

# A longitudinal retrospective study on intracranial arterial pulsatility index: its evolution in ten years' time and how it relates to the occurrence of cerebral and systemic ischemic disease .

M. Suárez Pinilla <sup>1</sup> ; L. Benavente Fernández <sup>1</sup> ; S. Calleja Puerta <sup>1</sup>

<sup>1</sup> Hospital Universitario Central de Asturias / Department of Neurology, Oviedo, Spain

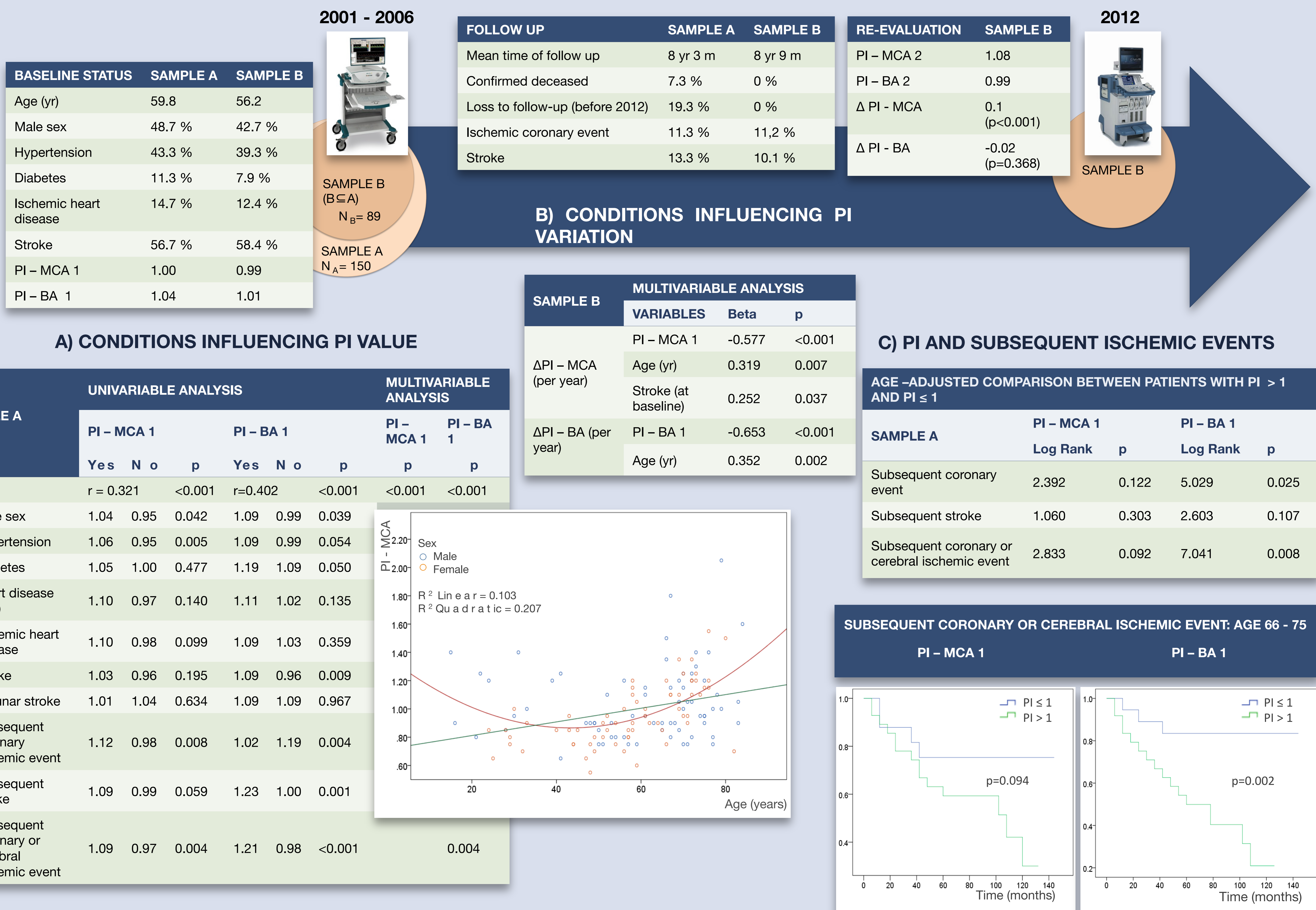
## BACKGROUND AND PURPOSE:

Intracranial arterial pulsatility index (PI) has been related to old age, hypertension, diabetes and small vessel disease. However, the cross-sectional design of most studies prevents a proper assessment of causality and evolution. We sought to explore how this index changes through time, which conditions affect this evolution and whether or not it can predict the occurrence of future ischemic events.

## METHODS:

Between the years 2001-2006, 1288 patients underwent a transcranial Doppler evaluation in the Department of Neurology of the Hospital Universitario Central de Asturias. PI values for the middle cerebral and basilar arteries were systematically annotated. After exclusion of deceased patients and significant large artery stenoses, 89 patients were recruited for a re-evaluation in 2012. Afterwards, the sample was expanded up to 150 patients, with 61 randomly selected patients –either alive or deceased- who did not undergo a second exploration. Both groups had their clinical files reviewed, with special attention to vascular risk factors and brain or coronary ischemic events.

## RESULTS:



## CONCLUSIONS:

- Intracranial arterial PI works as a dynamic measure of both cerebral and systemic vascular disease.
- Age is the main factor influencing PI value and variation, but, within a certain age group, PI is able to point subjects at higher risk of future ischemic events.
- Basilar artery PI seems to be a better predictor of cerebral and coronary ischemic disease than middle cerebral artery PI.