Objective:
We aim to analyze short-term atrial fibrillation (AF) imaging system.

Results:
Mean number of ablations/animal was 3. MS during bipolar energy delivery was measured at 2.5% above nominal respiratory motion. Table 1 shows the average and range of lesion depths. Gross and histological examples of lesions are shown in Figure 1. No steam pops were observed during the studies. No evidence of thermal damage was noted on gross examination. Table 1. Voltage delivery range and Bipolar:Unipolar ratio effect on lesion depth

Conclusion:
A sinusoidal waveform is feasible and can be delivered over a range of voltages and bipolar:unipolar energy delivery ratios to alter the lesion depth. Additional work is required to characterize MS during other energy delivery modalities and optimize lesion depth in the atrium and ventricle.

Delivered Voltage Range 1.895 - 2.465V

<table>
<thead>
<tr>
<th></th>
<th>Bipolar (n = 2)</th>
<th>2:1 Bipolar: Unipolar (n = 1)</th>
<th>Unipolar (n = 8)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chronic 4-8 days (average lesion depth)</td>
<td>5.36mm</td>
<td>6.14mm</td>
<td>11.18mm</td>
</tr>
<tr>
<td>Chronic Lesion Depth Range (average lesion depth)</td>
<td>4.65 - 6.07mm</td>
<td>6.14mm</td>
<td>5.76 - 20.08mm</td>
</tr>
</tbody>
</table>

Figure 1. Examples of Gross and Histologic Findings

Bipolar

Gross Pathology

Histology

Unipolar

Gross Pathology

Histology

2:1 Bipolar:Unipolar

Gross Pathology

Histology

Solid white lines indicate maximum lesion depth

Dashed white lines indicate additional measurements used to calculate average depth

PO-624-07

ADVERSE EVENTS OF PENTARAY CATHETER VERSUS HIGH DENSITY GRID CATHETER: A REVIEW OF MAUDE DATABASE
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Background:
Catheter ablation (CA) technology has evolved quickly leading to innovative multipolar mapping catheters with unique shapes and material. While these catheters have tremendously helped in reducing the procedural time and increasing the mapping resolution, they can potentially lead to increased procedural complications, a facet of practice that has not been compared head to head between the two leading multipolar catheters i.e Biosense Webster Pentaray catheter (PA) and Ensite high density mapping catheter (HD Grid).

Objective:
To analyze the adverse events (AE) associated with PA catheter and HD Grid catheter that were reported to the Manufacturer and User Facility Device Experience (MAUDE) database.

Methods:
We conducted a retrospective cross-sectional study of the mapping catheter reports submitted to MAUDE from January 2010 to October 2021. The reports were validated by two independent reviewers and differences were resolved by consensus. Relative odds ratio (ROR) was used to compare the risk of adverse events between the two catheters.

Results:
We identified 343 AE with PA catheter and 112 AE with HD grid catheter. PA catheter has a disproportionately higher number of reports for physical entanglement with cardiac structures (18%; ROR 1.20), thrombus/tissue on the catheter (18%; ROR 4.81), cardiac arrest with return of spontaneous circulation (ROSC) (21%; ROR 3.33) and ST elevations on EKG (2%; ROR 2.31) compared with HD grid catheter. HD grid catheter on the other hand had disproportionately higher reporting for cardiac perforation (29%; ROR 2.33), stroke/transient ischemic attack (13%; ROR 10.45) and death (4%; ROR 2.08).

Conclusion:
Use of PA catheter was associated with higher number of catheter entanglement with cardiac structures, development of thrombus/tissue on the catheter, cardiac arrest with ROSC and ST elevations on EKG compared with HD grid catheter whereas HD grid catheter was associated with higher number of cardiac perforation, stroke and death.