PACman Paramedic Angiographic Correlates: Utility of the Los Angeles Motor Score (LAMS) in Predicting Large Vessel Occlusions

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Introduction

- Endovascular therapy significantly improves patient outcomes with Large Vessel Occlusions (LVO)

- Not all primary stroke centers can deliver endovascular care

- Emergency medical services are now tasked with routing large vessel occlusions to endovascular capable facilities

- We sought to describe the utility of the Los Angeles Motor Score (LAMS) and of other physical findings for predicting the presence of a large vessel occlusion in a population of stroke code patients examined by paramedics and EMTs.

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Methodology

- Stony Brook Medicine- tertiary care center ED
  - Convenience sample of stroke code patients
- Hospital-based paramedics examined patients in the ED
  - Included the history elements of LAMS
  - Assessed for elements of the RACE score
    - leg weakness, visual disturbances, altered level of consciousness, and language abnormalities
- Calculated sensitivity and specificity of LAMS at various levels and similarly for elements of the RACE score

Results

TOTAL PATIENTS = 332, 140 STROKE (42%)
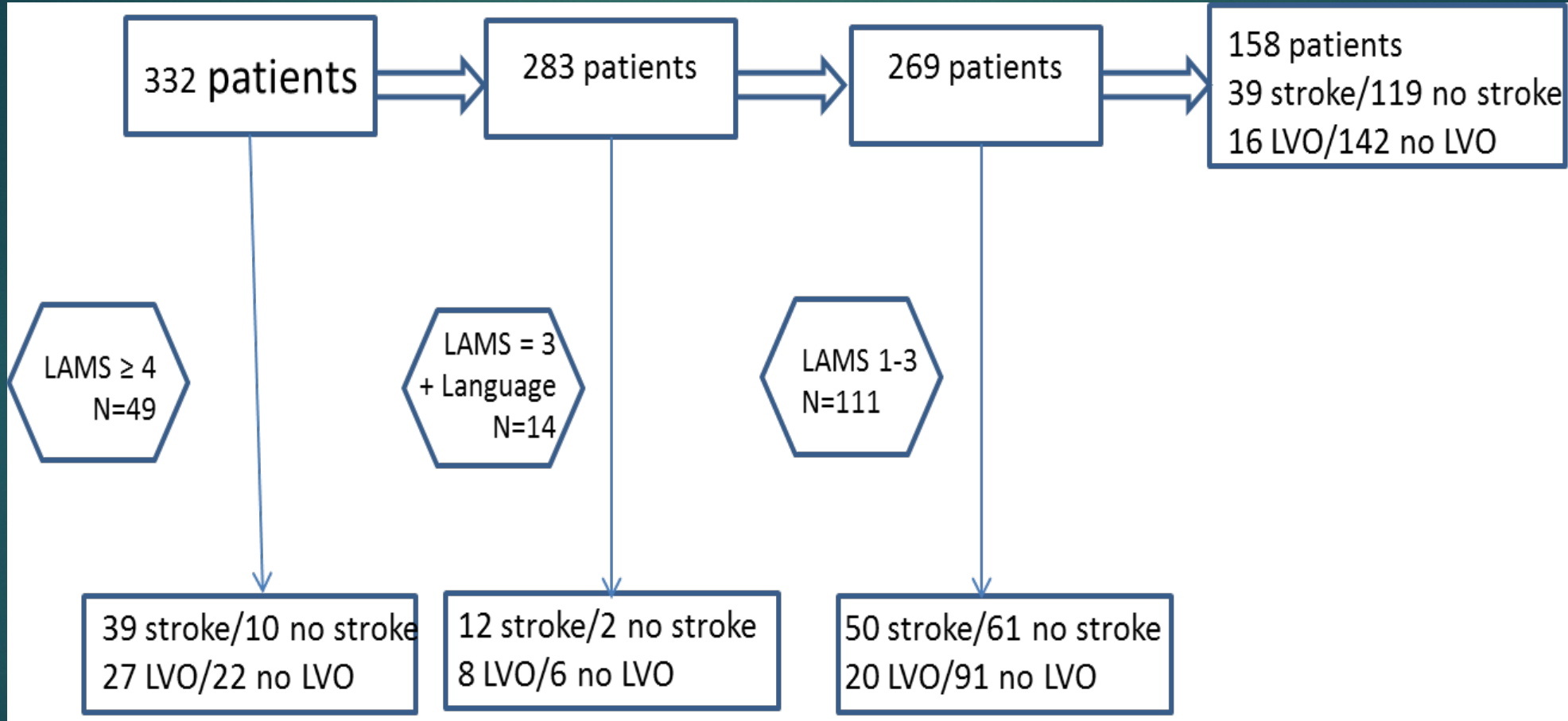
ROC characteristics for detecting acute stroke

RULE	SENSITIVITY	SPECIFICITY	PPV	NPV
LAMS >= 4	28 (39/140)	95 (182/192	80 (39/49)	64 (182/283)
LAMS >= 4 OR LAMS = 3 + LANGUAGE	36 (51/140)	94 (180/192)	81 (51/63)	67 (180/269)
LAMS >=4 OR LAMS =3 + LANGUAGE OR LAMS >= 1	72 (101/140)	62 (119/192)	58 (101/174)	75 (119/158)

ROC characteristics for detecting LVO

RULE	SENSITIVITY	SPECIFICITY	PPV	NPV
LAMS >= 4	38 (27/71)	92 (239/261)	55 (27/49)	84 (239/283)
LAMS >= 4 OR LAMS = 3 + LANGUAGE	49 (35/71)	89 (233/261)	56 (35/63)	87 (233/269)
LAMS >=4 OR LAMS =3 + LANGUAGE OR LAMS >= 1	77 (55/71)	54 (142/261)	32 (55/174)	90 (142/158)

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Conclusions

- When performed by paramedics and EMTs in an enriched stroke code population, the LAMS score can be used to identify Large Vessel Occlusions with high specificity.

- The addition of aphasia identified cases missed by LAMS score alone while improving positive predictive value. More data are required to identify the utility of other findings in the prediction of large vessel occlusion.

- The overall poor sensitivity of all stroke scales for stroke in general is unlikely to change.