بسم الله الرحمن الرحيم

(اقرأ باسم ربك الذى خلق(*)

(*)خلق الإنسان من علق(*)

(*)اقرأ وربك الأكرم(*)

(*)الذى علم بالقلم(*)

(*)علم الإنسان مالم يعلم)

صدق الله العظيم ،،،

العَلق 1- 5

Dedication

To my parent

To my sisters

My brothers

My friends

To everyone whom

Gave me a bit of

Wise advice

ACKNOWLEDGEMENT

I wish to thank all those who helped me. Without them, I could not have completed this project.

This research could not have been written without

Dr. Mohammed Mohamed Omer who not only served as my supervisor but also encouraged and challenged me throughout my academic program.

I would like to thank all people who have helped me and contributed to this research.

T0 the doctors in dar sheshar that given their knowledge. Afford and time

To whom help me I gave them my great thanks.

List of Contents

Subject	Page
Dedication	I.
Acknowledgement	II.

List of contents	III.
List of Tables	VI.
List of Figures	VIII
Abbreviations	X
Abstract in English	XI
Abstract in Arabic	XII

Chapter one	
Introduction	1
Problem of the study	3
Objectives	3
Overview of the study	3

Chapter two	
2-1 THE SKELETAL SYSTEM	4
2-1-1Axial skeleton	**5**
2-2 Bone composition	**21**
2-3 Disorders	**21**
2-3-1 Osteoporosis	**21**
2-3-2 Deformities of Human Body	**22**
2-3-2 -1 congenital talipes equinovarus	**22**
2-3-2 -2Scoliosis:	**27**
2-3-2-3 Congenital Hip Dislocation (dysplasia)	**35**
2-3-2-4 Rickets	**41**
2-4 x-ray equipment	**48**
2-4-1 x-ray tube	**48**

2-4-2 The Control Unit	**53**
2-4-2-2Time Control	**54**
2-4-3 radiographic film	**55**
2-4-4FILM PROCESSING	**57**

Chapter Three	
Materials & Methods	
3-1 place & time of the study	64
3-2 populations	64
3-3 study variable	64
3-4 Materials of the Study	64
3-5 Test performance (technique)	64
3-6 Data analysis	65

Chapter Four	
Result and data analysis	50

Chapter Five	
Discussion	75
Conclusion	77
Recommendation	78
References	
Appendices	

List of Tables

Table No.	Title	Page No.
(4-1)	**Shows patients ages in frequency and percentage.**	66
(4-2)	**shows patients gander in frequency and percentage**	67
(4-3)	**Shows deformity type in frequency and percentage.**	68
(4-4)	**Shows Sudan states according to directions in frequency and percentage.**	69
(4-5)	**Shows the need for X-ray images in frequency and percentage.**	70
(4-6)	**Shows father and mother relation within the big family in frequency and percentage.**	71
(4-7)	**shows the appearance of the deformity in family history in frequency and percentage.**	72
(4-8)	**shows the appearance of present deformity in family history in frequency and percentage**	73
(4-9)	**shows the appearance of unrecorded deformity in family history in frequency and percentage**	74

List of Figures

Figure No.	Title	Page No.
(2-1)	The human skeleton	6
(2-2)	The human Skull	10
(2-3)	The thoracic cage	12
(2-4)	The vertebral column	13
(2-5)	The cervical vertebrae	14
(2-6)	Intervertebral disc	15
(2-7)	The upper extremities	16
(2-8)	The shoulder joint	17
(2-9)	The lower extremities	18
(2-10)	Clubfoot before and after treatment	23
(2-11)	Lateral view of TEV	25
(2-12)	Dorsoplantar view of TEV	26
(2-13)	Cobb angle measurement of a levoscoliosis	28

(2-14)	Mild juvenile scoliosis	31
(2-15)	Moderate scoliosis	31
(2-16)	Severe infantile scoliosis.	31
(2-17)	scoliotic curve	33
(2-18)	vertebral rotation	33
(2-19)	left congenital hip dislocation	40
(2-20)	the normal and abnormal hip and pelvic shape	40
(2-21)	pelvic lines	41
(2-22)	clinical feature that indicate sign of rickets	45
(2-23)	Simplified rotating anode tube schematic	50
(2-24)	typical rotating anode X-ray tube	50
(2-25)	Cross-section through a double emulsion film	57
(4-1)	**Shows patients ages in frequency**	66
(4-2)	**shows patients gander in frequency**	67
(4-3)	**shows deformity type in frequency**	68
(4-4)	**shows Sudan states according to directions in frequency**	69
(4-5)	**shows the need for X-ray images in frequency**	70

(4-6)	**shows father and mother relation within the big family in frequency**	71
(4-7)	**shows the appearance of the deformity in family history in frequency**	72
(4-8)	**shows the appearance of present deformity in family history in frequency**	73
(4-9)	**shows the appearance of unrecorded deformity in family history in frequency**	74

Abstract

The bone disease has become a major health issue on the Sudanese patients and to health authority in Sudan. Delay in early diagnosis and treatment may lead to serious complications. By the use of different or the high detection radiological modality these complication can be diagnosed early and treated

Objective: To classify the bone deformity in children and pediatrics. Using planner radiology

Methodology: The data collection by using data collection sheet. The review of report and clinical visit to ((dar sheshar)) revealed that five types of deformities that affect the normal anatomy of pediatric and movement (seat. stand. walk). Suggests the pathogenesis, and discusses the treatment options. Types and combined deformity. Also, the relationships between bone deformity and age and/or gender were investigated. For statistical evaluation.

Result: This study revealed that Newborns with bone deformity were identified from their birth registries in hospitals and there were five types of deformities affect pediatric skeletal system club foot(62.5%), scoliosis (7.5%) , congenital hyper extended or dislocated knee(12.5%), congenital dislocated hip (5%), and lower limbs weakness (7.5%).the centre state of Sudan with high rate(45%).the non-relative parents (57.5%)

Conclusion: The overall congenital deformities in pediatric in my study indicate that The most common deformity was clubfoot with incidence of 62.5%, were the lower limb is most affect than the upper limb, and male rather than female with incidence of 62.5% and the centre of the country (medial states) with incidence of

45%, and the study shows that 57.5% of patients parents is non-relative, but with low incidence of deformities in different families history. Due to physiological growth and ossifications period of the skeletal system. X-ray image is needed only in sever or very old untreated deformity with incidence of 67.5%.

ملخص البحث

أصبحت أمراض العظام مشكلة صحية كبيرة على المرضى السودانيين وهيئة الصحة في السودان.حيث ان التاخير في التشخيص المبكر والعلاج يؤدي إلى مضاعفات خطيرة. باستخدام اجهزة الاشعة العالية الحساسية يمكن الكشف المبكر عن هذه الامراض وعلاجها .

الهدف: لتصنيف تشوه العظام عند الأطفال وطب الأطفال. باستخدام الأشعة مخطط

المنهجية: جمع البيانات باستخدام ورقة بيانات المجموعة.مراجعة التقارير والزيارة لدار شيشر للاطفال المعاقين كشفت ان خمسة انواع من الامراض او التشوهات التي نؤثر على التشريح الطبيعي للاطفال وحركتهم(الجلوس.القيام .السير). نقترح المسبب المرضي للتشوه,وخيارات العلاج,وتحديد انواع التشوهات المشتركة او المصاحبة.أيضا.يتم تحقيق العلاقة بين التشوه العظمي والعمر و الجنس لتقييم الاحصلئي.

النتيجة:كشفت هذه الدراسة التي تم تحديدها من سجلات المواليد الجدد والاطفال المصابين امراض العظام ان هنالك خمسة انواع من التشوهات التي تؤثر على الهيكل العظمي للاطفال وهي حنف القدم (62.5%),الجنف او اعوجاج العمود الفقري(7.5%),الافراط في تمدد الركبة الخلقي او خلع الركبة الخلقي(12.5%),خلع الورك الخلقي(5%),وضعفالاطراف السفلية(7.5%),ايضا.الولايات الوسطية في السودان تمثل اعلى نسبة(45%).والوالدين الذين لا تربطهم صلة قرابه بنسبة(57.5%).

والخلاصة: إن التشوهات الخلقية في الأطفال عموما في دراستي توصلت إلى أن التشوه الأكثر شيوعا هو حدوث حنف القدم مع 62.5٪، وكان الطرف السفلي هو الأكثر تؤثر من الطرف العلوي، والذكور بدلا من الإناث مع حدوث 62.5٪، ومركز البلاد اكثر من الاطراف (الولايات الوسطى) مع حدوث 45٪، وتبين الدراسة أن 57.5٪ من آباء وأمهات المرضى لا تربطهم صلة قرابه، ولكن مع تدني نسبة التشوهات في التاريخ العائلات المختلفة. نتيجة للنمو الفسيولوجي و فترة التعظم في نظام الهيكل العظمي.فان الحاجة للأشعة السينية فقط في صورة الامراض أو التشوه غير المعالجة القديمة مع حدوث 67.5٪.