Review of: "Comparing Visual and Software-Based Quantitative Assessment Scores of Lung Parenchymal Involvement Quantification in COVID-19 Patients"

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Potential competing interests: No potential competing interests to declare.

Dear authors,

I read with interest the article entitled ‘Comparing Visual and Software-Based Quantitative Assessment Scores of Lung Parenchymal Involvement Quantification in COVID-19 Patients’. While the study presents valuable insights into the comparison between visual quantitative assessment and software-based quantitative assessment of lung involvement in COVID-19 patients, there are several critical points to consider:

Limited Sample Size: The study included a relatively small sample size of 90 patients. A larger sample size would provide more robust statistical analysis and enhance the generalizability of the findings.

Single Operator for SBQAS: Only one operator performed the software-based quantitative assessment score (SBQAS) using the semi-automatic software. Having multiple operators could provide a better understanding of the inter-operator variability and reliability of the results.

Retrospective Nature: The retrospective design of the study might introduce biases and limitations in data collection and analysis. Prospective studies would offer stronger evidence and control over variables.

Variability in Software Performance: The study utilized two different software programs for the software-based assessment, each with its own algorithms and methodologies. The variability in software performance and interpretation could impact the reliability and consistency of the results.

Differences in HU Threshold: The study used different Hounsfield Unit (HU) thresholds for lung segmentation between the two software programs, which might introduce variability in the assessment of lung involvement. Harmonizing the parameters across software platforms could improve comparability.

Clinical Correlation: While the study evaluates the agreement between visual and software-based assessments, the clinical correlation and impact on patient management are not fully explored. Further studies could investigate the clinical outcomes and implications of using AI-driven tools in decision-making.

Validation of Software: Although the study demonstrates moderate to good agreement between visual and software-based assessments, further validation studies are needed to assess the accuracy, sensitivity, and specificity of the

software in real-world clinical settings.

Cost-effectiveness and Resource Allocation: While the study briefly mentions the potential cost-effectiveness of using AI-driven tools, a comprehensive analysis of the economic implications and resource allocation strategies would provide valuable insights for healthcare decision-makers.

In summary, while the study contributes to the understanding of AI-driven tools in assessing lung involvement in COVID-19 patients, there are several limitations and considerations that warrant further investigation and critical evaluation.

Kindly incorporate the aforementioned limits and factors that have not been previously addressed in the Limitation and Future Research Direction section.