Clinical and Angiographic Outcomes of Stent-assisted Coiling of Intracranial Aneurysms

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Purpose:
Despite the increasing use of stent-assisted coiling (SAC), data on its long term clinical and angiographic results are limited. We sought to assess the long-term clinical and angiographic outcomes in SAC in our single center practice.

Methods:
Retrospective analysis of intracranial aneurysms treated with detachable coils period 2003-2012. Patients were divided in SAC and non-SAC were analyzed for aneurysm occlusion, major recurrence and clinical outcome. Logistic regression analyses identified factors associated with clinical/angiographic outcomes (p-value <0.05 was statistically significant).

Results:
A total of 516 procedures met inclusion criteria; 63(12.2 %) underwent SAC of which 56(89%) had an elective procedure whereas 286(63.1%) aneurysms from the non-SAC group were ruptured. In the unruptured subcohort, baseline class I was achieved in 24(38%, p=0.91), pre-discharge modified Rankin Score (mRS) 0-2 was obtained in 96.4% of cases in the SAC group versus 90.4% in the non-stent group. The major recurrence was 9.5% versus 11.3% in the SAC and non-SAC group, respectively (p=0.003). At last clinical assessment, 98.2% of the patients from the unruptured SAC group had mRS 0-2 (mean follow up, 58 months) versus 93.6% (mean follow up, 56 months) in the unruptured non-SAC group (P=0.64). Periprocedural vasospasm was associated with long-term poor outcome in the unruptured SAC subcohort (p=0.0008).

Conclusions:
Stent-assisted coiling and non-SCA techniques show comparable safety and clinical outcome. Stent-assisted coiling technique significantly decreases retreatment rates. Periprocedural vasospasm resulting from vessel manipulation is associated with poor outcome in SAC of unruptured aneurysms.