



شبكة المعلومات الجامعية  
التوثيق الإلكتروني والميكروفيلم

# بسم الله الرحمن الرحيم



**MONA MAGHRABY**



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# شبكة المعلومات الجامعية التوثيق الإلكتروني والميكروفيلم



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# جامعة عين شمس التوثيق الإلكتروني والميكروفيلم

## قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها  
علي هذه الأقراص المدمجة قد أعدت دون أية تغييرات



## يجب أن

تحفظ هذه الأقراص المدمجة بعيدا عن الغبار



**MONA MAGHRABY**



# **EFFECT OF SODIUM GLUCOSE CO TRANSPORTER 2 INHIBITOR ON PROTEINURIA IN DIABETIC PATIENTS**

*Thesis*

*Submitted for partial fulfillment of M.D degree in Internal Medicine*

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2020

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

# قالوا

لسبحانك لا علم لنا  
إلا ما علمتنا إنك أنت  
العليم العظيم

صدق الله العظيم

سورة البقرة الآية: ٣٢



# Acknowledgement

*First and foremost thanks to **ALLAH**, the Most Merciful.*

*I wish to express my deep appreciation and sincere gratitude to **Prof Dr. Magdy Mohammed ElSharkawy**, Professor of Internal Medicine and nephrology, Ain Shams University, for his close supervision, valuable instructions, continuous help, patience, advices and guidance. He has generously devoted much of his time and effort for planning and supervision of this study. It was a great honor to me to work under his direct supervision.*

*I wish to express my great thanks and gratitude to **Prof Dr. Mohamed Reda Halawa**, Professor of Internal Medicine and endocrinology , Ain Shams University, for his kind supervision, indispensable advice and great help in this work.*

*I wish also to express my great thanks and gratitude to **Prof Dr. Hayam Aref , Prof Dr. Abdel Rahman Khedr , Dr. Fatma Abdel Rahman** for their kind supervision, indispensable advice and great help in this work.*

*Last and not least, I want to thank all my family, my colleagues,, for their valuable help and support.*

*Finally I would present all my appreciations to my patients without them, this work could not have been completed.*

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## **LIST OF ABBREVIATIONS**

<b>ACEi:</b>	Angiotensin converting enzyme inhibitor.
<b>ADA:</b>	American Diabetes Association.
<b>AER:</b>	Albumin excretion rate.
<b>AGE:</b>	Advanced glycation end products.
<b>AKI:</b>	Acute kidney injury.
<b>ARBs:</b>	Angiotensin receptor blockers.
<b>ASCVD:</b>	Atherosclerotic cardiovascular disease.
<b>BP:</b>	Blood pressure.
<b>CKD:</b>	Chronic kidney disease.
<b>Cr:</b>	Creatinine.
<b>CV:</b>	Cardiovascular.
<b>DBP:</b>	Diastolic blood pressure.
<b>DCCT/EDIC:</b>	Diabetes Control and Complications Trial/Epidemiology of Diabetes Interventions and Complications study.
<b>DKA:</b>	Diabetic ketoacidosis.
<b>DKD:</b>	Diabetic kidney disease.
<b>DM:</b>	Diabetes Mellitus
<b>DN:</b>	Diabetic nephropathy.
<b>DPP-4:</b>	Dipeptidyl peptidase 4 inhibitors .
<b>EM:</b>	Electron microscope.
<b>ESKD:</b>	End stage kidney disease.
<b>ESRD:</b>	End stage renal disease.
<b>FFA:</b>	Free fatty acid .
<b>FGF23:</b>	Fibroblast growth factor 23.
<b>GBM:</b>	Glomerular basement membrane.
<b>GFR:</b>	Estimated Glomerular filtration rate. E
<b>GLP-1RA:</b>	Glucagon-like peptide 1 receptor agonists.
<b>HDL:</b>	High density lipoprotein.
<b>HF:</b>	Heart failure.
<b>IFTA:</b>	Interstitial fibrosis and tubular atrophy.
<b>LDL:</b>	Low density lipoprotein.
<b>LM:</b>	Light microscope.
<b>MCP-1:</b>	Monocyte chemotactic peptide-1.
<b>MIF:</b>	Macrophage migration inhibitory factor.
<b>NIDDM:</b>	Non insulin dependent diabetes mellitus.

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*List of Abbreviations*

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- NAD:**.....No abnormality detected.  
**NPDR:**.....Non proliferative diabetic retinopathy.  
**RAAS:** ..... Renin angiotensin aldosterone system.  
**ROS:** ..... Reactive oxygen species.  
**SBP:** ..... Systolic blood pressure.  
**SGLT2i:** ..... Sodium glucose co transporter 2 inhibitor.  
**T2DM:** ..... Type 2 Diabetes Mellitus.  
**TG:** ..... Triglycerides.  
**TGF-  $\beta$ :**..... Transforming growth factor beta.  
**TmG:** ..... Maximum glucose transport capacity.  
**UACR:**..... Urinary albumin to creatinine ratio .

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## Abstract

**Background:** Diabetic kidney disease (DKD) is considered a major cause of end stage renal disease (ESRD). It has been established that controlling microalbuminuria can delay progression to ESRD. Sodium glucose co transporter 2 inhibitor (SGLT2 i) is a newer antidiabetic drug that has a renoprotective and antiproteinuric effect.

**Aim of the study:** to study the effect of SGLT2 inhibitor on proteinuria in diabetic patients and compare it with classic antiproteinuric drugs.

**Patients and methods:** we conducted a randomized interventional study, involving 60 adult patients with type 2 DM divided into 2 groups: group I were prescribed the classic antiproteinuric drugs in the form of ACE inhibitors or ARBs, aspirin and statins and group II were prescribed an additional dapagliflozin 10 mg /day. Follow up as regard changes in UACR, HbA1C, Blood pressure, body weight and e GFR was done after 6 months of treatment.

**Results:** There was statistically significant decline in UACR after 6 months of treatment with dapagliflozin in group II in comparison to group I (p-value < 0.001). There was also statistically significant decline in SBP in both groups with (p-value < 0.010) in group I and (p-value <0.001) in group II and there was significant decline in DBP in both groups (p-value < 0.001). HbA1c decreased significantly in both groups, (p-value <0.023) in group I and (p-value <0.001) in group II. We also noted a significant reduction of body weight in group II (p-value <0.001). There was a statistically significant negative correlation between the change in UACR and the change in e GFR.

**Conclusion:** There was better reduction in albuminuria when adding dapagliflozin to antiproteinuric drugs, so we recommend starting dapagliflozin early in patients with DKD to delay progession to ESRD.

**Key words:** Diabetes Mellitus, microalbuminuria, SGLT2 inhibitor