



# Tortuosity index to decide stenting of the duct in patients with duct-dependent pulmonary circulation: a response letter

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We thank Dr. Osman Baspinar for his interesting letter and his comments on our article (1).

We know that the curvature index was originally derived from mathematical and physical concepts describing waveforms and is presented as a differential equation.

We agree with the colleague and his idea that there is some confusion in medical literature between the two concepts: curvature index and tortuosity index. Many centres around the world used the concept of curvature index to express the vessel and bronchus tortuosity (2-4).

In our previous article (5), we have used the formula adopted from Qureshi *et al.* (2) as the following:  $L2-L1/L2$  to express the quantitative severity of ductal tortuosity. Where L2 is the entire length of the duct and L1 is the short straight distance between the aortic origin of the duct and the insertion onto pulmonary artery. While the formula suggested from Dr. Osman for calculating the tortuosity index is  $L1-L2/L1$  (where L1 is the entire length of duct and L2 is the short distance). In comparison between the two formulas, we find that there is no quantitative difference, and the result will be the same.

Moreover, whether we name it as ductal curvature index or ductal tortuosity index, the method for measurement and results are the same.

Our study was the first to propose a quantitative threshold for the ductal tortuosity that could be helpful to predict the outcome in high-risk patients. In addition, we

have mentioned that futures studies (possibly multi-centre studies) should confirm our results or to propose another accurate threshold (5).

Finally, we hope, while now there is more interest in the subject, the arguments in future articles and meetings will increase and the best possible name will develop from this fruitful discussion.

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