

VERMONT: CAAS-vFFR Assessment of Stenosis Severity

Background

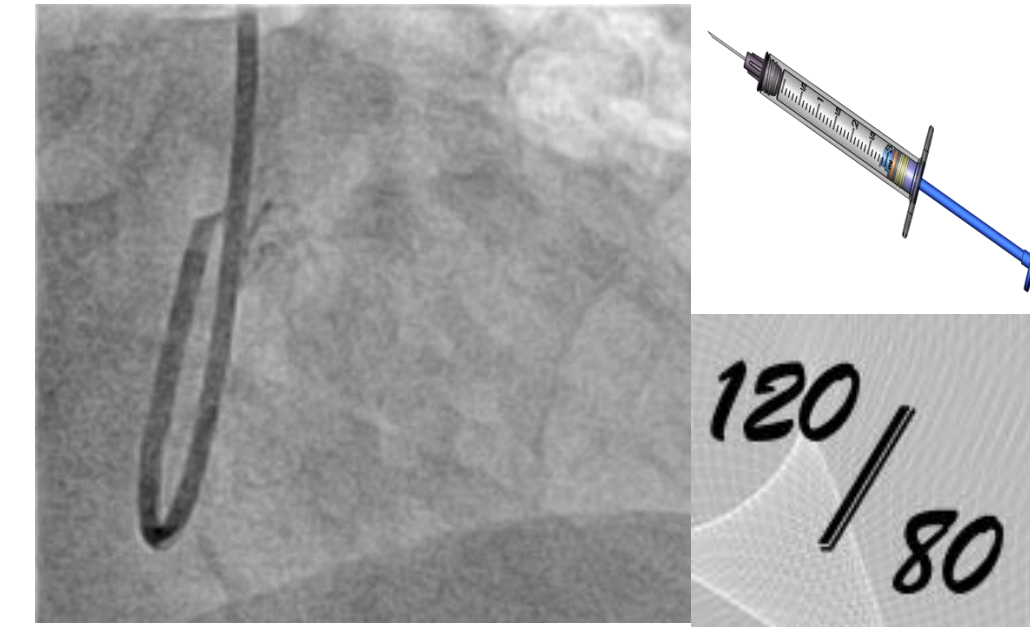
- Fractional Flow Reserve (FFR) is the gold-standard for guiding revascularisation decisions in intermediate coronary artery stenosis (40-69%).
- There has been limited uptake of three-dimensional quantitative angiography based FFR due to real-world measurement variability, inaccuracy, exclusion rates and poor workflow.
- The CAAS-vFFR (Pie-Medical) platform has good preliminary results from recent industry sponsored validation studies.

Methods

- We conducted an investigator-initiated, single-centre, blinded, prospective observational study assessing the concordance, validity and time efficacy of CAAS-vFFR compared to patients undergoing routine wire-based FFR for intermediate coronary stenoses.
- The study was performed at Campbelltown Hospital, in Sydney, Australia. 209 consecutive patients with 225 lesions were recruited over 19 months. FFR and vFFR analyses were performed simultaneously.

CAAS-vFFR

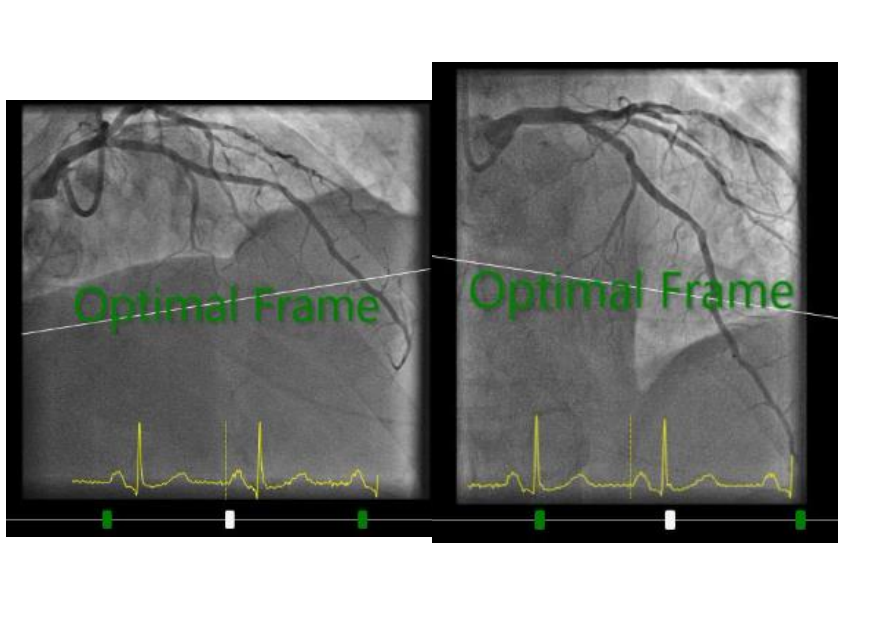
STEP 1. Engage + GTN + Root Pressure



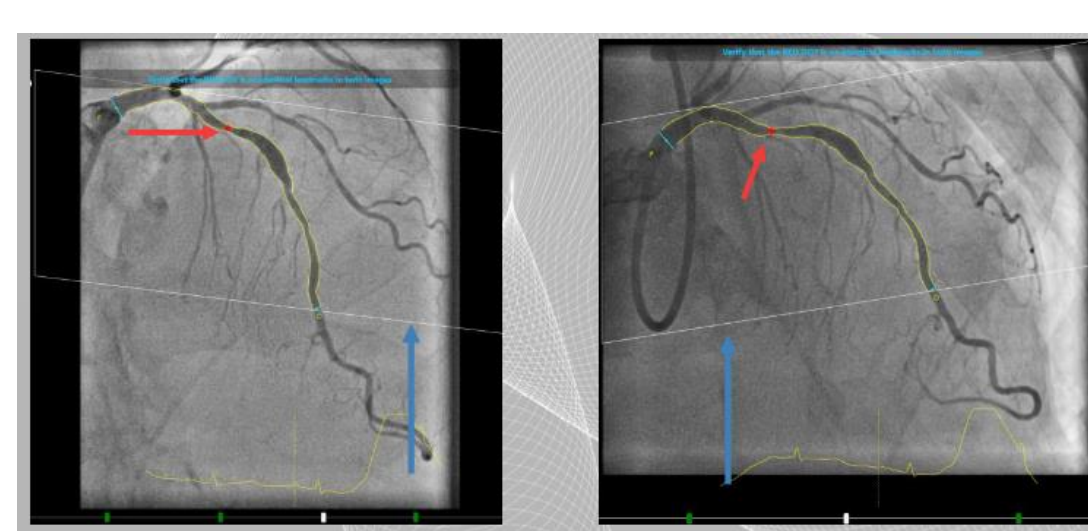
STEP 2. Obtain two orthogonal views



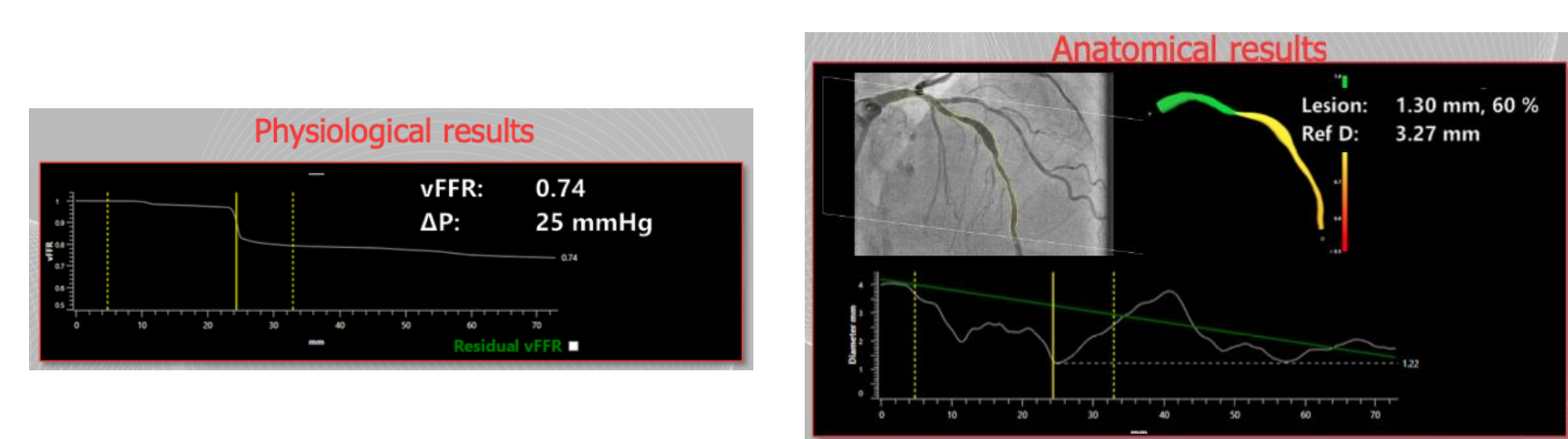
STEP 3. Choose Optimal Frame



STEP 4. Outline Contour + common image point



STEP 5. Physiological + Anatomical Results



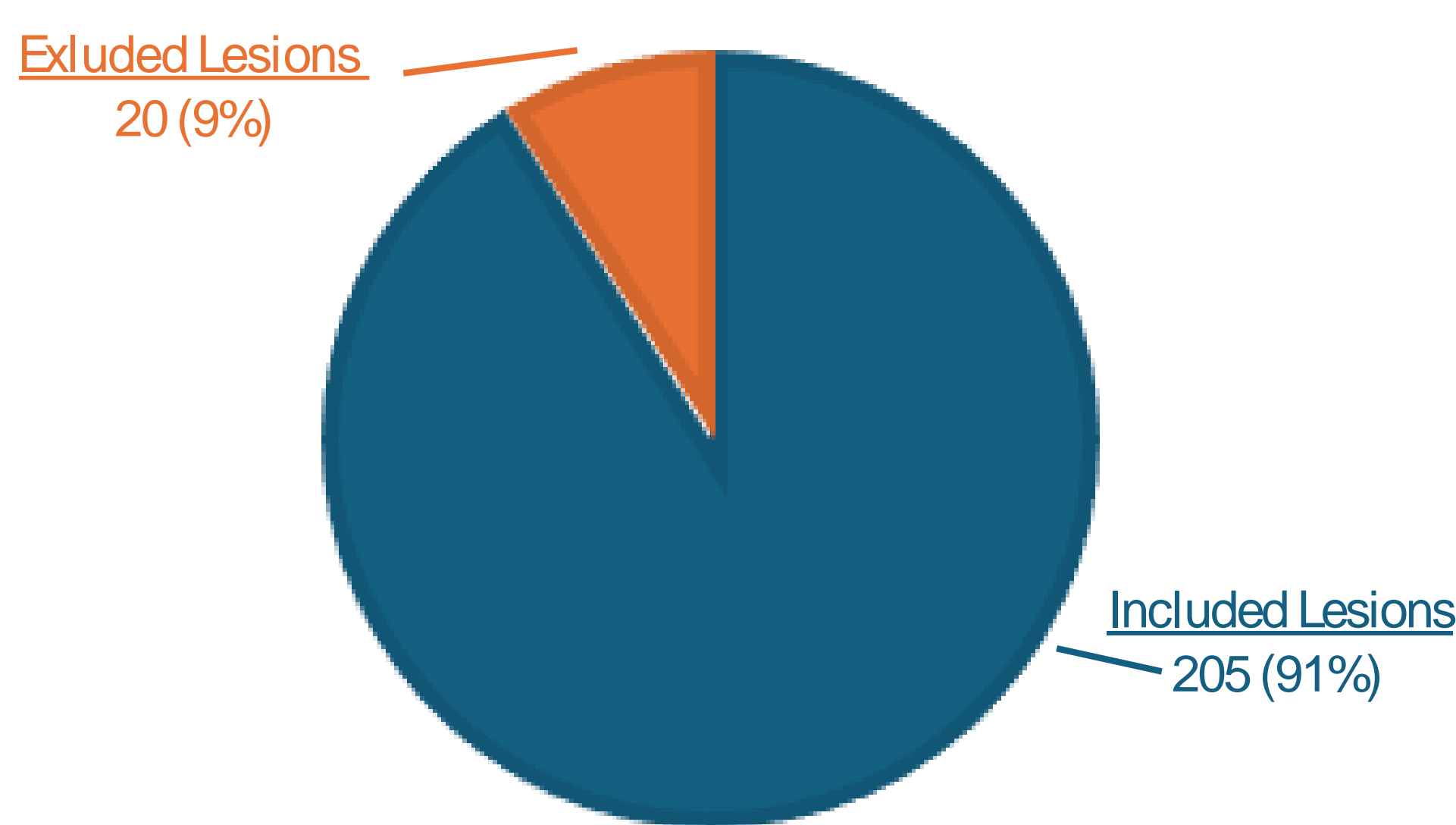
Discussion and Conclusions

CAAS-vFFR vs. FFR

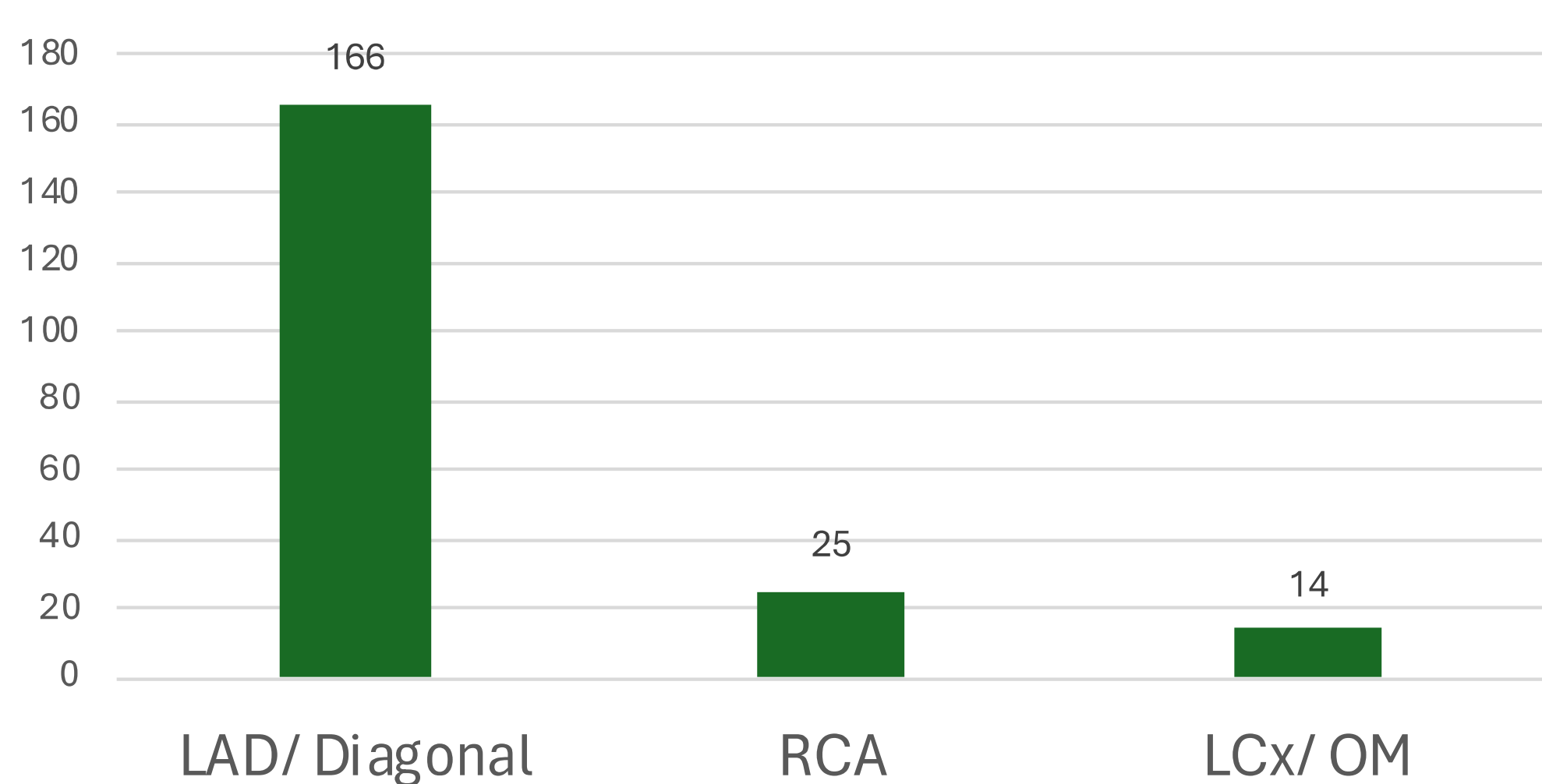
- High Sensitivity
 - High Negative Predictive Value
 - Excellent Diagnostic Accuracy
 - Excellent Time Efficacy
 - Low Exclusion Rate
- These results reflect the potential for vFFR to be utilized as a reliable screening tool for intermediate lesions.
- If a positive vFFR (≤ 0.80) is obtained, progression to wire based FFR is recommended.

Results

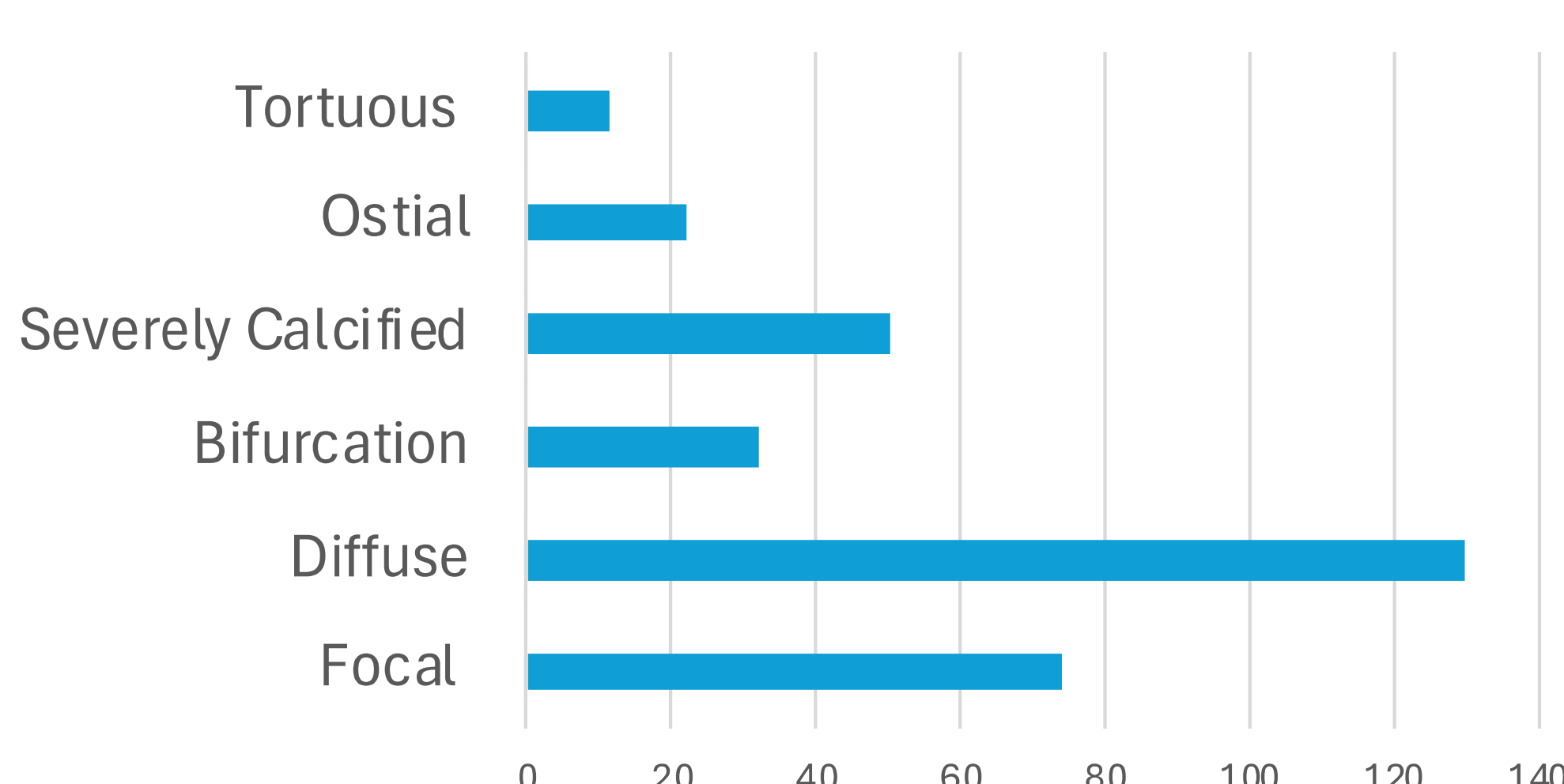
TOTAL LESIONS: 225



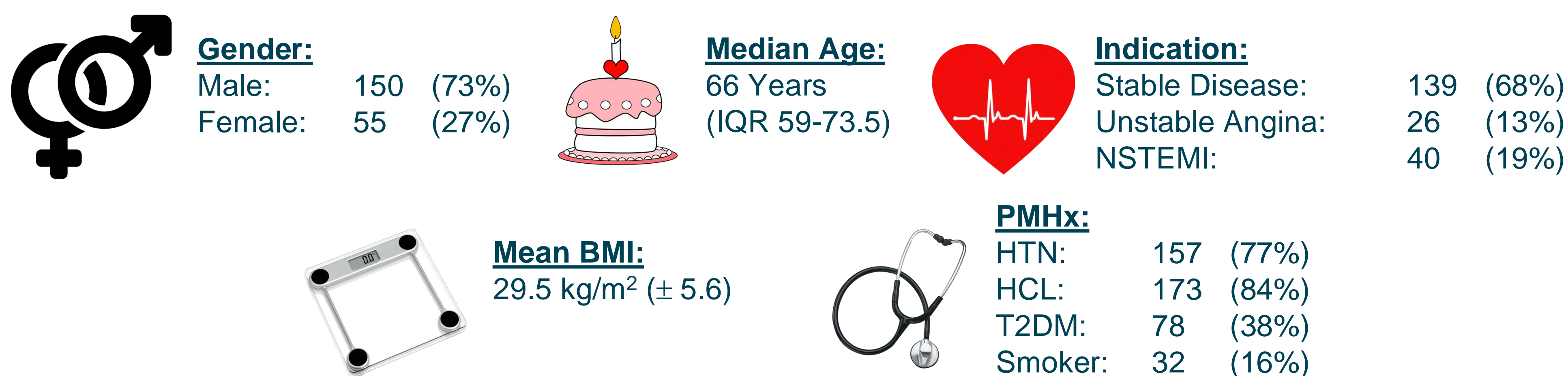
Lesion Location



Lesion Characteristics



Baseline Characteristics



| Indices | Results |
|---------------------------------|--------------------|
| FFR, mean ± SD | 0.81 ± 0.08 |
| vFFR, mean ± SD | 0.79 ± 0.09 |
| FFR/ vFFR Correlation (Pearson) | R = 0.68 p < 0.001 |
| FFR ≤ 0.80, n (%) | 82 (40%) |
| vFFR ≤ 0.80, n (%) | 100 (49%) |

| Validity Measures | vFFR ≤ 0.80 cut off | vFFR ≤ 0.81 cut off |
|---------------------|---------------------|---------------------|
| Sensitivity | 90% | 98% |
| NPV | 93% | 98% |
| Specificity | 79% | 71% |
| PPV | 74% | 68% |
| Diagnostic Accuracy | 83% | 81% |

Computational Times



p < 0.001

