

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

قال الله تعالى

قَالَ رَبِّ اشْرَحْ لِي صَدْرِي (25) وَيَسِّرْ لِي أَمْرِي (26)
وَأَخْلُلْ عُقْدَةً مِنْ لِسَانِي (27) يَفْقَهُوا قَوْلِي (28)

صدق الله العظيم

سورة طه الآيات 25-28

DEDICATION

To my parents and my family members for their love and for paying too much from the too little, they had towards my life and my education.

To my teachers for their wisdom and supports.

To my darling and my love Maysa and her father my friend Mr. Ahmed for their support and encouragement.

ACKNOWLEDGMENTS

I wish to express my deep gratitude to my supervisor Dr. Mohamed Abdelraheem Abd Allah for his supports, guidance and encouragement.

I would like to record special thanks to Medical laboratory of Gezira university staff and Gezira Renal Disease and Surgery Hospital mainly to Medical laboratory staff for their help and kindness.

Sincere extend to my colleagues.

Abstract

The measurement of plasma protein concentration is one of the most frequent laboratory analyses in central hospitals. It is usually performed by the Biuret reaction in laboratories and bench-top analyzers

This study was carried out to compare results of total plasma proteins, measured by Biuret reagent and Refractometer. The analysis was done in Medical laboratory of Gezira University (diagnostic center) and Gezira Renal Disease and Surgery Hospital. Medani – Sudan from February to April 2011.

The size was seventy samples collected in heparin containers from both sexes at different ages. Statistical analysis of the results (independent t-test) showed that there was no significant difference obtained by the two instruments.

Refractometer is simple to perform, rapid and cheap. It is suitable for central diagnostic centers and for emergency use, Therefore, the Refractometer can be used in the Sudan for measuring of total plasma proteins, considering the appropriate use of the device.

مستخلص الدراسة

الهدف من هذه الدراسة هو المقارنة بين قياس البروتين الكلى للبلازما باستخدام طريقة بيوريت ومقاييس معامل الانكسار. جمعت العينات فى حاويات بها مادة الهبارين.

تم جمع العينات من المعمل الطبى - جامعة الجزيره ومستشفى الجزيره لأمراض وجراحة الكلى بودمنى - السودان فى الفتره من فبراير حتى ابريل 2011م وهى عباره عن سبعين عينه من اشخاص من الجنسين من مختلف الأعمار.

عند تحليل البيانات احصائيا لم يوجد هناك فرق معنوى بين الطريقتين.

تعتبر طريقة قياس معامل الانكسار ابسط واسرع واقل تكلفه من طريقة البيوريت وتناسب طبيعة حجم وعمل المراكز التشخيصيه الكبيره وفي حالات مراكز الطوارئ وبناءا على ماسبق يمكن استخدام طريقة قياس معامل الانكسار فى تحديد البروتين الكلى للبلازما مع الأخذ فى الاعتبار معرفة الطريقة المثلى والمناسبه لاستخدام جهاز قياس معامل الانكسار.

Contents

Title	Page No.
Dedication	II
Acknowledgment	III
(Abstract (English	IV
(Abstract (Arabic	V
List of contents	VI
List of tables	VIII
List of figures	VIII
<i>Chapter One:</i>	
Introduction 1.1	1
1.2 Rationale	2
1.3 Objectives	3
<i>Chapter Tow: literature review</i>	
2.1 Classification of proteins	4
2.2 Metabolism of proteins	7
2.3 Reaction of proteins	10
2.4 Separation of plasma proteins	11
2.5 Interpretation of plasma proteins	17
2.6 Value of plasma proteins measurement	18
2.7 Laboratory measurement of plasma proteins	18
<i>Chapter Three: Materials and method</i>	
3.1 Study area	26
3.2 study period	26
3.3 Sample size	26

Title	Page No.
Instruments 3.4	26
Reagent preparation 3.5	26
3.6 Sampling methodology	27
3.7 Procedures	27
3.8 Quality control	28
Statistical analysis 3.9	28
<i>Chapter four:</i>	
Results	29
<i>Chapter Five:</i>	
5.1 Discussion	34
5.2 Conclusion	36
5.3 Recommendation	36
References	37

Tables

No of table	Title	Page
Table 2.1	Plasma proteins concenteration	16
Table 4.1	Total proteins values	30
Table 4.2	Correlation between Biuret and refractometer	31

Figures

No of figure	Title	Page
Figure 2.1	Peptide bond	4
Figure 2.2	Metabolism of proteins	9
Figure 2.3	Serum electrophoresis pattern	16
Figure 2.4	Digital refractometer	23
Figure 4.1	Mean of total plasma proteins	32
Figure 4.2	Scatter plots of plasma proteins	33