Sudan University of Science and Technology

Collage of Graduate Studies

Evaluation of Urinary Bladder in Patients with Benign Prostatic Hyperplasia Using Ultrasonography

تقييم المثانة البولية لدى مرضى تضخم البروستاتا الحميد باستخدام التصوير بالموجات فوق الصوتيه

A Thesis Submitted for Partial Fulfillment for the Requirement Degree of (M.Sc.) Degree in Medical Diagnostic Ultrasound

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الاية

بسم الله الرحمن الرحيم

قال تعالى:

﴿اقْرَأْ بِاسْمِ رَبِّكَ الَّذِي خَلَقَ * خَلَقَ الْإِنسَانَ مِنْ عَلَقٍ * اقْرَأْ وَرَبُّكَ الْأَكْرَمُ * الَّذِي عَلَّمَ بِالْقَلَمِ * عَلَّمَ الْإِنسَانَ مَا لَمْ يَعْلَمْ﴾

صدق الله العظيم

سورة العلق الآيات 1–5

Dedication

To my father

Who always support me

To my mother

To beloved brother & sisters.

Acknowledgment

Frist I would like to thank Allah for gave me patience and power to complete this study.

I would like to express my gratitude and respectfulness to my supervisor ***Dr .Asmaa Ibrahim*** *for her support and valuable guidance, then to* ***Dr. Haitham Dafallah****,* ***Dr. Ibrahim Emam*** *Radiologists, for their supporting and endless patience, then My thanks extend to my friends and to all the workers in Sharq Alneel hospital.*

Finally spatial thanks to my teachers and colleagues.

Abstract

This study was descriptive cross sectional study conducted in Khartoum state, Sudan, in the radiology department of Sharg Alneel hospital.The study carried out during the period from November 2016 to February 2017.

The study aimed to evaluate the urinary bladder in patient with prostatic hyper plasia using ultrasonography.

There were 55 males were scanned using ultrasound, all patients had age above 49 years, any patient had residual prostate after prostatectomy and urethral catheterization was excluded from this study.

All these patients were scanned trans abdomen by ultrasound using maindry machine of curvilinear probe have a frequency from 3.5 to 5 MHZ to measured prostate volume , urinary bladder volume pre and post micturition and urinary bladder wall thickness using.

The data was collected using spatial data collection sheet and analyzed using the Statistical Packages for Social Science (SPSS) program.

The study found that most affected age group by benign prostatic hyperplasia (BPH) 60 to 65 years and stander devotion (17.9) also the study found that minimum prostate volume (33.3)ml, maximum (200.6) ml the mean (83) ml and stander devotion (36.6),also the mean volume of urinary bladder pre maturation (300) ml and the mean volume of urinary bladder post maturation (78) ml, also found urinary bladder wall thickness increased in (5.5%) of patient and there was positive significant correlation between age progress and prostatic volume and there was a linear relationship between the prostate volume and urinary bladder post micturition.

The study concluded that the benign prostatic hyper plasia caused increased in the urinary bladder volume post micturition and urinary bladder wall thickness.

Study recommended that ultrasonography must be used as routine check-up, follow up to help diagnosis, treatment and control of benign prostatic hypertrophy.

المستخلص

هذه الدراسة هي دراسة مقطعيه وصفيه اجريت ولاية الخرطوم , السودان ,في قسم الاشعة بمستشفى شرق النيل.اجريت الدراسة في الفترة ما بين نوفمبر 2016 الي فبراير 2017 .

هدفت الدراسة الي تقييم المثانة البولية لمرضى تضخم البروستاتا الحميد باستخدام التصوير بالموجات الصوتيه.

كان هنالك 55 مريضا من الذكور تم فحصهم باستخدام الموجات فوق الصوتيه كل المرضى كانت اعمارهم فوق 49 عاما ,وتم استبعاد اي امراض اخري مرتبطة بتضخم البروستاتا مثل (المتبقي من البروستا بعد عمليه ازاله للتضخم و من لديه قسطرة بولية) .

تم فحص كل المرضى بالموجات فوق الصوتيه عن طريق البطن باستخدام جهاز مندراي لديه مسبار لديه تردد من 3.5 الي 5 ميقا هيرز لقياس حجم البروستاتا , المثانة البولية قبل وبعد تفريغ البول و سماكه جدار المثانة البولية.

جمعت البيانات باستخدام اوراق تم تحليلها بجزمه التحليل الاحصائي في العلوم الاجتماعية .

وجدت الدراسة ان اكثر الفئة العمريه اصابه بتضخم البروستاتا الحميد ما بين 60 الى 65 عاما وانحراف معياري بنسبه(17.9) وأيضا وجدت الدراسة ان اقل حجم للبروستاتا كان (33.3) مل ,اكبر حجم (200.6) مل ,متوسط الحجم 83 مل والانحراف المعياري(36.6) وأيضا وجدت متوسط حجم المثانة البولية قبل التفريغ(300) مل و حجمها بعد التفريغ (78.8) مل وأيضا وجدت زيادة في سماكه جدار المثانة البولية بنسبه 5.5 من المرضى وان هنالك علاقة ايجابه معنوية بين زيادة العمر و حجم البرستاتا و هنالك علاقة خطيه بين حجم البروستاتا و حجم المثانة البولية بعد التفريغ.

خلصت الدراسة الى ان تضخم البروستاتا الحميد يسبب زيادة في حجم المتبقي من البول و سماكه جدار المثانة البولية.

اوصت الدراسة باستخدام الموجات الصوتيه كنمط فحص و متابعه دورية للمساعدة في تشخيص ,علاج والتحكم في تضخم البروستاتا الحميد.

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List of abbreviation

BOO : Bladder Obstructed Outlet

BPH : Benign Prostatic Hypertrophy

CZ : Central Zone

FMS : Fibro Muscular Stroma

LUTS : Lower Urinary Tract Symptoms

MRI : Magnetic Resonant Imaging

PSA : Prostate Specific antigen

PUV : Posterior Urethral Valve

PVR : Post Void Residual Urine

PZ : Peripheral Zone

SPSS : Statistical Packages For Social Science

SV : Volume

TRUS : Trans Rectal Ultrasound Scan

TZ : Transitional Zone

UB : Urinary Bladder

US : Ultrasound