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Comparison of Medical Treatment With Percutaneous Closure of Patent Foramen Ovale for Secondary Prevention of TIAs and Strokes: A Case-Control Study
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Background: Patients with transient ischemic attack (TIA) and stroke related to patent foramen ovale (PFO) are at risk for recurrence. The best treatment for secondary prevention is not known. The purpose of this study was to compare the risk of recurrence between medical treatment and percutaneous PFO closure in patients with TIA and stroke related to PFO.

Methods: A total of 311 patients with TIA or stroke related to PFO were retrospectively included in a case-control study. 161 patients received medical treatment (oral anticoagulation; n=80, platelet inhibitors; n=61, and 15 patients with permanent pacemaker) and 150 patients with percutaneous PFO closure. The actuarial risk of recurrence was calculated and compared between the two groups.

Results: The mean age of the study population was 50±13 years. The two groups were matched for age, sex and presence of an associated arterial stenosis. The overall mean follow-up was 2.3±1.8 years. 8±1.9 years in the medical treatment group and 2.2±1.5 years in the percutaneous PFO closure group. The average annual TIA and/or stroke rate was 6.0% in the medical and 4.5% in the endovascular group (p=0.08). The re were no recurrent major strokes in the percutaneous PFO closure group compared to 7 recurrent events in the medically treated patients (p=0.02). Patients with 2 or more events before enrolment were at higher risk for recurrence when treated medically (11% per year) compared to percutaneous PFO closure (5% per year; p=0.01). Multivariate logistic regression analysis identified arterial hypertension, and more than one anemic event at baseline as significant predictors for recurrence (OR 2.2, 95% CI 1.1-4.9).

Conclusions: Our results indicate a non-significant trend towards decreased recurrence for the combined endpoint of TIA and stroke, and a significant decrease in recurrent major strokes in patients with PFO and presumed paradoxical embolism undergoing percutaneous PFO closure compared with medical treatment. The subgroup of patients with 2 or more events before enrolment had a significantly lower recurrence rate after percutaneous PFO closure compared with medical treatment. Confirmation of these results by a prospective randomized trial with longer follow-up is needed.