High incidence of lacunar strokes on MRI in Qatar in Intracerebral hemorrhage population

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Background

Our study's aim is to evaluate the incidence of lacunar strokes and white matter disease and distribution on brain MRI among hemorrhagic stroke patients in Qatar.

Methods

Our stroke database prospectively collects information on all suspected stroke in our hospital. Patients who suffered from ICH and had brain MRI were included in our study. The following MRI sequences were reviewed: T2 and Flair. The presence of diffuse white matter disease, location and distribution of lacunes were defined in each case.

Number of lacunes based on age group

Percentages of lacunes based on location of bleed in males and females.

Results

584 patients were included in our analysis who suffered from ICH. 218 patients had brain MRI. Lacunes were seen in 126/218 cases (58%), mean number of lacunes 9 +/- 6.

The distribution of lacunes: superficial (7/126, 6%), deep (37/126, 29%) and diffuse (84/126, 66%). Diffuse white matter disease were present in 53/216 cases (25%).

Lacunes are mainly seen in the presence of basal ganglia ICH (54/126, 43%) followed by lobar ICH (35/126, 28%) then cerebellar ICH (14/126, 11%) and in the presence of HTN-related ICH (81/126, 64%) and possible-HTN related ICH (33/126, 26%) and only in 4/126, 3% cases with cerebral amyloid angiopathy. (P=0.003)

In the logistic regression analysis, the main risk factors for lacunes on brain MRI are HTN as risk factor (adjOR 3, CI95%:1.5-6.2, P=0.002) and age (adjOR:1.1, CI95%:1.01-1.09, P<0.001). HTN as an etiology of ICH remains the main predictor of lacunar stroke (adjOR: 3.1, CI95%:1.3-7.3, P=0.013)

Conclusion

Lacunar strokes and White matter disease are very common on brain MRI of patients with ICH. This could be explained by the etiology of HTN.

References

1. Tveiten A, Ljøstad U, Mygland Å, Naess H. Leukoaraiosis is associated with short- and long-term mortality in patients with intracerebral hemorrhage. J Stroke Cerebrovasc Dis. 2013;22:919–925.
2. Won YS, Chung PW, Kim YB, Moon HS, Suh BC, Lee YT, et al. Leukoaraiosis predicts poor outcome after spontaneous supratentorial intracerebral hemorrhage. Eur Neurol. 2010;64:253–257
3. Fazekas F, Barkhof F, Wahlund LO, Pantoni L, Erkinjuntti T, Scheltens P, et al. CT and MRI rating of white matter lesions. Cerebrovasc Dis. 2002;13 Suppl 2:31–36. doi: 49147