REVIEWER'S REPORT

Manuscript No.: IJAR- 50498   Date: 01/03/2025

Title: "A Study to Analyse the Role of HbA1C in the Risk Prediction of Ischemic Stroke and Transient Ischemic Attacks"

Recommendation:

✓ Accept as it is ....
Accept after minor revision.................
Accept after major revision ....
Do not accept (*Reasons below*) ....

Rating	Excel.	Good	Fair	Poor
Originality		✓		
Techn. Quality		✓		
Clarity		✓		
Significance		✓		

Reviewer Name: Dr. S. K. Nath   **Date:** 02/03/2025

Reviewer's Comment for Publication:

This study effectively demonstrates that hyperglycemia—both diagnosed and undiagnosed—is a major risk factor for ischemic stroke and TIA. The findings support the clinical utility of HbA1c over RBS in assessing long-term glycemic control and highlight the need for routine HbA1c screening to identify high-risk individuals.

However, a larger multi-center study, long-term follow-up, and inclusion of additional risk factors would further validate these conclusions. Future research should explore preventive strategies, treatment modifications, and lifestyle interventions to reduce stroke incidence in patients with poor glycemic control.

This paper provides valuable insights for neurologists, diabetologists, and public health professionals, reinforcing the importance of glycemic monitoring in stroke prevention. By integrating HbA1c screening into routine stroke risk assessment, healthcare providers can take proactive steps to prevent cerebrovascular complications in diabetic and prediabetic individuals.

Reviewer's Comment / Report

This research paper explores the relationship between HbA1c levels and the risk of ischemic stroke and transient ischemic attacks (TIA). The study, conducted at King George Hospital, Visakhapatnam, from May 2019 to August 2020, involved 200 patients diagnosed with ischemic stroke or TIA. The objective was to:

1. Determine the correlation between glycosylated hemoglobin (HbA1c) levels and stroke risk.
2. Evaluate HbA1c as a predictor of glycemic control in stroke patients compared to random blood sugar (RBS).

Key findings include:

• 68.92% of ischemic stroke patients had HbA1c $\geq$ 6.5%, indicating poor glycemic control.
• 43.47% of TIA patients also had HbA1c $\geq$ 6.5%.
• 52.11% of patients with RBS < 200 mg/dL still had HbA1c $\geq$ 6.5%, proving the utility of HbA1c over RBS.
• Hyperglycemia, whether diagnosed or undiagnosed, was a major risk factor for stroke.

International Journal of Advanced Research

Publisher's Name: Jana Publication and Research LLP

www.journalijar.com

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Key Strengths of the Study

1. **Well-Defined Study Objectives and Methodology**: The research provides clear inclusion and exclusion criteria, ensuring that the findings are relevant to ischemic stroke and TIA patients. The study is based on a significant sample size (200 patients), improving its reliability.

2. **Statistical and Clinical Relevance:** The study demonstrates a statistically significant relationship between HbA1c and stroke risk ($p < 0.00001$). It highlights the importance of screening undiagnosed diabetics for stroke prevention.

3. **Comparison of HbA1c with RBS as a Risk Indicator**: The study proves that RBS alone is not a reliable indicator of long-term glycemic control. Even patients with normal RBS had elevated HbA1c, underscoring the necessity of routine HbA1c testing in stroke patients.

4. **Discussion of Stroke Pathophysiology and Diabetes Link**: The paper explains the mechanisms through which hyperglycemia contributes to stroke, such as vascular endothelial dysfunction, inflammation, and arterial stiffness. It provides comparative data from previous international studies, strengthening its scientific credibility.

Limitations of the Study

1. **Lack of Long-Term Follow-Up**: The study does not track long-term outcomes, such as recurrence of stroke in patients with elevated HbA1c. A longitudinal study could provide better insights into how glycemic control affects stroke prognosis over time.

2. **Single-Center Study with Limited Generalizability**: The study was conducted in one hospital in Visakhapatnam, limiting applicability to broader populations. A multi-center study with diverse demographics would strengthen the generalizability of the findings.

3. **No Consideration of Other Risk Factors**: The study focuses on HbA1c but does not analyze other stroke risk factors, such as hypertension, lipid levels, smoking, and obesity. Including multi-factorial risk analysis could provide a more comprehensive stroke risk model.

4. **No Intervention or Treatment Recommendations**: While the study highlights HbA1c as a risk predictor, it does not explore potential interventions beyond stating that HbA1c should be kept below 7%. Future research should evaluate lifestyle modifications, medication adjustments, and targeted interventions for stroke prevention in diabetic patients.