Author’s response to reviews

Title: Cardiac Function Assessed by Myocardial Deformation in Adult Polycystic Kidney Disease Patients

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Editor comments:

1) Textual overlap.

We note that the current submission contains some textual overlap with other previously published works, in particular:

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This overlap mainly exists in the abstract.
Please do the revisions as below:

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Alternatively, you may want to rephrase the Abstract to minimize the overlap.

Thank you for making us aware of this overlap. We will of course rephrase the manuscript so as to avoid overlap between the two documents.

New abstract, page 2:

Background: Patients with autosomal dominant polycystic kidney disease (ADPKD) have an increased risk of cardiovascular morbidity and mortality. Impaired left ventricular (LV) global longitudinal strain (GLS) can be a sign of subclinical cardiac dysfunction even in patients with otherwise preserved ejection fraction (EF). Transmitral early filling velocity to early diastolic strain rate (E/SRe) is a novel measure of LV filling pressure, which is often affected early in cardiac disease.

Methods: A total of 110 ADPKD patients not on dialysis were included in this prospective study. All patients underwent an extensive echocardiographic examination including two-dimensional speckle tracking. GLS and strain rates were measured. The distribution of GLS and E/SRe was determined and patient characteristics were compared by median levels of GLS (-17.8%) and E/SRe (91.4cm). Twenty healthy participants were included as control group.
Results: There was a significantly worse GLS in the ADPKD patients (mean: -17.8 ± 2.5%) compared to the healthy controls (mean: -21.9 ± 1.9%), p<0.001. The same was true for E/SRe (mean: 10.0 ± 0.3cm) compared to the control group (mean: 6.5 ± 0.3cm), p<0.001. In simple logistic regression, male gender (OR: 4.74 [2.10-10.71], p<0.001), fasting glucose (odds ratio (OR) 1.05 [1.01-1.10], p=0.024), htTKV (OR: 1.07 [1.01-1.13], p=0.013), HDL cholesterol (OR: 0.97 [0.94, 0.996], p=0.025), triglycerides (OR: 1.01 [1.00-1.02], p=0.039), hemoglobin (OR: 1.50 [1.11-2.04], p=0.009), and β-blocker use (OR: 1.07 [1.01, 1.13], p=0.013) were all associated with higher GLS. After multivariate logistic regression with backward model selection, only male gender (OR: 5.78 [2.27-14.71], p<0.001) and β-blocker use (OR: 14.00 [1.60, 122.51], p=0.017) remained significant. In simple logistic regression models, BMI (OR: 1.11 [1.02-1.20], p=0.015), systolic blood pressure (OR: 1.03 [1.00-1.06], p=0.027) and β-blocker use (OR: 17.12 [2.15-136.20], p=0.007) were associated with higher E/SRe - a novel measure of left ventricular filling pressure. After backward elimination, only β-blocker use (OR: 17.22 [2.16, 137.14], p=0.007) remained significant.

Conclusion: Higher GLS and E/SRe are common in ADPKD patients, even in patients with preserved eGFR and normal left ventricular EF. GLS and E/SRe may aid in cardiovascular risk stratification in patients with ADPKD as they represent early markers of cardiac dysfunction.

2) Declarations

Please note that all manuscripts must contain all the following sections under the heading 'Declarations'. The Declarations should follow the Conclusions section, and be before the References.

Ethics approval and consent to participate

Consent for publication

Availability of data and material

Competing interests

Funding

Authors' contributions

Acknowledgements

This has now been done.
3) List of abbreviations

As many abbreviations are used throughout the paper, we ask that you include a list of abbreviations (before the Declarations section) for reference and ease of reading. All abbreviations should still be defined in the text at first use.

This has now been done.

4) Clean copy

On uploading your revisions, please remove any tracked changes or highlighting and include only a single clean copy of the manuscript.

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