

The Cognitive Effects of Statins and the Role of Age

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Abstract

Statins are the first-choice treatment against hypercholesterolemia and associated cardiovascular disease, the main global cause of morbidity and mortality according to WHO. Statins are among the most prescribed drugs worldwide with an estimated 25% of the world population older than 65 years currently under statin treatment and the numbers increasing. Currently, there is a large controversy about whether or not statins affect cognitive function. Studies have provided indications for both sides, as well as reported beneficial and detrimental effects. Altogether, findings in the literature are highly inconsistent. Thus, to reveal new insights into statin cognitive effects, we performed an observational study on a population-based sample of 245,731 control and 55,114 statin-taking individuals from the UK Biobank (Alsehli et al., *Sci Rep.* 2020 10, 6187). Cognitive performance in terms of reaction time, working memory and fluid intelligence was analysed at baseline and two follow-ups (within 5–10 years). Subjects were classified depending on age (up to 65 and over 65 years) and treatment duration (1–4 years, 5–10 years and over 10 years). Data were adjusted for health- and cognition-related covariates. Subjects generally improved in test performance with repeated assessment and middle-aged persons performed better than older persons. The effect of statin use differed considerably between the two age groups, with a beneficial effect on reaction time in older persons and fluid intelligence in both age groups, and a negative effect on working memory in younger subjects. Our analysis suggests a modulatory impact of age on the cognitive side effects of statins, revealing a possible reason for profoundly inconsistent findings on statin-related cognitive effects in the literature. The study highlights the importance of characterizing modifiers of statin effects to improve knowledge and shape guidelines for clinicians when prescribing statins and evaluating their side effects in patients.

Biography:

Ahmed Mohammed Alsehli is a PhD student studying at Uppsala University, Sweden.

Speaker Publications:

1. Yebo H. G, Aschmann H. E, Kaufmann M & Puhan M. A. “Comparative effectiveness and safety of statins as a class and of specific statins for primary prevention of cardiovascular disease: A systematic review, meta-analysis, and network meta-analysis of randomized trials with 94,283 participants”. *Am. Heart J.* 210, 18–28 (2019).
2. Power M. C, Weuve J, Sharrett A. R, Blacker D & Gottesman R. F. “Statins, cognition, and dementia—systematic review and methodological commentary”. *Nat. Rev. Neurol.* 11, 220–9 (2015).
3. Arvanitakis Z. et al. “Statins, incident Alzheimer disease, change in cognitive function, and neuropathology”. *Neurology* 70, 1795–802 (2008).
4. Bernick C. et al. “Statins and cognitive function in the elderly: The Cardiovascular Health Study”. *Neurology* 65, 1388–1394 (2005).

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