

بسم الله الرحمن الرحيم

Sudan University of Science & Technology
College of Graduate Studies

***Evaluation of Safety Measurement in
Administering IV Contrast Media
(in Khartoum State)***

**تقييم إحتياطات الامان في حقن وسيط التباين الوريدي
(في ولاية الخرطوم)**

*Directed Complimentary Research Done for
Partial Fulfillment for award of M.SC Degree
In Diagnostic Radiologic Technology*

Prepared by:

Hanan Ahmed Mohammed Elnour

Supervisor:

Ustaz: Hussain Ahmed Hassan

(February 2007)

بسم الله الرحمن الرحيم

قال تعالى

{..... قُلْ هَلْ يَسْتَوِي الَّذِينَ يَعْلَمُونَ وَالَّذِينَ لَا
يَعْلَمُونَ إِنَّمَا يَتَذَكَّرُ أُولُوا الْأَلْبَابِ }

صدق الله العظيم

سورة الزمر (9)

Dedication

To.....

My Husband Who always support me

To.....

My Family... and Children

To....

My Colleagues And my Friends

To....

Every one who helped me

..... I Love them all

Acknowledgment

First, I would Like to Present my Supervisor Ustaz, Hussain Ahmed Hassan for his Supervision, great help, Valuable Support and advices.

My gratitude also to our Colleagues for their useful advice and to the teaching staff for their guidance.

Thanks are also extends to every one who helped and Support me in preparing for this research.

Abstract

This study carried out in hospitals of Khartoum state. It aims to evaluate the safety consideration followed in administered intravenous contrast media in radiological department regarding prevention, early recognition and prompt treatment of adverse reactions. And whether the radiology departments are adequately equipped for the proposed contrast media reaction management protocols. A questionnaire was formulated and sent to the superintendent radiographers of 30 departments. Careful randomized 60 technologist were surveyed, 52 of them from governmental hospitals, and 8 of them from private medical centers. This study was specifically directed at the use of intravenous contrast media in intravenous urography.

In almost most departments there was provision for basic life support training, regular checking of equipment and drugs. Certain drugs and monitoring equipment were not instantly available in the majority of institutions. Most departments did not adequately supervise post injection patients and did not conform to the guidelines referring to the administration of intravenous contrast to children. At last there is still much to

be done to improve the safety of intravenous contrast medium injection.

المخلص

هذه الدراسة اجريت في مستشفيات ولاية الخرطوم، الهدف منها تقييم احتياطات الامان التى تتبع الحقن الوريدي لوسيط التباين في القسم الاشعاعي بخصوص المنع مبكراً , اعتراف ومعالجة عاجلة لردود الافعال المعادية، وسواء أقسام الاشعة تجهز بشكل كافي لإدارة رد الفعل لوسيط التباين.

صيغ استبيان وارسل الي مدراء اقسام الاشعة (30 قسم) بصورة عشوائية وبهذه العينة العشوائية 60 تقني، 52 منهم من المستشفيات الحكومية، و 8 منهم من المراكز الطبية الخاصة. وهذه الدراسة كانت موجهة بشكل خاص نحو استعمال وسيط التباين للحقن الوريدي لتصوير الجهاز البولي.

في اكثر الاقسام كان هناك بند للتدريب الانعاشي- الاساسي، تدقيق منتظم من الاجهزة وادوية الطوارئ ومراقبة الاجهزة ماكانت متوفرة في أغلبية الاقسام.

أكثر الأقسام لم تشرف علي مرضي- حقن الوريد بشكل كافي ولم

تطابق الى التعليمات الي ادارة الحقن الوريدي للاطفال.

أخيراً مازال هناك الكثير من العمل لتحسين امان الحقن الوريدي

لوسيط التباين.

List of Contents

S/N	Topic	P.N
	Qura'an	I
	Dedication	II
	Ac know lodgment	III
	English Abstract	IV
	Arabic Abstract	V
	List of Contents	VI
	List of Figures	VII
	List of Tables	X
	List of Abbreviations	XI
	Chapter One	
1-1	Introduction	1
	Chapter Two	
	Literature Review	
2-2	Drugs in the X-ray department	5
2-3	Contrast agent used in X-ray deportment	6
2-4	Pharma codynamic and adverse response	15
2-5	Precaution	19
2-6	Apré- contrast history	20
	Chapter Three	
	Method and Material	22
	Chapter Four	
	Results	27
	Chapter Five	
5-1	Discussion	43
5-2	Conclusion	47
5-3	Recommendation	48
	References	49
	Appendix	50

List of Figures

Table	Page No.	Page. No
Table (3-1)	Shows the percentage of males to females	18
Table (3-2)	Shows the range of technologist age	19
Table (3-3)	Shows the field of work	20
Table (4-1)	Shows pre0 injection proto cols	22
Table (4-2)	Shows the steroid prophylaxis protocol	23
Table (4-3)	Shows provision for basic life support	24
Table (4-4)	Shows supervision and patient care	25
Table (4-5)	Shows Do technologist inject IVUs	26
Table (4-6)	Shows the availabiicty of telephone	27
Table (4-7)	Shows the local protocol for reaction	28
Table (4-8)	Shows for checking drugs and equipment	29
Table (4-9)	Shows a named person with in the department for checking drung	30
Table (4-10)	Shows avaitatility of emergency drugs and equipment	32
Table (4-11)	Shows a defibrillation trolley in the department	33
Table (4-12)	Shows a pediatric resuscitation box	34

Table (4-13)	Shows IV contrast to children	35
Table (4-14)	Shows adrenaline does calculated according to child's weight	36
Table (4-15)	Shows local protocol for dealing with contrast reaction	37

List of Table

Table	Page No.	Page. No
Table (3-1)	Shows the percentage of males to females	18
Table (3-2)	Shows the range of technologist age	19
Table (3-3)	Shows the field of work	20
Table (4-1)	Shows pre0 injection protocols	22
Table (4-2)	Shows the steroid prophylaxis protocol	23
Table (4-3)	Shows provision for basic life support	24
Table (4-4)	Shows supervision and patient care	25
Table (4-5)	Shows Do technologist inject IVUs	26
Table (4-6)	Shows the availabiicty of telephone	27
Table (4-7)	Shows the local protocol for reaction	28
Table (4-8)	Shows for checking drugs and equipment	29
Table (4-9)	Shows a named person with in the department for checking drung	30
Table (4-10)	Shows avaitatility of emergency drugs and equipment	32
Table (4-11)	Shows a defibrillation trolley in the department	33
Table (4-12)	Shows a pediatric resuscitation box	34

Table (4-13)	Shows IV contrast to children	35
Table (4-14)	Shows adrenaline does calculated according to child's weight	36
Table (4-15)	Shows local protocol for dealing with contrast reaction	37

List of Abbreviation

CM	Contrast Media
LOCM	Low Osmolar Contrast Media
HOCM	High Osmolar Contrast Media
IV	Intravenous
IVUs	Intravenous Urograms
CO ₂	Carbon Dioxide
HOCA	High Osmolar Contrast Agent
LOCA	Low Osmolar Contrast Agent
AR	Adverse Reaction
BUN	Blood Urine Nitrogen
BLS	Basic Life Support
RCM	Radiographic Contrast Media
SPSS	Statistical Para Professional for Social Science