STATIN PRE-TREATMENT AND MICRO-EMBOLIC SIGNALS IN LARGE ARTERY ATHEROSCLEROSIS: A SYSTEMATIC REVIEW AND META-ANALYSIS

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Introduction

Scarce data indicate that **statin pretreatment (SP)** in patients with acute cerebral ischemia (ACI) due to large artery atherosclerosis (LAA) may be related to **lower risk of recurrent stroke** due to a **decreased incidence of micro-embolic signals (MES**) during transcranial Doppler (TCD) monitoring.

Methods

A systematic review and meta-analysis of available observational studies reporting MES presence/absence and/or MES burden, categorized according to SP status, in patients with ACI due to symptomatic (≥50%) LAA.

In studies with partially published data, authors were contacted for previously unpublished information.

Sensitivity analysis of studies with data on MES burden categorized according to SP status, and an **additional subgroup analysis** in patients receiving higher-dose SP (atorvastatin 80mg or rosuvastatin 40mg daily).

Results

Our literature search identified **7 eligible studies** (Figure 1& Table).

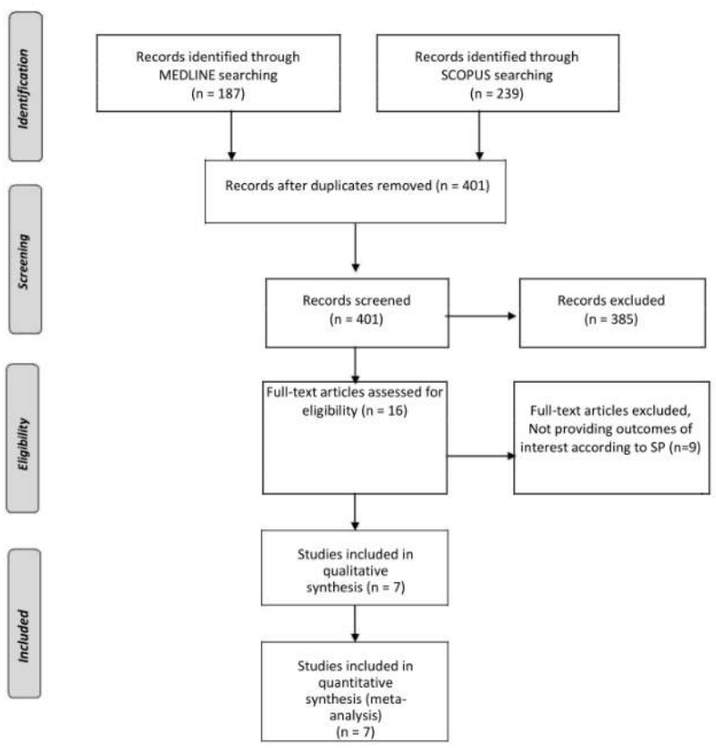


Figure 1. Flow chart presenting the selection of eligible studies

Seven eligible study protocols were identified (568 patients, 55% with SP).

SP was associated with a reduced risk of MES detection during TCD-monitoring (RR=0.60, 95%CI: 0.38-0.95), with substantial heterogeneity between studies (I^2=57%). ***Figure 2A***

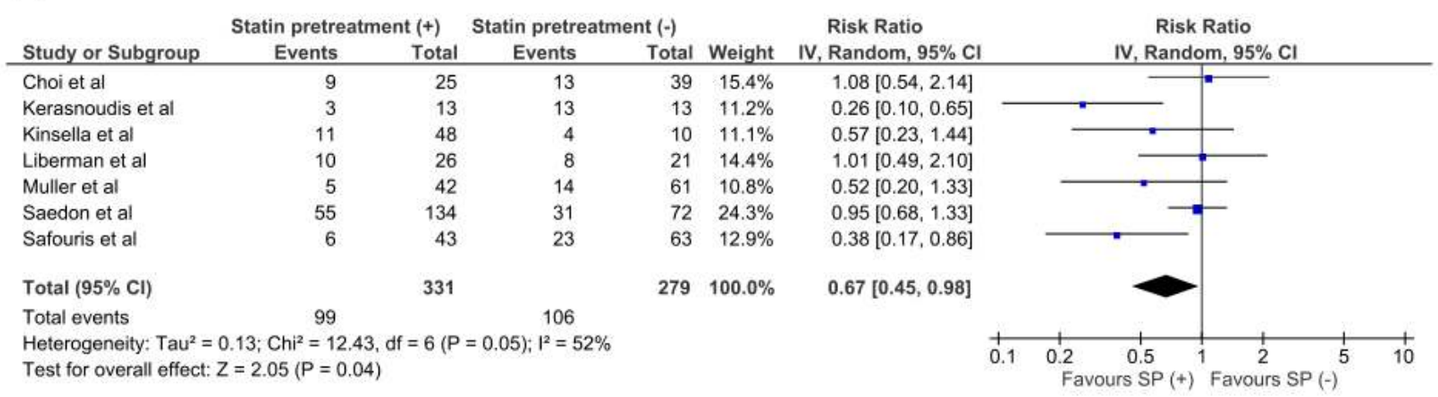
In studies reporting MES burden (n=4), a significantly **lower number of MES were identified in patients with compared with those without SP** (mean difference = -0.97, 95%CI: -1.70 to -0.24), with no evidence of heterogeneity across studies (I^2=47%). ***Figure 2B***

Subgroup analysis revealed that **higher-dose SP reduced the risk of detecting MES** (RR=0.23, 95%CI: 0.06-0.88), with no evidence of heterogeneity across studies (I^2=0%). ***Figure 2C***

Table. Overview of included studies

Study name	Country	N	TCD monitoring (duration)	Timing of TCD from index event
Choi et al, 2010	Canada	64	Bilateral (60 min)	≤48 hours
Kerasnoudis et al, 2013	Germany	26	Bilateral (30 min)	≤2 weeks
Kinsella et al, 2015	Ireland	58	Bilateral (60 min)	≤4 weeks (early) ≥3 months (late)
Liberman et al, 2017	USA	47	Unilateral (60 min)	≤7 days
Muller et al, 2014	Switzerland	103	Bilateral (60 min)	≤30 days
Saedon et al, 2017	UK	206	Unilateral (60 min)	≤2 weeks
Safouris et al, 2017	Multicenter	106	Unilateral (60 min)	≤24 hours

A



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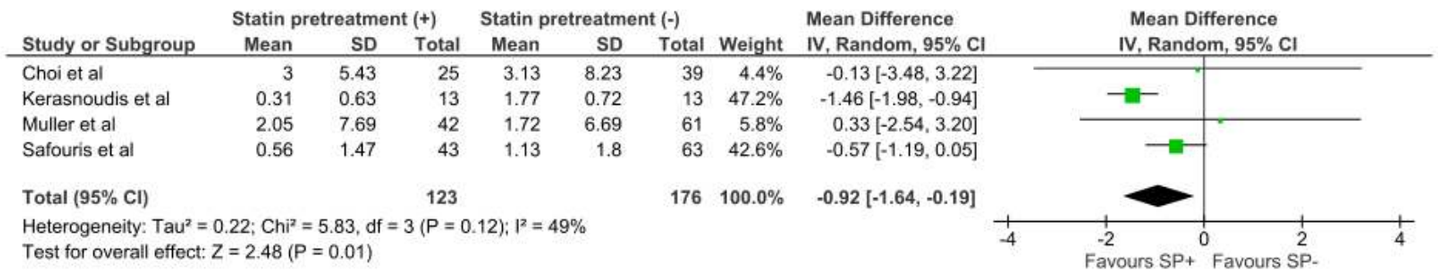

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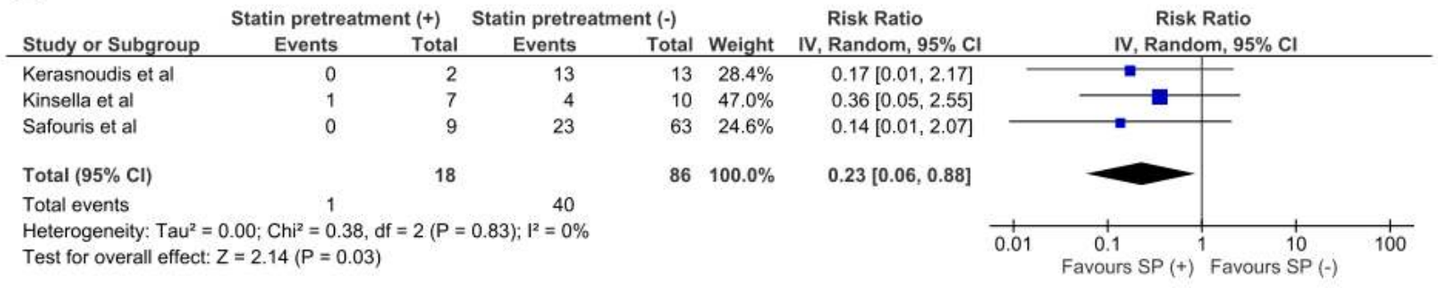

Figure 2. Forest plots on the (A) overall analysis on the presence of MES, (B) burden of MES according to the history of SP and (C) subgroup analysis on the presence of MES in patients with history of higher dose SP compared to patients without history of SP

Conclusions

SP appears to be associated with a lower MES incidence and burden in patients with ACI due to LAA

There is possibly a more pronounced benefit from higher-dose statins.

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