Reply: Correlation between clinical outcomes and appropriateness grading for referral to myocardial perfusion imaging for preoperative evaluation prior to non-cardiac surgery

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The authors would like to thank Gibbons and Hodge[1] and Petretta and Cuocolo[2] for their insightful comments on our paper, entitled ''Correlation between clinical outcomes and appropriateness grading for referral to myocardial perfusion imaging for preoperative evaluation prior to non-cardiac surgery.''[3]

We fully agree that a larger sample size may have improved the power and applicability of our results, as shown by the wide confidence limits of our results, and had highlighted these concerns in the limitations section of our paper. The limited sample size of our paper was partly a result of having focused on the 90-day follow-up time period after surgery, which we had reasoned as the main purpose of performing MPI as pre-operative risk stratification.

In Figure 4, we had meant to show the distribution of all events in the study. Hence, we used as a denominator the total number of patients (1/176 = 0.6%) rather than the number of patients in each subgroup. We realize that this might easily be misinterpreted and that we should have made this clearer in the legend.

Because we were familiar with SPSS, our team used this statistical package for the analysis of data. For proportions, SPSS does not readily have a function to generate 95% confidence limits. Hence, the 95% confidence limits that we generated for proportions were based on a likelihood-based method,[4] which was then manually computed through SPSS [$r\ \ln\Theta + (n - r)\ \ln(1 - \Theta) \geq r\quad \ln p + (n - r)\quad \ln\quad (1 - p) - z^2/2$][4] (readers are referred to reference and related texts for more information). We now realize that there was a computational error when this was done manually; not only that, this method was not the most appropriate for this dataset.[5] Using this method, for Table 2, we should actually obtain results for 95% confidence intervals as follows: 0.68-6.86, 5.02-41.73, 1.83-29.10; and 4.34-28.31 for SSS = 0, 1-5, 6-10 and ≥11, respectively, instead of the results that were originally reported in our study. We sincerely apologize for this error.

We agree with, and have learnt much from both authors' comments. As discussed by Petretta and Cuocolo, the method used by the statistical package, as well as the approximations and corrections used, may all have accounted for the differences.[4] This may explain the different confidence intervals generated by different methods and software packages. Using Stata, we were also able to reproduce the 95% confidence limits reported by Petretta and Cuocolo, specifically using Wilson's method. Wherever the confidence limits were wide and overlapping, we were careful not to draw strong conclusions. Although the statistical technique employed to generate 95% confidence limits for proportions in the paper through SPSS may not have been the most appropriate for our data, the raw absolute numbers are valid.

In summary, we do agree that the results of our study have been limited by the sample size and can be regarded as the only hypothesis generating at this point. We gratefully acknowledge the editorial comments and the letters from Gibbons and Hodge[1] and Petretta and Cuocolo[2]

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