DEDICATION

TO

MY FAMILY

MY FRIENDS

MY COLLEGUES

MY TEACHERS

AND ANY ONE HELPED ME IN THIS RESEARCH

AKNOWLEDGMENT

I would like to express deep gratitude to all academies that are play great role to finish the work in good manner.

Thanks are extended to my family for their continues helping during this work .

Finally , my performed thank to Dr. Abass Elnour , who supervised and encouraged me in this work .

ABSTRACT

In this study the researcher assessed the efficiency of MRA in evaluate and detect the level of cerebral infarction.

This study was conducted at MRI department in Khartoum Advanced Diagnostic Center (KADC), extended from April 2005 up to October 2005. This study contains five chapters:

Chapter one consists of introduction and research proposal, which consists of objective of the study, hypotheses, important of the study, methodology and the scope of the study.

Chapter two is a literature review, which consists of an anatomy, physiology and pathology of the brain, MRA appearance, equipments and MRI/ MRA advantages and disadvantages.

Chapter three deals with the material, method and films evaluation. Which consists of patients (30) are examined by MRI machine (Philips) and techniques which is performed to detect the level of cerebral infarction.

Chapter four consists of results and data analysis.

Chapter five consists of discussion, conclusion and recommendations.

It can by said that the MRA technique when performed and used as essential technique to detect the level of cerebral infarction that help to obtain accurate diagnosis and demonstrate the pathological changes and anatomical variation.

الخلاصـــة

تمكن الباحث في هذه الدراسة من تقييم فعالية التصوير بالرنين المغنطيسى (MRA) في تحديد مستوي احتشاء المخ .
تمت هذه الدراسة بمركز الخرطوم التشخيصي المتطـور (KADC) وامتـدت من ابريل 2005م حتى اكتوبر 2005م واشتملت علي خمسة ابواب :
احتوى الباب الاول علي المقدمة وخطة البحـث (أهـداف البحـث ، فرضـيات البحث , أهمية البحث ، الطريقة المتبعة لاداء البحث واطار البحث) .
الباب الثاني عرض نظري احتوى علي التشريح , وظائف الاعضاء , الامـراض ومظهرها , المعدات التي تم إجراء البحـث بهـا والتقنيـة المسـتخدمة بصـورة عامة (MRI / MRA) ومحاسن ومساوئ كل منها .
الباب الثالث احتوى المواد والطـرق المسـتخدمة وتقييـم الافلام واشتمـــلت علـي عدد المرضي (30) ، جهـاز الرنيـن المسـتخدم فـي الفحـص والتقنيـة المستخدمة لتحديد مستوي احتشاء المخ .
الباب الرابع النتائج وتحليل البيانات .
احتوى الباب الخامس علي المناقش والخلاصة والتوصيات .
ومن هنا يمكن القول أن تقنية التصـوير بـالرنين المغنطيسـى (MRA) عنـدما تسـتخدم كتقنيـة اساسـية لتحديـد مسـتوى احتشـاء المـخ ،هـذا يسـاعد فـي الحصول علي التشخيص الدقيق لاظهار التغيرات التشريحية والمرضية .

ABBRIVIATION

MRI : Magnetic resonance imaging.

MRA : Magnetic resonance angiography.

T1 : spin-lattice relaxation time .

T2 : spin-spin relaxation time .

T1w : image that demonstrates the differences in the T1 times of the tissue

T2w : image that demonstrates the difference in T2 times of the tissue.

FOV : field of view .

TSE : turbo spin echo .

TE : echo time .

TR : repetition time .

2D : two dimensional .

3D : three dimensional .

mm : millimeter .

RF : radio frequency .

MIP : maximum intensity projection .

AVM : arteriovenous malformation .

CSF : cerebrospinal fluid .

TIAs : Transient Ischemic Attacks .

CNS : centeral nervous system .

PC: phase contrast.

TOF: time of flight.

KADC : Khartoum Advance Diagnostic Center .

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