

Abstract

Objectives: The relationship between stroke etiology and clot pathology remains controversial.

Materials and Methods: We performed histological analysis of clots retrieved from 52 acute ischemic stroke patients using hematoxylin & eosin staining and immunohistochemistry (CD42b and oxidative/ hypoxic stress markers). The correlations between clot composition and the stroke etiological group (i.e., cardioembolic, cryptogenic, or large artery atherosclerosis) were assessed.

Results: Of the 52 clots analyzed, there were no significant differences in histopathologic composition (e.g., white blood cells, red blood cells, fibrin, and platelets) between the 3 etiological groups ($P = .92$). By contrast, all large artery atherosclerosis clots showed a localized pattern with the oxidative stress marker 4-hydroxyl-2-nonenal ($P < .01$). From all 52 clots, 4-hydroxyl-2-nonenal expression patterns were localized in 28.8% of clots, diffuse in 57.7% of clots, and no signal in 13.5% of clots.

Conclusions: A localized pattern of 4-hydroxyl-2-nonenal staining may be a novel and effective marker for large artery atherosclerosis (sensitivity 100%, specificity 82%).