Blood pressure lowering treatment for preventing dementia in patients with a history of stroke: A systematic review and meta-analysis

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Background/objectives: This study aims to assess whether intensive blood pressure lowering treatment is superior to less intensive management or placebo in preventing dementia in patients with stroke.

Methods: A comprehensive literature search including PubMed, Medline and Embase was performed according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) statement. We searched for randomized trials which compared intensive versus less intensive (or placebo) blood pressure management in stroke patients reporting cognitive outcomes. Primary outcome of interest was dementia as defined by Mini Mental State Examination (MMSE) testing cut-offs.

Results: Among 614 potentially eligible articles, 4 randomized controlled trials were included (PROGRESS 2003, PRoFESS 2008, SCAST 2013, CATIS 2016); n=23,852.

Results (continue):
There was no statistically significant difference between intensive blood pressure lowering treatment compared with the control arm on post-stroke low MMSE scores (odds ratio, OR: 0.99, 95% confidence interval, CI: 0.92–1.07; heterogeneity I^2=0%) (Figure).Subgroup analyses revealed a non-significant effect on low MMSE scores for hyperacute (OR: 1.00, 95%CI: 0.81–1.22; heterogeneity I^2=0%) and delayed blood pressure treatment (OR: 0.99, 95%CI: 0.92–1.07; heterogeneity I^2=35%). Finally, in participants with a recurrent stroke there was no effect of blood pressure management on low MMSE (OR: 0.86, 95%CI: 0.69–1.08; heterogeneity I^2=66%) (Figure).

Conclusions: Taking into consideration the limitations of available evidence, this meta-analysis does not support the hypothesis that the implementations of an intensive blood pressure management prevents dementia after stroke.

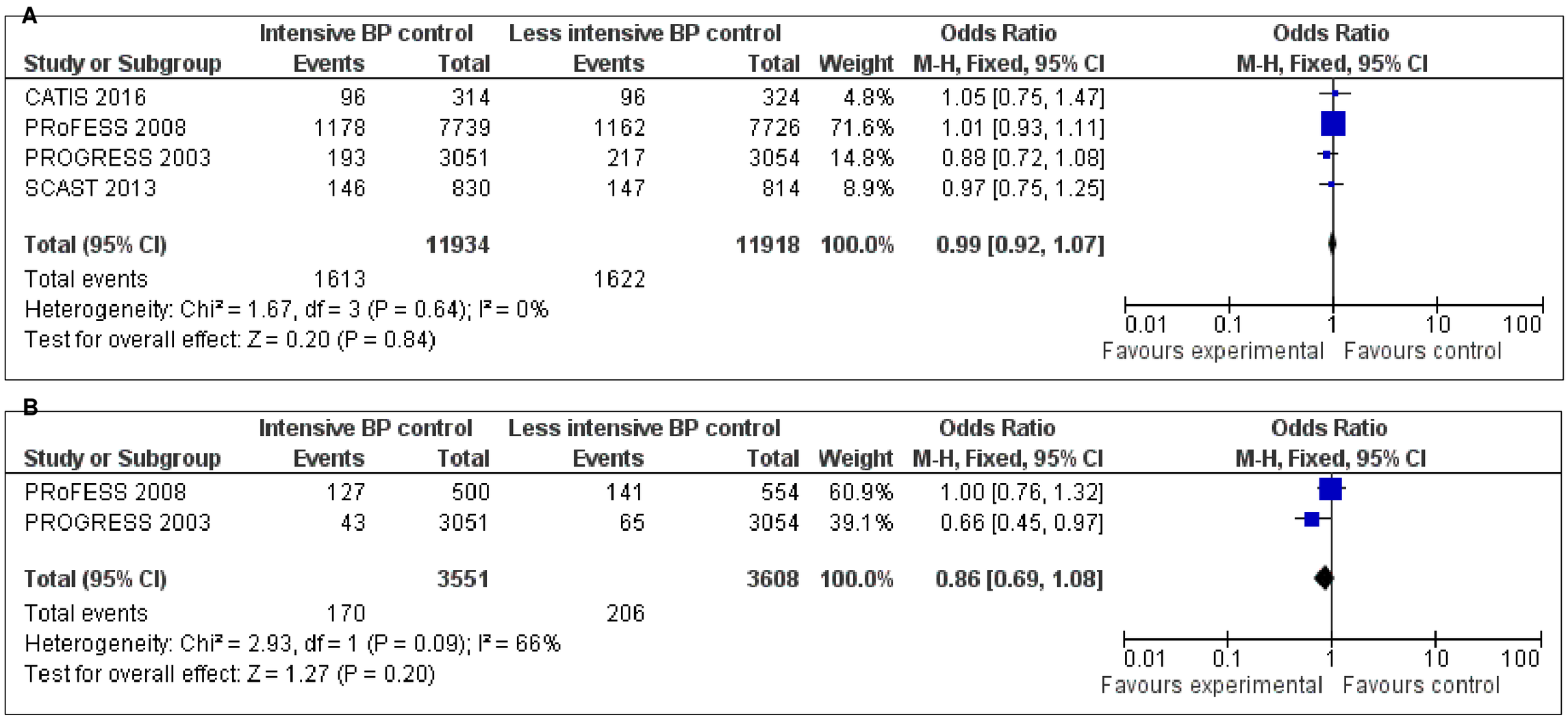

Figure: Forest plot of the effects of intensive vs less intensive blood pressure lowering treatment on post-stroke low MMSE scores. A) General stroke population, B) Patients with recurrent stroke

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