



Next-morning effects of hypnotic drugs on attention, psychomotor performance, and memory functioning: implications for traffic safety

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INTRODUCTION

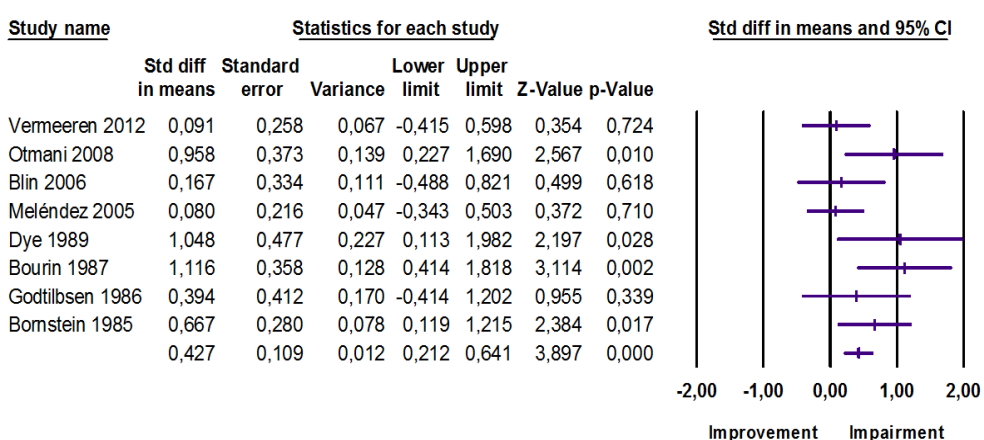
A recent meta-analysis showed that on-road highway driving is significantly impaired the morning following bedtime administration of the recommended dose of benzodiazepine drugs and zopiclone. The objective of this study was to conduct meta-analyses to determine which specific cognitive domains that are relevant to driving are impaired the day following bedtime administration of hypnotic drugs.

METHODS

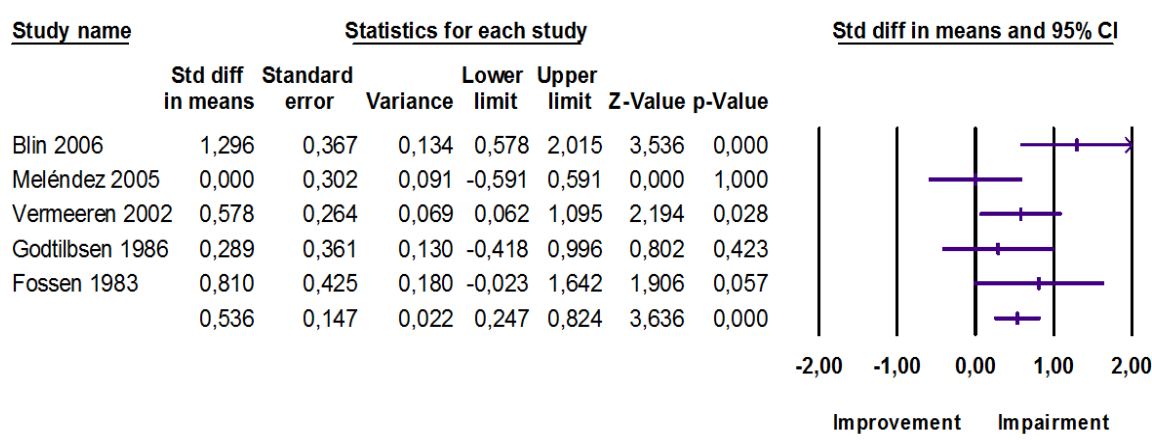
A literature search (Pubmed, Embase, PsycInfo, Scopus, Web of Science, and Cochrane) yielded N=33.969 potentially relevant publications. Studies were included if they assessed next-morning effects on cognition, attention, psychomotor performance, or memory functioning, and if hypnotic drugs were administered in recommended dosages at bedtime. Studies had to be double-blind, placebo-controlled, and conducted in healthy subjects (18-65 years old). Separate meta-analyses were conducted for the cognitive domains sustained- and divided attention, psychomotor speed and accuracy, motor control, and short-term, long-term, and working-memory. Included treatments were limited to benzodiazepine hypnotics and z-drugs. N=28 studies reported sufficient data to be included in the meta analyses.

RESULTS

Significant impairment was found for the domains divided attention (p=0.0001), short-term memory (p=0.0001), long-term memory (p=0.0001), psychomotor accuracy (p=0.013), and a trend towards significance for sustained attention (p=0.06). No significant effects were found for working memory (p=0.794), psychomotor speed (p=0.686), and motor control (p=0.345).



Short term memory - effect of hypnotics in healthy subjects



Long term memory - effect of hypnotics in healthy subjects

CONCLUSION

The analyses revealed next-morning performance impairment in various cognitive domains, including memory, attention and psychomotor performance.

These skills and abilities are highly relevant to daily activities such as driving.

Future analyses should be conducted to confirm these findings in elderly and patients.