

# *DEDICATIONS*

*To*

*My mother*

*. . . My father may God save his soul*

*. . . My brothers and sisters*

*. . . My wife & my daughters Maeen and Myamin*

*And my son*

*Mohammed*

## **ACKNOWLEDGEMENTS**

First of all I thank the God for making all my wide dreams true and giving me the grace of knowledge and ambitious, my thanks extends to all who participated in this work by any way; either advising me, thinking with me or criticizing my work and to everyone made this work easy.

With great deal of respect I would like to thank my supervisor Prof. Mohammed Elsanousi and Co-supervisor Dr. Abdelgadir Ali Elmugadam for their guidance and help. I am extremely grateful to my wife Lana Mohammed Elamin Eltyeb, Lecturer of Medical Parasitology Department, U of G for her patience and collaboration.

I gratefully acknowledge the help of Dr. Mohammed Siddig Abdelaziz, Dean of College of Medical Laboratory Science, SUST, Dr. Mohammed Osman Abdelwahid, Molecular Biology Department (U of G) and Ahmed Medani, registered assistant of College of Graduate Studies, SUST.

Acknowledgment is accorded to Ministry of Health - Gezira State and Wad Medani Teaching Hospital for Obstetrics and Gynecology (WMTHOG) Also special thanks to the role of my colleagues in Keraiba Health Center specially Haybat Mohammed Hamad. Finally, my sincere thanks to all the patients, those with their understanding and cooperation made this study possible.

## ABSTRACT

**Background:** Prolactin is a 198-amino acid protein (23-kD) produced in the lactotrophs cells of the anterior pituitary gland. Hyperprolactinemia is a condition of elevated serum prolactin level (Reference Range 78 – 455 mIU/L). It is the most common hypothalamo-pituitary disorder, it can also occur secondary to use of some drugs, chronic illnesses like hypothyroidism, chronic liver and kidney disease, stress and neurogenic disorders. Idiopathic Hyperprolactinemia refers to elevation of serum Prolactin in the absence of the above conditions. Primary infertility is a case of failing to conceive for at least 12 months after gotten marriage.

**Objective:** The aim of this study is to evaluate serum Prolactin hormone level among female with primary infertility.

**Method:** Serum Prolactin, FSH and LH levels were estimated using commercially specific enzymeimmunoassay (EIA) technique in serum from 200 women (150 primary infertile and 50 fertile non-pregnant and non-lactating) attending Wad Medani teaching hospital in Wad Medani city, Central Sudan, from 2011 till 2013.

**Results:** Hyperprolactinemia represent 50 (33.3%) out of 150 (100%) infertile women. Mean of PRL level was (428.9 mIU/L), Std. Deviation was (361.8) and P. value was (0.000) Age groups; (16 - 30) was 76 (50.7%) and (31 - 45) was 74 (49.3%). Regular menstrual cycle was 50 (33.3%) and irregular menstrual cycle 100 (66.7) Oligomenorrhea was 89 (59.3%) and Amenorrhea was 10 (6.7%). Women with galactorrhoea were 5 (3.3% ) and women whom without galactorrhea were 145 (96.7%). Correlation between PRL, FSH and LH was highly significant increase ( $P=0.000$ ,  $0.001$  and  $0.000$ ) respectively.

**Conclusion:** One-third of female probability value (P. value) who participate in this study had high level of Prolactin, the main aetiology of primary infertility.

## مستخلص الدراسة

**خلفية:** البرولاكتين هو بروتين يتكون من 198 حمض الأميني (23-kD) والذي ينتج في الخلايا مفرزة البرولاكتين للفص الأمامي من الغدة النخامية. يمكن وصف فرط برولاكتين الدم بأنه حالة إرتفاع مستوى هرمون البرولاكتين في مصل الدم عن المدى الطبيعي (78 – 455 مل يونيت/لتر)، وهو يمثل الإضطراب الأكثر شيوعاً للغدة النخامية، ويمكن أن يحدث أيضاً بطريقة ثانوية لإستخدام بعض الأدوية والأمراض المزمنة مثل إنخفاض مستوى هرمونات الغدة الدرقية وأمراض الكبد المزمنة وأمراض الكلى، والإجهاد والاضطرابات العصبية ويكون فرط برولاكتين الدم لأسباب مجهولة عند غياب الحالات المذكورة أعلاه. العقم الإبتدائي هو حالة فشل الحمل بعد فترة أقلها 12 شهر بعد الزواج.

**الهدف:** إن الهدف من هذه الدراسة هو تقويم مستوى هرمون البرولاكتين في مصل الدم عند النساء اللاتي يعانين من العقم الإبتدائي.

**الطريقة:** تم قياس هرمونات البرولاكتين الهرمون المحفز للحويصلات والهرمون المحفز لتكوين الجسم الأصفر باستخدام تقنية المقايضة المناعية في المصل من 200 امرأة (150 امرأة تعاني من العقم الإبتدائي و 50 امرأة خصبة غير حامل وغير مريض) حضرن إلى مستشفى ود مدني التعليمي للنساء والتوليد بمدينة ود مدني - وسط السودان، في الفترة من 2011 وحتى 2013.

**النتائج:** زيادة إفراز البرولاكتين تمثل 50 (33.3%) من أصل النساء المصابات بالعقم 150 (100%). متوسط مستوى البرولاكتين كان (428.9 مل يونيت/لتر)، وكان الإنحراف المعياري (361.8) وكانت القيمة الإحتمالية (0.000) الفئات العمرية: (16-30) كان 76 (50.7%) و (31 - 45) كان 74 (49.3%). وكان الدورة الشهرية المنتظمة 50 (33.3%)، والدورة الشهرية غير المنتظمة 100 (66.7) ندرة الطمث 89 (59.3%) وكان انقطاع الطمث 10 (6.7%). كانت النساء مع ثر اللبن 5 (3.3%) والنساء دون ثر اللبن كانت منهم 145 (96.7%). وكان الارتباط بين البرولاكتين، الهرمون المحفز للحويصلات والهرمون المحفز لتكوين الجسم الأصفر وزيادة كبيرة للغاية ( $P = 0.000$ ،  $0.001$  و  $0.000$ ) على التوالي.

**الخلاصة:** نستخلص من هذه الدراسة أن ثلث النساء المشتركات في هذه الدراسة لديهن إرتفاع عالي في تركيز هرمون البرولاكتين في مصل الدم، وهو السبب الرئيسي للعقم الإبتدائي.

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## **Abbreviations**

ACTH	Adrenocorticotropic Hormone
ADH	Antidiuretic Hormone
BMD	Bone Mineral Density
CRH	Corticotropin-Releasing Hormone
CT	Computed Tomography
DOS	Date of Sample
EIA	Enzymeimmunoassay
FSH	Follicle Stimulating Hormone
GH	Growth Hormone
GHIH	Growth Hormone-Inhibiting Hormone
GHRH	Growth Hormone-Releasing Hormone
GnRH	Gonadotropin-Releasing Hormone
KD	Kilo Dalton
LH	Luteinizing Hormone
LHRH	Luteinizing Hormone- Releasing Hormone
LMP	Last menstrual Period
MRI	Magnetic Resonance Imaging
MSH	Melanocyte-Stimulating Hormone
O.D	Optical Density
P. value	probability value
PCO	Polycystic Ovary Syndrome
PIH	Prolactininhibiting Hormone
PRH	Prolactin-Releasing Hormone
PRL	Prolactin
QC	Quality Control
SPSS	Statistical Package for Social Science.
Std. Deviation	Standard Deviation
TRH	Thyrotropin-Releasing Hormone
TSH	Thyroid-Stimulating Hormone
VIP	Vasoactive Intestinal Peptide
WHO	World Health Organization
WMTHOG	Wad Medani Teaching Hospital for Obstetrics and Gynecology