Mechanical dyssynchrony according to validated cut-off values using gated SPECT myocardial perfusion imaging

In an attempt to grade the severity of mechanical dyssynchrony, Aguade'-Bruix et al. classified 408 patients prospectively into 4 groups based on the presence or the absence of any software-generated myocardial perfusion gated SPECT dyssynchrony parameters such as standard deviation, bandwidth, skewness, and kurtosis.¹ The authors found that an increase in the degree of agreement between those measurements elevated the chance for future cardiac resynchronization therapy (CRT). Several limitations are worth mentioning:

1. The choice of the endpoint: In this heterogeneous patient population, only 17.8% (46 patients) had a left bundle branch block (LBBB), yet a total of 82 patients received CRT. The fact that only about half of the patients had LBBB would suggest that a significant amount of the CRT patients did not meet class I (and possibly either IIa) indication. Additionally, the lack of follow-up for the CRT group and shortfall in reporting major cardiovascular outcomes make the presented classification clinically less relevant. Our study found that, among common dyssynchrony parameters, bandwidth correlated best with cardiovascular and all-cause mortality.²
2. Use of cut-off values: The decision to select distinct cut-off values for dyssynchrony parameters is a common practice for publications relating to this topic. However, our group demonstrated that such a threshold does not exist using the largest sample size as well as the longest follow-up period to date.³ In this study, the correlation between the degree of dyssynchrony and mortality was continuous. As a

consequence, statistical modeling should be applied where possible. We do recognize the significance of cut-off values in clinical medicine and their utility for predictive tools. In order for clinicians to start utilizing SPECT-generated mechanical dyssynchrony, future studies have to use a randomized approach to evaluate the impact of a simple or more complex prediction tool for the choice of CRT.

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