

## P18

# Hypertensive patients taking different dosages of anti-hypertensive medication have different hematoma sizes when suffering with intracerebral haemorrhage: Cohort study

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### Background

Hypertension is known to be the most common risk factor for stroke, with more than half (approximately 54%) being attributed to high blood pressure values. Therefore, hypertensive patients are 3 to 4 times more likely to have a stroke than the one with normal blood pressure values [1].

Intracerebral haemorrhage (ICH) is the stroke's subtype with worse prognosis, with more than half of patients dying or becoming dependent after such an event. Predictors are being studied aiming to improve ICH patients' treatment and their final prognosis [2].

The aim of this study was to test if different antihypertensive treatments have different effects on ICH patients as to determinate severity predictors of this disease.

### Methods

A consecutive sample of 188 hypertensive non-traumatic ICH patients, who were non-comatose on admission and medically treated in a stroke unit, were evaluated for in-hospital mortality and three-month functional dependency (modified Rankin Scale > 2) using logistic regression models. A Wilcoxon signed-rank test was used to test the effect of several antihypertensive treatments on hematoma's size. Hematoma volume was also studied using a linear regression model to find out which variables best explain the variation of that volume. From values of  $p < 0.05$  were identified significant explanatory variables.

The regression models that best suit volume and each outcome under study (in-hospital mortality / functional dependency) were chosen between a series of previously tested models; Being the best ones those with lower AIC, higher  $R^2$  and those with  $p > 0.05$  in Hosmer-Lemeshow test (only in logistic regression models).

### Results

In Figure 1, we tested the hypothesis of whether patients taking different anti-hypertensive dosages have different hematoma sizes. It is noticeable that the only possible difference stands in between taking 1 or 2 drugs. This result was confirmed as significant differences were found between hematoma size of patients who took 1 or 2 anti-hypertensives ( $p < 0.001$ ) and between those who were subjected to mono and polytherapy ( $p < 0.001$ ).

No differences were found on patients' hematoma size when comparing with those taking different antihypertensive drugs (Table 1).

**Table 1** - Wilcoxon's p.values for hematoma volume comparison between patients treated with different antihypertensive drugs. Values of  $p < 0.05$  were considered significant.

Antihypertensive	IECA / ARA	BCCa	Beta-blockers	Diuretic
IECA / ARA		0.841	0.519	0.274
BCCa			0.411	0.350
Beta-Blockers				0.758
Diuretic				

#### Keywords:

Hypertension; Intracerebral haemorrhage; Hematoma size

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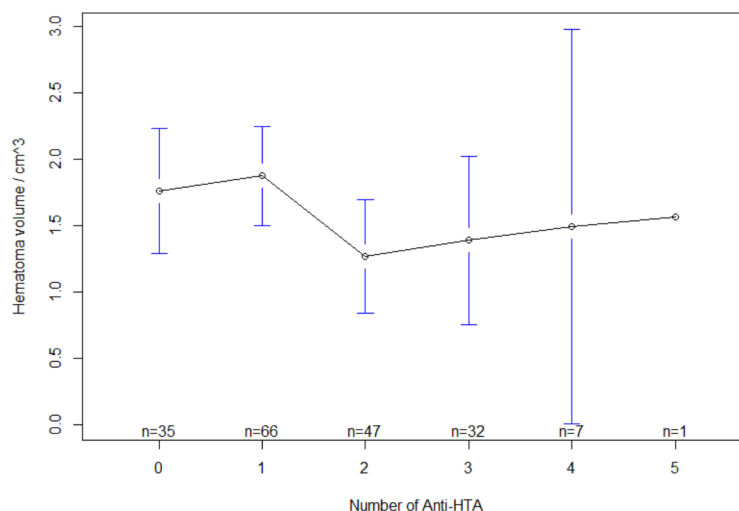
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**Figure 1** – Comparison of hematoma volume in patients who were taking different dosages of antihypertensive drugs.

Hematoma size was found to be associated with diabetes mellitus ( $p = 0.0285$ ), lobar ( $p = 0.0013$ ) and deep location ( $p < 0.001$ ), intraventricular blood presence (IVH) ( $p < 0.001$ ) and taking 1 antiplatelet ( $p = 0.0184$ ). The adjusted logistic model for the in-hospital mortality allowed to identify significant as explanatory variables ( $p < 0.05$ ): age (OR: 1.048) and intraventricular blood presence (OR: 0.055). Functional dependency was also found to be associated with IVH (OR: 0.273) and with age (OR: 1.079).

## Conclusion

Even though no significant differences were found on patients' hematoma size who were treated with different antihypertensive drugs, a statistically significant difference was found between the hematoma volume of hypertense ICH patients who were taking 1 antihypertensive and those who were taking 2 or more, with the ones taking fewer drugs having a bigger hematoma. This conclusion meets the one presented in [3], as the authors say that long-term management of blood pressure through anti-hypertensives is an important component of pharmacotherapy for patients who have suffered an ICH.

Association between the hematoma volume and the presence of intraventricular blood, diabetes mellitus, hematoma location (lobar and deep) and taking 1 antiplatelet was found through a multivariate linear regression model.

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