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# Dyslipidaemia Patterns and Risk Factors Among Patients with Diabetes, Hypertension, and Both Diabetes and Hypertension at a Tertiary Hospital in Malawi

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## Abstract

**Background:** Dyslipidaemia is a significant risk factor for cardiovascular events but is often neglected in most resource-poor settings.

**Aim:** We aimed to investigate the prevalence, biochemical characteristics, screening and management practice for dyslipidaemia among patients with DM, hypertension, and both DM and hypertension at a tertiary teaching hospital in Southern Malawi, Africa.

**Methods:** A total of 256 adult participants (DM=100; hypertension =100; both condition = 56) were included in the cross-sectional study in 2021. Medical data and anthropometric measurements were recorded. Blood samples were analysed for HbA1C and serum lipids. Associated risk factors for dyslipidaemia were assessed.

**Results:** Dyslipidaemia was prevalent in 73.5%, 71.8%, and 76.7% of participants with DM, hypertension, and both conditions. High low-density lipoprotein cholesterol (LDL-C) was the most common dyslipidaemia type in all participant groups. Participants with both diabetes and hypertension had 2.4 times (95% CI 1.2 - 4.6) increased risk of LDL-C dyslipidaemia than those with diabetes alone ( $p=0.02$ ). Overweight or obesity, and age over 30 years were risks for dyslipidaemia in patients with DM alone (RR 1.3 (95% CI 1.1 - 1.6),  $p=0.04$ , and RR 2.2 (95% CI 1.2 - 4.7) ( $p<0.01$ ) respectively. Overweight and obesity predicted LDL-C dyslipidaemia in hypertensive patients (RR 3.492 (95% CI 1.234 - 9.884)  $p<0.001$ ). Poorly controlled hypertension was associated with a 1.8 times risk (95% CI 1.06 - 2.7) of dyslipidaemia in patients with both DM and hypertension ( $p<0.01$ ). Only 1% of the participants ever had a lipogram performed before the study and were on lipid-lowering therapy.

**Conclusion:** Dyslipidaemia was highly prevalent, especially in individuals with both DM and hypertension. Screening and managing dyslipidaemia should be rein-

forced to reduce the risk of major cardiovascular events in this population at high risk.

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# Efficacy of Liraglutide Versus Gliclazide in Treatment of Patients with Type II Diabetes Mellitus: Systematic Review and Meta-Analysis

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## Abstract

**Background:** Type 2 diabetes mellitus (T2DM) triggers long-lasting and progressive metabolic disorders, causing a severe health issue resulting in several high predominance and dangerous complications. Liraglutide is a glucagon-like peptide-1 (GLP-1), while gliclazide is an oral antihyperglycemic agent.

**Objectives:** To measure the efficacy of gliclazide and liraglutide on T2DM patients.

**Methods:** We performed systematic reviews and meta-analyses by searching two databases, PubMed and Web of Science (WOS), for relevant studies published in the literature during May 2021. We included clinical trials and observational studies and extracted the patients' baseline characteristics and outcomes. We used the Cochrane Handbook of Systematic Reviews of Interventions and the Newcastle Ottawa scale to assess the included studies' quality. The statistical analysis was performed by STATA Version 16.

**Results:** Our meta-analysis included three studies (two clinical trials and one observational study) with 137 participants, 71 in the gliclazide and 66 in the liraglutide groups. Gliclazide had a non-significant reduction of glycated hemoglobin (HbA1c) compared to liraglutide (mean difference [MD] 0.53; 95% CI -0.01, 1.07;  $P=0.06$ ). Gliclazide had a non-significant decreasing of body weight compared to liraglutide (standardized mean difference [SMD] 0.32; 95% CI -0.02, 1.07;  $P=0.06$ ). Gliclazide had a non-significant decreasing of low-density lipoprotein cholesterol (LDL-C) and high-density lipoprotein cholesterol (HDL-C) compared to liraglutide (SMD -0.11; 95% CI -0.45, 0.23;  $P=0.53$ ) and (MD -0.02; 95% CI -0.15, 0.10;  $P=0.7$ ).

**Conclusions:** Liraglutide is more effective in reducing HbA1c, body weight LDL-C, and HDL-C than gliclazide.

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