

Peer Review

Review of: "Development of a Type 2 Diabetes Mellitus Model in Rats with Administration of High-Fat Diet and Streptozotocin"

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Comments to author

The present study by Mishra et al. designed a protocol to develop a rat model of type 2 diabetes (T2D) induced by a combination of a high-fat diet and multiple low doses of streptozotocin, which generates the two major pathophysiologies of T2D, insulin resistance and β -cell dysfunction, as seen in humans. Although this is a commonly used approach for inducing T2D, the authors have painstakingly demonstrated in their study that at a lower dose of STZ injection, toxicity and mortality rates are maximally reduced. The manuscript is well conceptualized with valid justification, clearly written, and contributes significantly to scientific knowledge. However, I have highlighted some major concerns to be addressed by the authors and some valuable suggestions to improve the manuscript.

Concerns:

1. Why does the HOMA-IR score contradict other parameters in this study as represented in the table?

HOMA-IR scores indicate the level of insulin resistance and should be higher in the diabetic group.

The authors should carefully look into this and address the issue.

2. Additionally, I am concerned as to how HbA1c levels rose only a few days after the T2D induction.

The authors should address this issue.

Suggestions:

1. For this kind of experimental study, an (n=6) sample size is too small; a larger sample size is advisable to increase the reliability of the data gathered and the accuracy of the findings.

2. The authors should consider analyzing the oral glucose tolerance test (OGTT) and/or the insulin tolerance test (ITT) to fully evaluate insulin insensitivity and further validate the development of type 2 diabetes.

Declarations

Potential competing interests: No potential competing interests to declare.