

**Discrimination of tumorous intracerebral hemorrhage from benign causes using CT densitometry**

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**PURPOSE:** To investigate the diagnostic value of CT densitometry to discriminate between tumorous and non-tumorous causes of acute intracerebral hemorrhage (ICH).

**MATERIALS AND METHODS:** The cohort of this retrospective study was 110 patients with acute ICH, classified into five groups: primary ICH without anticoagulants (group 1) or with anticoagulants (group 2); and secondary ICH with vascular malformation (group 3), brain metastases (group 4), or primary brain tumors (group 5). The five groups were dichotomized into tumorous and non-tumorous ICH. Histogram parameters extracted from acute ICH density on non-enhanced CT were compared between the groups and between tumorous and non-tumorous ICH. Optimal cutoff values were determined using ROC analysis and AUC was calculated for discriminating between tumorous and non-tumorous ICH.

**RESULTS:** Histogram analysis of acute ICH density showed that, compared to groups 4 and 5, group 1 had significantly higher minimum, 5th, 25th, 50th and 75th percentile values, and significantly higher minimum values than group 2. Compared to groups 4 and 5, group 3 had significantly higher 5th percentile values. After dichotomization, all histogram parameters except maximum value and kurtosis were significantly different between tumorous and non-tumorous ICH, with tumors having lower cumulative histogram parameters and positive skewness. In ROC analysis, the 25th percentile value showed the highest diagnostic performance with an AUC value of 0.81 for discriminating between tumorous and non-tumorous ICH.

**CONCLUSION:** CT densitometry of ICH on non-enhanced CT might be useful for discriminating between tumorous and non-tumorous causes of acute ICH.