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# ENDOVASCULAR TREATMENT IN ACUTE LARGE VESSEL OCCLUSION DUE TO INTRACRANIAL ATHEROSCLEROSIS

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**NORDICTUS network**



# INTRODUCTION

- Acute large vessel intracranial occlusions (LVO) may be due to **underlying intracranial atherosclerosis (ICAS)** and may be treated with **acute endovascular procedures** (stent retrievers, aspiration)
- Patients with **ICAS-related acute LVO** may suffer from **early reocclusions during thrombectomy** and **often require rescue therapy** with angioplasty, stenting and/or infusion of glycoprotein IIb/IIIa inhibitors (i.e tirofiban) to achieve successful recanalization.
- However, as stated in recent ESO Guideline on ICAS management, **there is a lack of evidence on the use of those procedures in the acute phase of stroke.**

# OBJECTIVES



- To evaluate the percentage of **patients with LVO due to intracranial atherosclerosis (ICA) among all acute thrombectomies** in our setting (NORDICTUS registry)
- To evaluate the **clinical, procedural, and prognostic variables** in those patients, compared to other etiologies.

# METHODS

- Prospective **registry of patients treated with endovascular therapy** in the acute phase in **NORDICTUS registry (Spain)**, from 1/1/18 to 5/1/22.
- **NORDICTUS network**: 13 tertiary centers, 11 million reference population
- **Baseline, procedural, and prognostic variables** were compared between the following **etiological groups**:
  - **ICA**: intracranial atherosclerosis
  - **ECA**: extracranial atherosclerosis
  - **OE**: other etiologies



# RESULTS: POPULATION INCLUDED



From  
1/1/18 to 5/1/22



4574

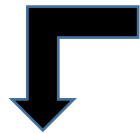
patients with LVO treated with thrombectomy



756 **ATHEROTROMBOTIC** (16.5%)



3818 **OTHER ETIOLOGIES (OE)**



225 **ICA**



531 **ECA**



2414 **cardioembolic** (52.7%)  
1208 **undetermined** (26.4%)  
198 **other determined**: dissections,  
hypercoagulability states...



**4.9 %**



**11.6 %**

## RESULTS: BASELINE VARIABLES IN DIFFERENT ETIOLOGIC GROUPS

	ICA (n= 225)	ECA (n=531)	OE (n=3818)
Age, years	70.3±11	70.4±11	<b>74.3±12.5</b>
Gender, men (%)	67.7	<b>72.3</b>	47.2
HT (%)	<b>70</b>	63	64
DM (%)	<b>29</b>	24	20
Coronary Disease	12	14	14
Smoking (active)%	<b>32</b>	<b>36</b>	20
Alcohol>40g/day (%)	<b>15</b>	<b>15</b>	6
Total Cholesterol	<b>163±46</b>	158±39	156±44
LDL, mg/dl	<b>97±36</b>	93±34	91±40
HDL, mg/dl	43±12	42±13	<b>45±15</b>
Glucose, mg/dl	<b>136±55</b>	125±42	124±42
Tryglicerids, mg/dl	<b>125±93</b>	118±54	101±45

*Unpublished preliminar results. Do not copy or distribute*

## RESULTS: BASELINE VARIABLES IN DIFFERENT ETIOLOGIC GROUPS

	ICA (n= 225)	ECA (n=531)	OE (n=3818)
<b>Baseline NIHSS, median</b>	14[8-19]	15[9-19]	<b>16[10-20]</b>
<b>Main intracranial occlusion (%)</b>			
- TICA	<b>19</b>	16	13
- MCA-M1	39	54	53
- MCA-M2	14	17	23
- Basilar	<b>19</b>	3	6
<b>Posterior circulation (%)</b>	<b>26</b>	5	9
<b>ASPECTS socore</b>	9[8-10]	9[7-10]	9[8-10]
<b>Hyperdense vessel sign</b>	<b>38</b>	60	53

## RESULTS: PROCEDURAL VARIABLES IN DIFFERENT ETIOLOGIC GROUPS

PROCEDURAL VARIABLES	ICA (n= 225)	ECA (n=531)	OE (n=3818)
Number of passes	<b>2[1-3]</b>	1[1-2]	1[1-2]
Final TICI 2b-3 (%)	<b>83</b>	89	90
Acute stent-intracranial (%)*	<b>18</b>	0.6	0.7
Acute stent-extracranial (%)	6	<b>51</b>	2
Time of procedure, minutes	<b>50[30-95]</b>	<b>54[34-80]</b>	35[20-60]
General Anesthesia (%)	<b>66</b>	47	41
Prior IV rTPA (%)	<b>21</b>	29	26

\*Intracranial stenting was not associated with symptomatic intracranial hemorrhage or mortality



## RESULTS: PROGNOSTIC VARIABLES IN DIFFERENT ETIOLOGIC GROUPS

	ICA (n= 225)	ECA (n=531)	OE (n=3818)
SICH (%)	5.6	7.4	5.8
Intrahospital mortality(%)	15.6	12.5	11.2
Good functional outcome 3m (%)*	<b>39.8</b>	48.7	46.5
Mortality 3m (%)**	<b>25</b>	16.4	21

**\*ICAS was an independent predictor of functional outcome at 3m (mRS 0-2 or stability if baseline mRS>2) in logistic regression analysis adjusted by age, gender, DM, HT, baseline NIHSS, anterior/posterior circulation, prior tPA use and final TICl: OR 0.58 [0.40-0.85], p 0.015**

**\*\*ICAS was not an independent predictor of mortality at 3m in logistic regression analysis adjusted by age, gender, DM, HT, NIHSS, anterior/posterior circulation, prior tPA use, final TICl**

# CONCLUSIONS

- In almost **5%** of patients treated with acute thrombectomy in NORDICTUS registry, LVO occlusion was due to ICA.
- **Acute intracranial stenting was used in 18% of ICA patients** and not associated with ICH or prognosis
- **ICAS was associated with a greater complexity of the endovascular procedure** (more passes, longer procedural time, lower complete recanalization rates) and **worse functional outcome at three months**
- **Clinical trials evaluating acute endovascular procedures** (new devices, intraarterial drugs) **in ICA-LVO occlusions are needed**



**THANKS**