ISSN: 2320-5407
ISSN NO. 2320-5407
International Journal of Advanced Research
Publisher's Name: Jana Publication and Research LLP
www.journalijar.com

REVIEWER'S REPORT

Manuscript No.: IJAR- 50053 Date: 27/01/2025

Title: "To Study Nerve Conduction Parameters in Prediabetics and Healthy Individuals"

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:** 28/01/2025

Reviewer's Comment for Publication.

The study provides significant evidence linking nerve conduction abnormalities to prediabetes, emphasizing the importance of early detection. While the methodology is robust and findings are valuable, the study could benefit from broader generalizability, longitudinal analysis, and deeper exploration of confounding variables. By addressing these gaps, future research could strengthen the clinical application of these findings and contribute to early interventions for neuropathy prevention.

Reviewer's Comment / Report

Strengths of the Paper:

1. **Relevance of the Study**: The study addresses an important public health issue by investigating nerve conduction abnormalities in prediabetic individuals, a critical stage where interventions can prevent progression to diabetes and associated complications. It highlights the potential link between HbA1c levels and nerve conduction parameters, which could provide an early diagnostic marker for neuropathy.

2. **Clear Objectives**: The primary and secondary objectives are well-defined, focusing on comparing nerve conduction parameters and their correlation with HbA1c levels in prediabetics and healthy individuals.

3. **Comprehensive Methodology**: The study employs standardized nerve conduction tests, including motor and sensory nerves (e.g., median, ulnar, tibial, and sural nerves), ensuring robust data collection. The use of a controlled environment and specific procedural details (e.g., electrode placement, machine settings) ensures reproducibility.

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4. **Statistical Rigor**: The study includes clear statistical analysis, showing significant correlations between HbA1c levels and nerve conduction parameters (velocity and amplitude). P-values and Pearson correlation coefficients provide strong evidence for the observed trends.

5. **Results and Implications**: Significant reductions in nerve conduction parameters in prediabetics compared to healthy controls underline the need for early screening and intervention. The suggestion to include nerve conduction studies in routine examinations for prediabetics is practical and actionable.

Weaknesses and Areas for Improvement:

1. **Study Scope and Generalizability**: The study is hospital-based and limited to one medical institution, which may restrict the generalizability of the findings to broader populations. The small sample size (130 participants) might limit the statistical power and representativeness of the results.

2. **Lack of Longitudinal Analysis**: The cross-sectional design does not allow for tracking the progression of nerve conduction abnormalities over time. A longitudinal approach could provide deeper insights into how neuropathy develops in prediabetes.

3. **Exclusion of Key Variables**: The study does not account for confounding factors such as BMI, lifestyle, physical activity, or comorbidities, which could influence both HbA1c levels and nerve conduction parameters.

4. **Limited Discussion of Contradictory Findings**: While the paper acknowledges conflicting results from other studies, it does not provide an in-depth analysis of why such differences might exist, such as variations in methodology or population demographics.

5. **No Control for Temperature or Environment Effects**: While the procedure was conducted in a controlled environment, there is no discussion of how ambient temperature or other physiological factors (e.g., hydration levels, stress) might have influenced nerve conduction results.

6. **Underexplored Clinical Relevance**: Although the study suggests including nerve conduction studies in routine prediabetes investigations, it does not discuss the cost-effectiveness or feasibility of implementing this recommendation on a larger scale.

Suggestions for Improvement:

1. **Expand the Study Population**: Conduct a multicenter study with a larger and more diverse participant pool to improve generalizability.

2. **Include Additional Variables**: Collect data on lifestyle factors, comorbid conditions, and genetic predispositions to better understand their impact on nerve conduction abnormalities.

3. **Longitudinal Design**: Follow participants over time to assess how nerve conduction parameters change with progression from prediabetes to diabetes.

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4. **Deeper Analysis of Contradictory Studies**: Provide a detailed comparison with studies showing different outcomes, focusing on methodological and population-specific differences.

5. **Practical Recommendations**: Assess the feasibility and cost-effectiveness of routine nerve conduction studies in prediabetics. Suggest alternative markers or screening tools if cost is a barrier.