Dedication

This research dedicated to my respective family for their inspiration, encouragement and guidance.

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My whole of thanks to my supervisor Dr. Hussain Ahmed Hassan for his contact supervision , in exhaustible patience and unlimited help.

My thanks extend to Dr. Mohammed Alfadil and my colleagues, whose help me to complete this research.

Abstract

This study was carried out in Military Crops Hospital using MDCT machine during the period from December 2012 up to May 2013 the data sample consisted of 50 Sudanese adult patient (32 male , 18 female) , their aged group ranged between (20 – 70) years .

The main objective of this study was to evaluate the anatomical variation of normal brain ventricles, size and tecture of CSF and gray and white matter associated with age . The measured dependent variable include : length and width of the brain ventricles (Rt an Lt) lateral, third (3^{rd}) and four the (4^{th}) ventricles , gray and white matter and CSF CT number , the independent variable include the patient age and gender . The researcher used stepwise linear regression analysis to find the significant association between the dependent variable and the independent variable. The result of this study showed that the size of ventricle increase by 0.11cm_2/year , the CSF, gray and white matter CT number decrease by 0.7unit/year.

ملخص البحث

أجريت هذه الدراسة في مستشفى السلاح الطبي باستخدام جهاز الأشعة المقطعية متعدد المجسات خلال الفترة من ديسمبر 2012م حتى مايو 2013م . شملت هذه الدراسة (50) مريضاً من البالغين ؛ و(32) ذكر و(18) أنثى وتتراوح أعمارهم بين (20 – 70) سنة . الهدف الأساسي من هذه الدراسة هو تقييم التباين التشريحي لحجم بطينات المخ الطبيعي وخلايا المخ البيضاء والرمادية والسائل الشوكي المركزي وارتباطها بالعمر . وشملت الدراسة قياس المتغيرات الآتية :

طول وعرض البطينات التي تتكون من بطينات جانبية (يمنى- ويسرى) والبطيني الثالث والرابع والرقم المقطعي للمادة الرمادية والبيضاء والسائل الشوكي المركزي . وشملت الدراسة متغيرات أخرى مثل : العمر والنوع .

استخدم الباحث تحليل الانحدار الخطي التدريجي للعثور على ارتباط مهم بين المتغير التابع والمتغير المستقل . وأظهرت نتائج هذه الدراسة أن حجم البطينات يزيد بزيادة العمر بمعدل 0.11 سم في السنة والرقم المقطعي للسائل

الشوكي المركزي والمادة الرمادية والمادة البيضاء يقل بزيادة عمر المريض بمعدل 0.7 وحدة في السنة.

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List of abbreviation

Abbreviation	Meaning
CSF	Cerebrospinal fluid
Ct	Computed Tomography
CAT	Computed Axial Tomography
CNS	Central Nervous System
ANT	Anterior horn
CRT	Cathode Ray Tube
MAS	Mill amperage/second
KVP	Kilo voltage peak
3^{rd}	Third ventricle
4^{th}	Fourth ventricle
EAM	External auditory meatus
Rt. Lat	Right lateral ventricle
Lt. lat	Left lateral ventricle
MDCT	Multi detector computed tomography

SST	Single slice CT
VRT	Volume rendering technique