

## A NEW SET OF INTRAVASCULAR ULTRASOUND-DERIVED ANATOMICAL CRITERIA FOR DEFINING FUNCTIONALLY SIGNIFICANT STENOSES IN SMALL CORONARY ARTERIES RESULTS FROM INTRAVASCULAR ULTRASOUND DIAGNOSTIC EVALUATION OF ATHEROSCLEROSIS IN SINGAPORE (IDEAS) STUDY.

i2 Poster Contributions

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Authors: *Chi Hang Lee, Bee-Choo Tai, Chao-Yang Soon, Adrian F. Low, Kian-Keong Poh, Tiong-Cheng Yeo, Gek-Hsiang Lim, James Yip, Abdul Omar Razakjr, Swee-Guan Teo, Huay-Cheem Tan, National University Heart Centre, Singapore, AL, Singapore, Alexandra Hospital, Singapore, AL, Singapore*

**Background:** We sought to determine the intravascular ultrasound (IVUS)-derived anatomical criteria for functionally significant lesions in small coronary arteries (reference segment diameter below 3 mm).

**Methods:** Fractional flow reserve (FFR)  $<0.75$  determined using high-dose (100-150  $\mu\text{g}$ ) intracoronary adenosine was used as gold-standard for functional significance. 94 patients/lesions, with average reference segment diameter 2.72 mm, were recruited.

**Results:** FFR was  $<0.75$  in 38 (40.4%) and  $\geq 0.75$  in 56 (59.6%) patients. Logistic regression analysis identified minimal lumen area (MLA), plaque burden and lesion length to be the most important determinants of FFR. Based on CART analysis, the best cut-off values which discriminates FFR  $<0.75$  versus  $\geq 0.75$  were  $\text{MLA} < 2.0\text{mm}^2$  (sensitivity, 82.35%; specificity, 80.77%), plaque burden  $\geq 80\%$  (sensitivity, 87.9%; specificity, 78.9%) and lesion length  $\geq 20\text{mm}$  (sensitivity, 63.6%; specificity, 78.9%). ROC (Figure) comparing plaque burden (black), MLA (red) and MLA + lesion length + plaque burden (blue) showed a significant increase in the AUC for the combined parameters, as compared with plaque burden ( $p = 0.014$ ) and other individual parameters ( $p < 0.001$ ).

**Conclusions:** We found that, for small coronary arteries,  $\text{MLA} < 2.0\text{mm}^2$ , plaque burden  $\geq 80\%$  and lesion length  $\geq 20\text{mm}$  are able to predict functional significance of intermediate lesions with good sensitivity and specificity.

