Review of: "Case Report: Urinary Proteomic Analysis of Exercise-Induced Rhabdomyolysis with Acute Kidney Injury"

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Potential competing interests: No potential competing interests to declare.

1. Abstract: Provides a clear summary of the case
2. Introduction: provides necessary background
3. Case Presentation: Thorough timeline of the patient's clinical course.
4. Discussion: The discussion is comprehensive but lacks a clear structure.
5. Figures: Detailed data presentation in figures and tables.

This study is new and interesting. The use of urinary proteomics is a novel and promising approach for diagnosing and monitoring ER-induced AKI. I really appreciate the authors who provided detailed biochemical and proteomic analyses that provide valuable insights into pathophysiological mechanisms. This paper is good and deserves to be published after some revisions.

Q1: Abstract:"Exertional rhabdomyolysis (ER) is a frequently observed consequence following sustained strenuous exercise" → Consider simplifying: "Exertional rhabdomyolysis (ER) frequently occurs after sustained strenuous exercise."

Q2: Abstract:"to prevent morbidity" → Should be "to prevent severe morbidity."

Q3: Abstract:"notable reduction in CK and MB levels was observed, accompanied by the restoration" → Simplify: "CK and MB levels decreased, with renal function restored."

Q4: Abstract:"Following a 12-day intensive care unit (ICU) treatment..." → "After 12 days of intensive care unit (ICU) treatment..."

Q5: Introduction: "necessitating an increased understanding of its implications" → Simplify to "highlighting the need for better understanding of its implications."

Q6: Introduction:"dark urine alongside an increase in circulating creatine kinase" → Add "levels" after "creatine kinase."

Q7: Case Description: "leading to normalization of laboratory parameters, and he was discharged after 16 days without any symptoms" → Omit "without any symptoms" to avoid redundancy.

Q8: Case Description: Please focus on significant trends (e.g., CK levels peaking at 9300 U/L) rather than listing every

measurement.

Q9: Explain why clustering of proteins (e.g., clusters 1, 2, and 3) matters clinically.

Q10: "and equipment, followed by a final test consisting of a 2400m run" → Add clarity: "and equipment, culminating in a final 2400-meter run."

Q11:"On the last day of hospitalization, the urinary output was 8200 mL" → Make precise: "Urinary output reached 8200 mL on the final day of hospitalization."

Q12:"Despite the lack of consensus in the literature, there is no defined threshold..." → Simplify for clarity: "Although thresholds for CK levels vary in the literature, no consensus exists on defined levels significantly increasing AKI risk."

Q13: Figures and tables: explain the relevance of the protein clusters and how they contribute to the understanding of muscle and kidney injury.

Q14: Figures and tables: Clarify why specific biomarkers (e.g., A1AG1, NGAL) were selected as indicators of kidney damage.

Q15: Discussion: Please discuss more about the value of urinary proteomics versus traditional biomarkers (particularly in military or high-stress environments?) and the role of genetic predispositions (ACTN3 XX genotype, ACE polymorphisms). You may consider expanding on the practical applications of urinary proteomics, particularly in high-risk populations.

Q16: Discussion: The discussion lacks sufficient comparison to standard diagnostic approaches (e.g., CK levels, myoglobin detection) and discusses cost, feasibility, and accessibility of proteomic analysis compared to standard diagnostics.

Q17: The rationale for treatment decisions (e.g., the timing and frequency of hemodialysis) could be clearer.

Q18: Figures: The clustering analysis (Figure 1C) and principal component analysis (Figure 1E) are not adequately interpreted in the text. Add more descriptive captions to ensure standalone clarity. Highlight key findings from figures in the main text to improve integration.

Q19: Combine supplementary materials (e.g., timelines and tables) for easier reference.

Q20: Lacks a strong conclusion summarizing the study's implications.