**THE LEFT ATRIAL APPENDAGE FRACTAL DIMENSION IN ATRIAL FIBRILLATION**

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**Background:** Atrial fibrillation (AF) is associated with left atrial appendage (LAA) thrombosis and systemic embolism. The pathogenetic role of LAA morphology in this process has recently been established. Current AF management relies on clinical scoring to stratify risk and guide treatment decisions. Further refinement may improve management of intermediate risk patients. The current study demonstrates a method to quantify LAA morphologic complexity from three-dimensional images as a fractal dimension (FD) and assesses its relationship with clinical outcomes in AF.

**Methods:** We identified patients with AF that underwent cardiac computed tomographic angiography and grouped them on presence or absence of prior stroke (CVA) or transient ischemic attack (TIA). Image-processing software (3D Slicer, Boston, MA) was used to isolate each LAA before FD calculation. LAA FD was compared between groups and predictive value of LAA FD to identify prior CVA/TIA was assessed using logistic regression.

**Results:** See Table. Baseline characteristics were similar between groups. No significance difference in LAA FD was identified between groups. A regression model using LAA FD to predict prior CVA/TIA did not demonstrate significant predictive ability.

**Conclusion:** The LAA FD is a numerical index of LAA morphologic complexity readily obtainable from cross-sectional images. Further studies with larger samples are needed to clarify its clinical significance in patients with AF.