

SAFETY AND EFFECTIVENESS OF EARLY INTENSIVE BLOOD PRESSURE TREATMENT AFTER TIA AND MINOR STROKE: PROSPECTIVE POPULATION-BASED SEQUENTIAL COMPARISON

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Background and Aims: Early BP-lowering is not recommended in major ischaemic stroke, but there is uncertainty in acute TIA/minor stroke, particularly about the safety of early/intensive treatment in non-hospitalised patients. In a prospective population-based three-phase sequential comparison, we determined the feasibility, safety and effectiveness of early/intensive BP-lowering for non-hospitalised TIA/minor stroke.

Methods: All patients with a first acute TIA/minor stroke in the population (Oxford Vascular Study) were included in analyses. In Phase-1(04/2002-09/2004), no antihypertensives were given acutely. In Phase-2(10/2004-03/2008), antihypertensives were prescribed in the acute clinic, but re-measurement/up-titration were left to primary care. In Phase-3(04/2008-03/2019), all patients with measured/suspected hypertension were also offered immediate remote-telemetric home-BP-monitoring (RT-HBPM) with daily physician-guided treatment (target<130/80mmHg). BP-control, safety, and recurrent stroke were assessed at 1,3,6 and 12-month face-to-face follow-ups.

Results: Among 4263 patients (mean/SD age=71/14 years), 567 presented in Phase-1, 738 in Phase-2, and 2958 in Phase-3. Acute-BP and most recent premorbid-BP were stable over time (Figure-1), whereas first post-acute follow-up BP fell stepwise across the study phases ($p<0.001$ at both transitions), driven in Phase-3 entirely by the 1558/2958 patients with RT-HBPM-guided treatment (mean follow-up BP=121.6/69.6mmHg; SD=15.8/9.9). 55/1588 (3.5%) RT-HBPM patients had antihypertensive-related adverse events or treatment reduction during monitoring, but none required hospitalisation. Although baseline predicted stroke risk (Essen Score) was stable across the phases (Figure-1), the observed 30-day, 90-day and one-year risks of disabling/fatal recurrent stroke decreased stepwise (Figure-2; $p<0.001$), particularly if baseline-BP \geq 140/90mmHg (Figure-3).

Conclusions: Early intensive BP-lowering after TIA/minor stroke is safe in non-hospitalised patients and substantially reduces major recurrent stroke at the population level.

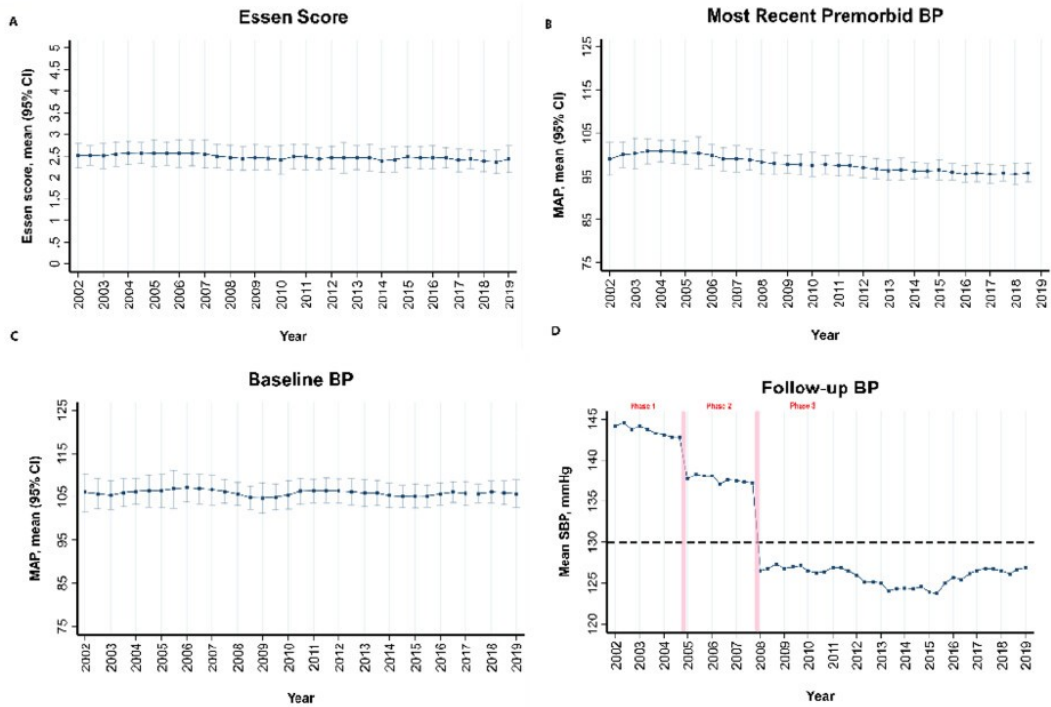
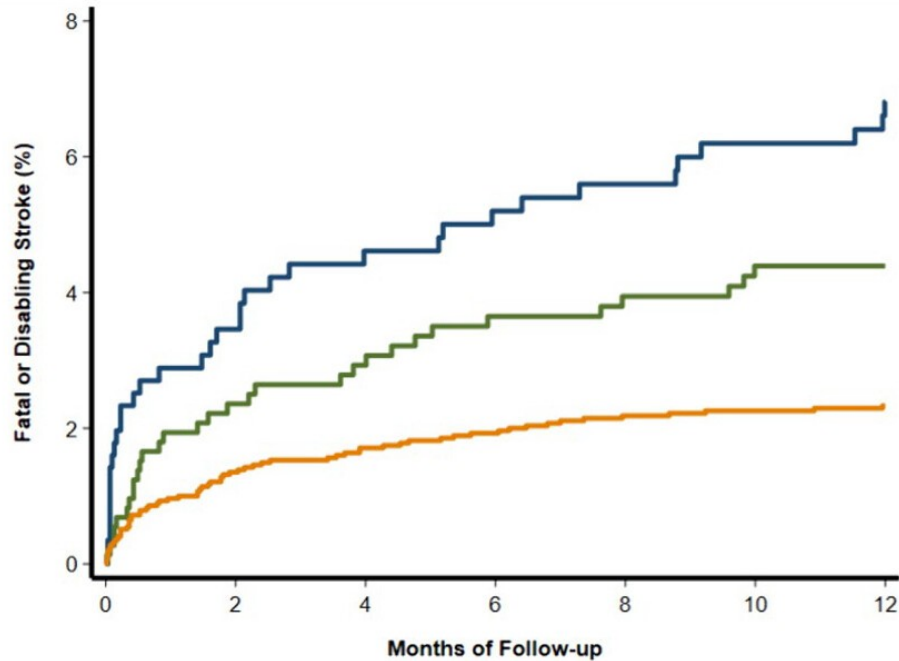


Figure 1. Cardiovascular risk factors and blood pressure in the study population over the study period. Blood pressure (BP), confidence interval (CI), mean arterial pressure (MAP), systolic BP (SBP), Essen score (A), closest BP measurement before to the initial cerebrovascular event (B), and baseline assessment BP, mean of two readings (C), in 6-monthly intervals, with exponential smoothing. Assessment BP at follow-up after the acute phase (one to three months after the initial cerebrovascular event) and after the intensive monitoring period (where performed, target SBP<130mmHg), mean of two readings (D), in four-monthly intervals with exponential smoothing in each phase.



Number at risk	0	2	4	6	8	10	12
Phase 1:	567	505	492	482	473	466	456
Phase 2:	738	692	679	660	651	639	634
Phase 3:	2958	2787	2730	2688	2656	2638	2600

Figure 2. Risk of recurrent fatal or disabling stroke during the first year of follow-up, by study phase.

Fatal stroke was defined as stroke-related death occurring within 90 days after the recurrent stroke. Disabling stroke was determined by the modified Rankin Scale (mRS) score at the first follow-up evaluation after the recurrent stroke and defined as an mRS score of ≥ 3 for with a baseline mRS score < 3 , or any increase in the mRS score for participants with a baseline mRS score of ≥ 3 .

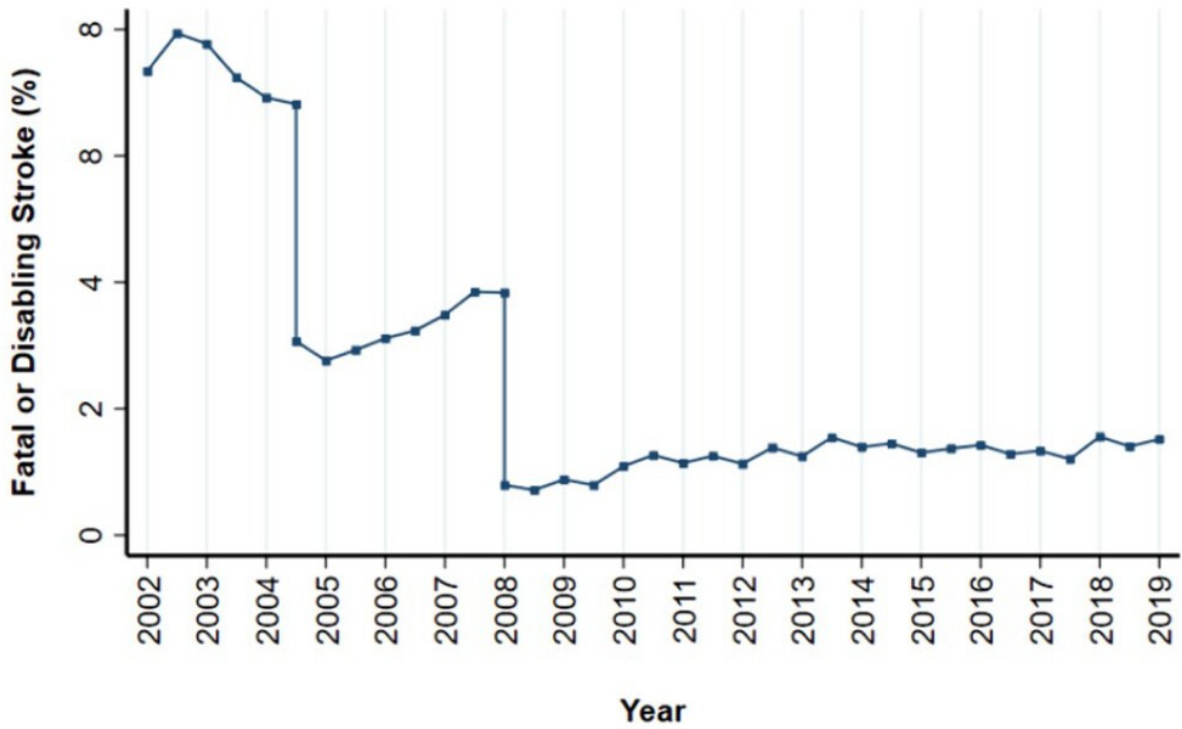


Figure 3. Average rate of recurrent fatal or disabling stroke during the first year of follow-up, among participants with baseline BP \geq 140/90 mmHg, in six-monthly intervals.
 Fatal/disabling stroke defined as per Figure 2. The data points represent the average rate of recurrent fatal or disabling stroke, with exponential smoothing applied within each of the three study phases. A six-month interval is divided into two separate data points if a study phase change occurred within that period.