

## Manuscript 31278 - Kadle & Phoon

### Responses to Reviewers

17 March 2017

Dear Editors and members of the Editorial Committee,

We thank the reviewers for their diligent and thorough reviews. We also appreciate their positive feedback. Below are our detailed responses, which are also highlighted in yellow throughout the revised manuscript.

Sincerely,

Colin Phoon & Rohini Kadle

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#### Reviewer 02453249

*The Authors found in a large cohort of patients a high degree of accuracy of the physical examination against the benchmark Doppler echocardiography and discuss this clinical approach in the context of clinical practice, technology, and healthcare costs. As previously noted, listening to the heart with a stethoscope is cheap, quick and readily available. There are no echo parameters to detect an S3 heart sound, S4 heart sound, or to describe the intensity of heart sounds, so physical examination can detect some things that echo can't. Extensive data on comparing cardiac auscultation to echocardiography are lacking, thus this is one intriguing study, also if performed mainly in children and mostly in patients with PS, AS, or VSD. Conclusions and future directions are well stated.*

We thank this Reviewer for the very positive comments and thorough review.

#### Reviewer 02446701

(No comments.) Reviewer's classification of this manuscript was "Grade A (Excellent)" with a "Grade A (priority publishing)" Language Evaluation. Conclusion was Accept.

We thank this Reviewer for the very positive critique.

Reviewer 00227531

*This is a well-written and interesting paper demonstrating how clinical auscultation in expert hands may approximate echo results. The results are important in an era of considerable expenses in technology and of looking down on clinical examination. I have the following concerns: -I think that all exams were performed by a senior cardiologist with great experience. If so, please state it in the abstract. Also state the years of experience in the field. -The last exams showed better correlations with echo than the former ones, but it is not clear at which period of the study corresponds. Please state -It seems that all the patients had a clinical or echocardiographic diagnosis of a cardiac pathology instead of being "first" cases. Please state. Was the diagnosis of, saying, pulmonary stenosis or aortic stenosis, previously known?. In how many cases? -It seems that some of these data patients have been previously published (ref#15). Please state in how many of the patients it happens. -Please state in how many patients an echo exam could have been avoided according to the clinical examination. A discussion regarding this matter would add to the paper. -Introduction and discussion sections are a bit long. I suggest shortening them.*

We thank this Reviewer for the very positive comments and thoroughness of the review. We address specific comments point-by-point as follows:

*-I think that all exams were performed by a senior cardiologist with great experience. If so, please state it in the abstract. Also state the years of experience in the field.*

Actually, at the time the study was started (January, 1997), the attending pediatric cardiologist (CKLP) was only 1 ½ years after completion of fellowship training. Of course, by the time the data acquisition was completed (December 2009), the pediatric

cardiologist had been in clinical practice for 13 ½ years. (In other words, Dr. Phoon was not a cardiologist who had been in full-time clinical practice for 20 or 30 years!) We have clarified in the Abstract that 1) it was an attending pediatric cardiologist who performed the examinations; and 2) at the time of the most recent quartile of patients, the pediatric cardiologist had been in practice >10 years. We also stated these clarifications in the Methods, including the years of experience. In the Discussion, we clarify that “The study period corresponded to this cardiologist’s early and middle career.” We hope these clarifications will be adequate.

*-The last exams showed better correlations with echo than the former ones, but it is not clear at which period of the study corresponds. Please state.*

We have clarified the specific time periods in the Results.

*-It seems that all the patients had a clinical or echocardiographic diagnosis of a cardiac pathology instead of being “first” cases. Please state. Was the diagnosis of, saying, pulmonary stenosis of aortic stenosis, previously known? In how many cases?*

We have clarified these points. In the Methods, we now include the statement: “Not all patients were diagnosed with these lesions at the visits; some were “first” visits, but the physical examination was characteristic for valvar stenosis or VSD, and therefore a clinical estimate of the pressure gradient could be made even before a diagnosis was established by echocardiography.” We also added a statement to bring attention to the Reviewer’s other point about “previously known” lesions: “Although a previous echocardiogram (and therefore possibly knowledge of the previous gradient) exhibited a better correlation, the correlation coefficient even during a “first” visit was very high”.

*-It seems that some of these data patients have been previously published (ref#15). Please state in how many of the patients it happens.*

We have clarified this point in the 3<sup>rd</sup> sentence of the Methods.

*-Please state in how many patients an echo exam could have been avoided according to the clinical examination. A discussion regarding this matter would add to the paper.*

This is a difficult point to state, since there are several issues that are involved in the decision to obtain an echocardiogram. In addition, obtaining an echocardiogram in these patients was clinically indicated – there may have been other patients in whom we did not obtain an echocardiogram, but of course those would not have been included in this study. We clarified this issue with this statement in the Discussion: “Unfortunately, in our study, it is impossible to know how many patients could have avoided an echocardiography, based purely on auscultatory estimation of a pressure gradient; other clinical questions may also prompt an echocardiogram.”

*-Introduction and discussion sections are a bit long. I suggest shortening them.*

Done – I reduced the Introduction (which was already only one page long) by approximately 10% and the Discussion by 20%.