

## **Response to reviewers**

We thank the reviewers and editors for taking their time to review this manuscript (Manuscript NO: 112271). We have made systematic revisions addressing each of the comments. To facilitate the re-review process, the modifications are introduced in the following response letter and highlighted them in the updated manuscript. We are hopeful that our revised submission aligns with the high standards of World Journal of Radiology and meets the expectations of the reviewers.

### **Reviewers' comments:**

#### **Reviewer #1:**

Comment 1: In clinical diagnostics, CT, MRI, and ultrasound are routinely employed. Notably, MRI has advanced rapidly: compared with ultrasound it offers superior objectivity, and relative to CT it provides better soft tissue contrast without ionizing radiation. Its diagnostic performance for pancreatic cancer rivals that of contrast-enhanced CT, making MRI an increasingly preferred imaging modality.

**Author Response:** We agree with the reviewers' comments.

Comment 2: MRI plays a pivotal role in the diagnosis of pancreatic diseases. Advances in artificial intelligence have markedly accelerated scan times, while quantitative MRI techniques—particularly diffusion-weighted imaging (DWI) and derived apparent diffusion coefficient (ADC) maps have become indispensable in clinical decision-making. In this article, authors review the acquisition parameters, postprocessing techniques, and quantitative methods utilized in pancreatic DWI. Various postprocessing models, including monoexponential, biexponential, stretched exponential and non-Gaussian kurtosis models, as well as deep learning networks, have been used to assess their clinical utility in diagnosing pancreatic diseases. This review offers a comprehensive overview of DWI principles, clinical sequences, postprocessing models, and the expanding role of AI in disease characterization. It is

both well-focused and highly informative, making it an excellent candidate for publication in the World Journal of Radiology.

**Author Response:** Thank you for the reviewer's insightful summary of our work and for acknowledging its significance within the field.

Comment 3: In clinical DWI practice, the quantitative ADC is the most robust parameter, yet it still confronts reproducibility and repeatability challenges-issues that are thoughtfully discussed in this review and thus broaden the reader's perspective. The review reports the repeatability threshold for ADC of normal pancreas is 37% for test-retest scans, while the repeatability threshold for pancreatic tumors needs to be further investigated. Moreover, when AI models are applied to disease diagnosis, ADC values though influenced by acquisition parameters-are less sensitive to field-strength variations than the signal intensities of conventional T1- or T2-weighted images. We therefore anticipate that future research integrating quantitative MRI with AI will yield even greater diagnostic performance. This review not only summarizes the current applications of DWI in pancreatic diseases but also critically examines its limitations and future directions. Overall, it is an excellent and well-rounded review.

**Author Response:** We sincerely thank the reviewer for the insightful and comprehensive comments.

**Reviewer #2:**

Comment 1: I have conducted a thorough review of the review manuscript titled "Diffusion-Weighted Imaging of the Pancreas: Clinical Applications and Research Advances". The manuscript provides an overview of the principles, current clinical applications, and recent research progress in diffusion-weighted imaging (DWI) for pancreatic diseases. It covers the role of DWI imaging in pancreatic tumours, evaluating severity, treatment response and prognosis.

**Author Response:** Thank you for the reviewer's insightful summary of our work.

Comment 2: STRENGTH: 1. Clinically Relevant Topic: The utilisation of DWI is increasing widely in abdominal imaging, and its application in pancreatic diseases needs an hour. 2. Coverage of the topic and structural organization of the manuscript: The review comprehensively covered the technical part, clinical part, and research segment, also with structural organization, which will be helpful for the reader to understand better. WEAKNESS: 1. Lack or little description regarding the most recent meta-analysis and guidelines, such as ESGAR recommendations for DWI in pancreatic evaluation. 2. Pitfalls of pancreatic DWI are described minimally. 3. Insufficient flow or recommendation to use in clinical practice, which is required to make a clinically impact. 4. Lack of figures: pictorial representation of various clinical conditions of pancreatic disorders in comparison with the routine imaging technique will be helpful for the reader to understand better.

**Author Response:** We sincerely thank the reviewer for the insightful and comprehensive comments.

Comment 3: Recommendation to strengthen the article: Add the most recent systematic review /meta-analysis and recommendations from the association guidelines on clinical use of DWI in pancreatic diseases.

**Author Response:** We appreciate the reviewer's suggestion and have incorporated additional guideline recommendations and meta-analyses (see references 86–88).

Comment 4: Discuss in detail about the various limitations and biases involved in the DWI in pancreatic diseases.

**Author Response:** We appreciate the reviewer's suggestion. The limitations and biases inherent to DWI—most notably sub-optimal image quality and the limited

reproducibility of diffusion metrics—together with future directions for pancreatic diffusion imaging, are discussed. These issues, along with broader challenges and emerging trends, are also presented in a dedicated section entitled “Current Challenges and Future Development Trends.”

Comment 5: Provide a practical algorithm flow chart or summary table to guide the clinician “when and how to use the DWI in pancreatic disorders”.

**Author Response:** Given the narrative nature of this review, we elected to illustrate the clinical value of DWI through nine representative pancreatic pathologies rather than a formal algorithm or table; accordingly, no summary table was added in the revised manuscript.

Comment 6: If possible, include the DWI images of various pancreatic conditions for better understanding.

**Author Response:** We appreciate the reviewer’s suggestion. In the revised manuscript, we have added a new figure (Figure 1) that illustrates the nine representative types of pancreatic pathologies.

Comment 7: Addressing the weaknesses and recommendations outlined above would significantly enhance the manuscript's contribution to the field of DWI in pancreatic diseases. Conflict of Interest: The reviewer declares no conflict of interest.

**Author Response:** Thanks for the reviewer’s valuable suggestions. We have carefully revised the content to ensure clarity and precision.

**Reviewer #3:**

Comment 1: The narrative review summarises the clinical applicability of Diffusion-Weighted Magnetic Resonance Imaging in pancreatic disorders. Authors

have collected reasonable evidence for the topic of discussion through literature search, analysis of recent data from the web and tried to correlate with our current understanding on this topic to reinforce and advance knowledge gaps. However, there are several issues in the paper in the present form which need rectification to improve the quality and enhance readability.

**Author Response:** We sincerely thank the reviewer for the insightful and comprehensive comments.

Comment 2: The language and structure needs improvement as there are occasional grammar and syntax errors (e.g., "Therefore, several other improved techniques have been used in clinical, including readout-segmented EPI (rs-EPI) DWI [2] and reduced field-of-view (rFOV) DWI" - what clinical?) throughout the paper.

**Author Response:** Thanks for the reviewers' constructive suggestions. We have thoroughly reviewed and revised the manuscript to improve its clarity and conciseness, and have carefully refined the grammar and wording to ensure precise and well-articulated expression. In addition, the revised paper has been professionally edited by American Journal Experts (AJE).

Comment 3: Title: should have been "Diffusion-Weighted Magnetic Resonance Imaging of the Pancreas: Clinical Applications and Research Advances".

**Author Response:** Thanks for the reviewers' constructive suggestions. We have revised the manuscript title to "Diffusion-Weighted Magnetic Resonance Imaging of the Pancreas: A Narrative Review".

Comment 4: Abstract: Better to add one or two sentences on how AI-based evolving technology is going to transform future pancreatic imaging.

**Author Response:** Thanks for the reviewer's suggestions. The revisions have been completed as suggested.

Comment 5: Main text: Should have been more structured with tables, figures, algorithms/flow charts and possibly some images as examples to enhance readability and interpretability of the paper.

**Author Response:** We appreciate the reviewer's suggestion. In the revised manuscript, we have added a new figure (Figure 1) that illustrates the nine representative types of pancreatic pathologies.

Comment 6: It would be worthy to add a paragraph in the introduction section elaborating how the authors compiled evidence for their narrative review such as the types of databases searched, the key word used for the acquisition of data and types of articles used for gathering the most relevant evidence from the web. This will enhance the transparency of the evidence collected for readers of the paper and can potentially improve the citation rates and impact of the paper.

**Author Response:** Thanks for the reviewer's thoughtful suggestion. After careful internal discussion, we decided not to add a formal description of search strategies or inclusion/exclusion criteria, because we designed the manuscript as a concise narrative rather than a systematic review. Our goal was to integrate the most representative pancreatic pathologies and key diffusion-weighted-imaging findings that have emerged over the past decade, highlighting clinical context and imaging pearls rather than exhaustively cataloguing every publication. We therefore elected to keep the Introduction brief and focused, and we respectfully prefer to leave the text unchanged in this regard.

Comment 7: I didn't quite understand the reason for a title discussion as this is a narrative review with evidence compiled from various articles rather than elaborating

findings from a research study of systematic review.

**Author Response:** Thanks for the reviewer's valuable comment. Although our paper is intended as a narrative overview, we fully agree that the marked variability in pancreatic DWI acquisition, image quality and diffusion-quantification strategies deserves explicit discussion, as does the promise of emerging techniques such as high-field-strength MRI (5.0/7.0 Tesla) and advanced post-processing models. Consequently, we have added a dedicated Discussion section. We believe these additions preserve the concise, narrative style requested while giving readers a balanced perspective on current limitations and upcoming developments.

Comment 8: References: formatting is not as per the standards of BPG journals. authors are recommended to review the submission guidelines.

Overall, this paper needs a lot of work to improve the quality and significance for the global audience of the Journal.

**Response:** Thanks for the reviewer's insightful suggestions. We have thoroughly reviewed and revised the manuscript to enhance its clarity and conciseness. Additionally, we have refined the grammar and wording to ensure the text is precise and well-articulated. In addition, the revised paper has been professionally edited by American Journal Experts (AJE).