

## **Title: Effectiveness of Metformin as Initial Treatment on Metabolic Profile of Newly Diagnosed Saudi Diabetics: a prospective observational study**

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### **Abstract:**

The global incidence of diabetes is on the rise in Saudi Arabia. Metformin is the most common treatment for type 2 diabetes (T2D), but the efficacy of metformin on metabolic profile of newly diagnosed T2D Saudi patients remains uncertain. Therefore, a prospective observational study was conducted in Madinah city, Saudi Arabia, with a recruitment of 82 participants who were newly diagnosed with T2D. The participants were between the ages of 30 and 65 and had hemoglobin A1c (HbA1c) levels of 6.5% or higher. Additionally, they had never previously taken oral hypoglycemic medication. Following the inclusion and exclusion criteria, a total of 68 patients were completed the study. The results indicated a significant reduction in their HbA1c levels following a 12-week treatment period (6.85 vs. 7.29 at baseline,  $p=0.001$ ). Furthermore, 67.3% of the patients exhibited noteworthy decreases in cholesterol levels (4.68 vs. 5.18 at baseline,  $p=0.014$ ) as well as low density lipoprotein (LDL) levels (3.03 vs. 3.52 at

baseline,  $p=0.006$ ). However, no significant changes were observed in other lipid profile markers. Various dosages of metformin show comparable impacts in diminishing HbA1c, cholesterol, and LDL levels, but inconsistent effects on hepatic enzymes. As a conclusion, the results of this study suggest that metformin could be considered as an initial treatment option for newly diagnosed T2D Saudi patients. These findings are significant given the increasing prevalence of diabetes in Saudi Arabia and the need for effective and safe treatment options. We recommend further research to explore pharmacogenomics and metabolomics of metformin in this specific population

## Biography

### 1. Personal informations

Name: Huda Mohammed Naher Alkreathy

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### 2. Educational Qualification

**Doctor of Philosophy (Manchester Metropolitan University), Manchester, UK 2006-2011**

*Title of Thesis: The Therapeutic Potential of Aged Garlic Extract in the Protection against Doxorubicin-Induced Cardiotoxicity. .*

**Master of Pharmacology, Faculty of Pharmacy, King Saud University, Riyadh, Saudi Arabia 1997-2001**

*Title of Thesis: The Effects Of Itraconazole And Terbinafine On The Lipid Profile In Humans And Rabbits.*

**Master of medical education (medical education), Faculty of Medicine, King Abdulaziz University, Jeddah, Saudi Arabia**

*Title of Thesis: Flipped Classroom as an Innovative Teaching Method for Third Year Nursing Students in Pharmacology Course at King Abdulaziz University, Saudi Arabia*

**Bachelor of Medicine and Surgery, Faculty of Medicine, King Abdulaziz University, Jeddah, Saudi Arabia 1986-1993**

### 3. Employment history

#### Current position

**July 2017- Present** Head of department of Pharmacology , Faculty of Medicine, King Abdulaziz University.

**2013-2017** Supervisor department of Pharmacology , Faculty of Medicine, King Abdulaziz University.

### 4. Professional Experience

House officer ( intern) 1992-1993 KAU Hospital,General medicine & surgery

Demonstrator 1994-1997, Pharmacology Department, Faculty of Medicine KAU

Lecturer 2001-2010, Pharmacology Department, Faculty of Medicine KAU

2012-2017 Supervisor of Pre-Clinical Unit, King Fahd Medical Research Center, KAU, Jeddah, Saudi Arabia

Assistant professor 2012-2017

Associate Professor 2017

Professor 29/01/2021

## 5. Awards and scientific membership

- **Award for best supervisor** from Deanship of Graduate studies in health sciences in 2019
- **Award for Scientific Publication in ISI Cited Journals** (Molecular docking and in vitro studies of soap nut trypsin inhibitor (SNTI) against phospholipase A(2) isoforms in therapeutic intervention of inflammatory diseases.) from KAU in year 2019
- **Award Citation** (C14 induced genotoxicity and DNA oxidative damages in rats: hepatoprotective effect of *Sonchus arvensis*) from KAU in year 2019
- British Pharmacology Society (BPS)
- **Certified Advisor of Strategic Planning** from Deanship of Community Service & Continuing Education-KAU 5 days from 15 to 19 February 2021
- **Certified Diploma in Academic Leadership Diploma** (50 training hours) 2021
- **Certified in Good Clinical Practice** 2021
- Training certificate in the course ‘**Academic Quality Practitioner**’ Held From 28/07/2024 to 31/07/2024 for 20 Training hours -On Line

**Scientific Publications.** Complete list available through link\_ORCID: <https://orcid.org/0000-0002-7824-8802>

1. Alkreathy, H.M. and Esmat, A., **2022**. Lycorine Ameliorates Thioacetamide-Induced Hepatic Fibrosis in Rats: Emphasis on Antioxidant, Anti-Inflammatory, and STAT3 Inhibition Effects. *Pharmaceuticals*, 15(3), p.369.
2. Jamil, S., Dastagir, G., Foudah, A.I., Alqarni, M.H., Yusufoglu, H.S., Alkreathy, H.M., Erturk, O., Khan, R.A. and Shah, M.A.R., **2022**. Biosynthesis of Biocompatible AgNPs Using Medicinally Important *Carduus edelbergii* Rech. f. Extract for Multifarious Biological Activities. *Journal of Nanomaterials*.
3. Ahmad, S.S., Karim, S., Ibrahim, I.M., Alkreathy, H.M., Alsieni, M. and Khan, M.A., **2022**. Effect of Vitamin K on Bone Mineral Density and Fracture Risk in Adults: Systematic Review and Meta-Analysis. *Biomedicine*, 10(5), p.1048.
4. Karim, S., Akhter, M.H., Burzangi, A.S., Alkreathy, H., Alharthy, B., Kotta, S., Md, S., Rashid, M.A., Afzal, O., Altamimi, A.S. and Khalilullah, H., **2022**. Phytosterol-Loaded Surface-Tailored Bioactive-Polymer Nanoparticles for Cancer Treatment: Optimization, In Vitro Cell Viability, Antioxidant Activity, and Stability Studies. *Gels*, 8(4), p.219.
5. Ul Haq, M.N., Shah, G.M., Mena, F., Khan, R.A., Althobaiti, N.A., Albalawi, A.E. and Alkreathy, H.M., **2022**. Green Silver Nanoparticles Synthesized from *Taverniera couneifolia* Elicits Effective Anti-Diabetic Effect in Alloxan-Induced Diabetic Wistar Rats. *Nanomaterials*, 12(7), p.1035.
6. Ul Haq, M.N., Shah, G.M., Gul, A., Foudah, A.I., Alqarni, M.H., Yusufoglu, H.S., Hussain, M., Alkreathy, H.M., Ullah, I., Khan, A.M. and Jamil, S., **2022**. Biogenic Synthesis of Silver Nanoparticles Using *Phagnalon niveum* and Its In Vivo Anti-Diabetic Effect against Alloxan-Induced Diabetic Wistar Rats. *Nanomaterials*, 12(5), p.830.
7. Alzahrani, A.M., Hakami, A.Y., AlAzmi, A., Karim, S., Ali, A.S., Burzangi, A.S., Alkreathy, H.M., Khan, M.A., Alzhrani, R.M., Basudan, S.S. and Alzahrani, Y.A., **2022**. Augmented Renal Clearance and Hypoalbuminemia-Induced Low Vancomycin Trough Concentrations in Febrile Neutropenic Patients With Hematological Malignancies. *Cureus*, 14(9).
8. Jamil, S., Dastagir, G., Foudah, A.I., Alqarni, M.H., Yusufoglu, H.S., Alkreathy, H.M., Ertürk, Ö., Shah, M.A.R. and Khan, R.A., **2022**. *Carduus edelbergii* Rech. f. Mediated Fabrication of Gold Nanoparticles; Characterization and Evaluation of Antimicrobial, Antioxidant and Antidiabetic Potency of the Synthesized AuNPs. *Molecules*, 27(19), p.6669.

