The Secondary Prevention of Small Subcortical Strokes Trial: Blood Pressure Intervention Results

Written by Emma Hitt, PhD

Small subcortical strokes (S3), or lacunar strokes, account for >25% of brain infarcts. Although S3 are the most common cause of vascular dementia, no clinical trials have focused on this stroke subtype. Oscar R. Benavente, MD, University of British Columbia, Vancouver, Canada, reported blood pressure (BP) intervention results from the Secondary Prevention of Small Subcortical Strokes Trial [SPS3; NCT00059306].

SPS3 enrolled 3020 patients who had experienced lacunar strokes within 180 days, verified by MRI. The median time from the index event to randomization was 62 days. The mean patient age was 63 years, and 63% were male. Patients who had a cortical stroke, cardioembolic disease, and/or carotid stenosis were not eligible for the trial.

In the BP intervention portion of SPS3, patients were randomized to a higher systolic BP (SBP) target of 130 to 149 mm Hg (higher target group, n=1519) or a lower SBP target of <130 mm Hg (lower target group, n=1501). Antihypertensives were not discontinued at study entry, and BP medications were not specified by the study protocol.

The primary outcome was recurrent stroke. During a mean follow-up of 3.7 years, 277 first recurrent strokes occurred. The secondary outcomes were major vascular events, cognitive decline, or death.

The patients reached target BP at around 6 months. At 1 year, the average SBP for the higher target group was 138 mm Hg compared with 127 mm Hg for the lower target group. At the last observed visit, there was an average difference in SBP between the groups of 11 mm Hg.

For the primary outcome, the lower target group had an approximately 19% reduction in ischemic and hemorrhagic strokes compared with the higher target group, but this trend did not reach significance (HR, 0.81; 95% CI, 0.64 to 1.03; p=0.08). However, when ischemic and hemorrhagic strokes were separated, there was a significant reduction in intracerebral hemorrhage in the lower versus the higher target group (HR, 0.37; 95% CI, 0.15 to 0.95; p=0.03). The reduction in ischemic strokes did not reach significance after separating these events.

There were no significant differences between the lower and higher target groups in the secondary outcomes of major vascular events and death. The safety outcomes between the 2 groups were not significantly different, but more patients in the lower target group had complications due to hypotension (HR, 1.53; 95% CI, 0.80 to 2.93; p=0.20), particularly orthostatic syncope (HR, 2.18; 95% CI, 0.76 to 6.27; p=0.14).

Prof. Benavente said, "Achieving a lower systolic blood pressure target was feasible, safe, and well tolerated." An SBP of <130 mm Hg significantly reduced intracerebral hemorrhage by two thirds, and a lower BP is likely to reduce recurrent stroke by approximately 20%, even though this trend did not reach significance. Although this is the only trial that has used target BP levels as an intervention, the results are consistent with data from previous trials of BP lowering after stroke.

Final Results of the Solitaire FR Thrombectomy for Acute Revascularization: The STAR Trial

Written by Muriel Cunningham

Vitor Mendes Pereira, MD, MSc, University Hospital of Geneva, Geneva, Switzerland, presented the results from the Solitaire FR Thrombectomy for Acute Revascularisation trial [STAR; NCT01327989]. This was a prospective, observational, single-arm, multicenter, core lab-reviewed study conducted in high-volume stroke centers that had extensive mechanical thrombectomy experience. The Solitaire FR, a self-expanding retrievable stent, was utilized as a first-intention device in anterior circulation.

The main inclusion criteria were patients aged 18 to 85 years with a National Institutes of Health Stroke Scale (NIHSS) score of 8 to 30, proximal anterior intracranial vasculature, and presentation within 8 hours of the onset of stroke, with a modified Rankin Scale (mRS) score ≤2 prior to stroke onset. Patients who were participating in another study, were pregnant or nursing, had signs of rapid neurological improvement, suffered a stroke within the previous 30 days, had an unknown time of stroke onset, or had a life expectancy <90 days were excluded. Additionally, any patients with evidence of intracranial hemorrhage, arteriovenous malformation, aneurysm, early ischemic changes, carotid dissection, complete carotid occlusions, vasculitis, or stenosis proximal to the thrombus site were excluded.

Of the 682 patients screened, 471 failed screening and 9 withdrew consent, for a total of 202 patients in the final study population. The median age was 72 years (range, 25 to 86), with 122 (60%) females and 80 (40%) males. The median NIHSS at baseline was 17 (range, 8 to 26). Stroke and procedure characteristics are presented in Table 1.