية هي توضيح الخصائص المميزة للطحال للسودانيين باستخدام جهاز الأشعة المقطعية ,لقياس الرسم الطبقي للطحال الطبيعي, الكبد والفقرات القطنية. كما يجب أيضا الربط بين قراءات الطحال, العمر ونوع سلالة المريض وأيضا ربط قراءات الطحال مع الكبد والرسم الطبقي لعدد الفقرات القطنية حتي نتمكن من إيجاد القيمة القياسية الطبيعية كمرجع محلي للسودانيين ومقارنة النتائج الموجودة مع السكان الاخرين وكل ما كتب ونشر من طرفهم في هذا المجال.

هذه الدراسة كانت وصفية تحليلية استمرت خلال الفترة الممتدة من مارس حتي نوفمبر 2019

قياسات الأشعة المقطعية أنجزت في مستشفي البقعة التخصصي لعدد 50 شخص سوداني طبيعي.

البيانات التي تم جمعها بقياس الطحال, الكبد والفقرات القطنية باستخدام جهاز الاشعة المقطعية حللت بواسطة برنامج التحليل الأحصائيز معظم المشاركين في الدراسة كانوا رجال وعددهم (34) بنسبة (68%) .

تبين أن متوسط الرقم المقطعي المحوسب للطحال عند الذكور كان 57.90±7.87 وحدة هاونسفيلد وكان عند الأناث 56.19±10.77 وحدة هاونسفيلد , وقد كان متوسط الأختلاف بينهما 1.05 وحدة هاونسفيلد والتي تعتبر إحصائيا ضئيلة بقيمة 0.932

عند ربط الدراسة بعمر المرضى وجدت علاقة ضعيفة بقيمة 0.027 ولكنها ذات قيمة أحصائية ثابتة بمقدار 0.932 .

وكان متوسط الرقم المقطعي المحوسب للطحال بين المرضى السودانيين 56.90±7.87 وحدة هاونسفيلد . وقد تبين ان الرقم المقطعي المحوسب للطحال لا يتأثر بنوع المريض ولكن عمر المريض يؤثر تأثير مباشر ضعيف .

List of abbreviations

MRI	magnetic resonance imaging
CT	computed tomography
BMI	body mass index
HU	Hounsfield unit
SPSS	statistical package of social sciences

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