Indian Heart Journal 70 (2018) 765

Contents lists available at ScienceDirect

Indian Heart Journal

journal homepage: www.elsevier.com/locate/ihj

Letter to the Editor

Three-dimensional echocardiographic systolic dyssynchrony index-what is the correct cut-off?

Dear Editor,

I read with interest, the original article titled "Three-dimensional echocardiographic evaluation of mechanical dyssynchrony in systolic heart failure with narrow QRS complex" published in your esteemed journal.[1] The authors have used 12-segment systolic dyssynchrony index (SDI) and have chosen the cutoff value as > 10% "in accordance with the observations reported by the investigators who introduced and validated this parameter" (under methods, 2.2 echocardiography section). The authors here have given the reference of the landmark article by Kapetanakis et al[2] Having gone through this article in detail and other related texts, I find that the SDI investigated and reported by Kapetanakis et al was based on 16 segments and the cutoff for significant dyssynchrony recommended was >8.3%. I fail to find any explanation for the aforementioned information in the article and therefore seek clarification from the authors on this point. All the studies carried out subsequently using SDI have used the cutoff of >8.3% to the best of my knowledge.[3]

Conflict of interest

All authors have none to declare.

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9 August 2018
Available online 5 September 2018

Response to the letter to the editor

Dear colleague,

Thank you for taking interest in our article. As rightly pointed out by you, the article by Kapetanakis et al[1] has reported and validated 16-segment left ventricular mechanical dyssynchrony (LVMD) and has "arbitrarily" selected a value of >8.3 as cutoff for significant LVMD. We analyzed 12-segment LVMD, instead of 16 segments considering the torsion mechanics of the left ventricle. The same has been carried out by Yu et al[2] while assessing LVMD (Yu index) using tissue Doppler imaging.

Regarding the difference in cutoff for significant LVMD, Kapetanakis et al hypothesized this figure before validation, based on the mean value of systolic dyssynchrony index (SDI) observed in their normal population and considered mean plus 3 times the standard deviation as representative of the higher limit for normal SDI. However, while analyzing the echocardiographic differences between cathode ray tube (CRT) responders and nonresponders, they found that SDI value that correlated with response to CRT was 16.1 ± 5.1 (Table 4).[1] Hence, the minimum SDI that correlated with CRT response was much above the arbitrarily selected value of 8.3. Also, the SDI in nonresponders was 7.1 ± 3.6, indicating that even SDI value of 10 did not correlate with CRT responsiveness. Based on these data and the fact that 12-segment SDI cutoffs have not been established, we arbitrarily selected the SDI value of 10 as cutoff for significant LVMD. However, as already mentioned in the conclusions section, these indices need to be clinically validated for CRT responsiveness.

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https://doi.org/10.1016/j.ihj.2018.08.020