Cognitive impairment after intracerebral hemorrhage: a systematic review and meta-analysis

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INTRODUCTION

- Spontaneous, non-traumatic intracerebral hemorrhage (ICH) refers to bleeding within the brain parenchyma that occurs in the absence of trauma and carries significant morbidity and mortality

- The ICH accounts for 6.5-19.6% of all strokes, but it carries the highest mortality rate (1-year survival ~ 40% and 10-year survival ~ 24%) of all stroke subtypes

- While a strong association has been identified between stroke and dementia, most of the available literature focuses on post-stroke dementia in patient cohorts with ischemic stroke, and there are very few clinical studies evaluating cognitive dysfunction after ICH.
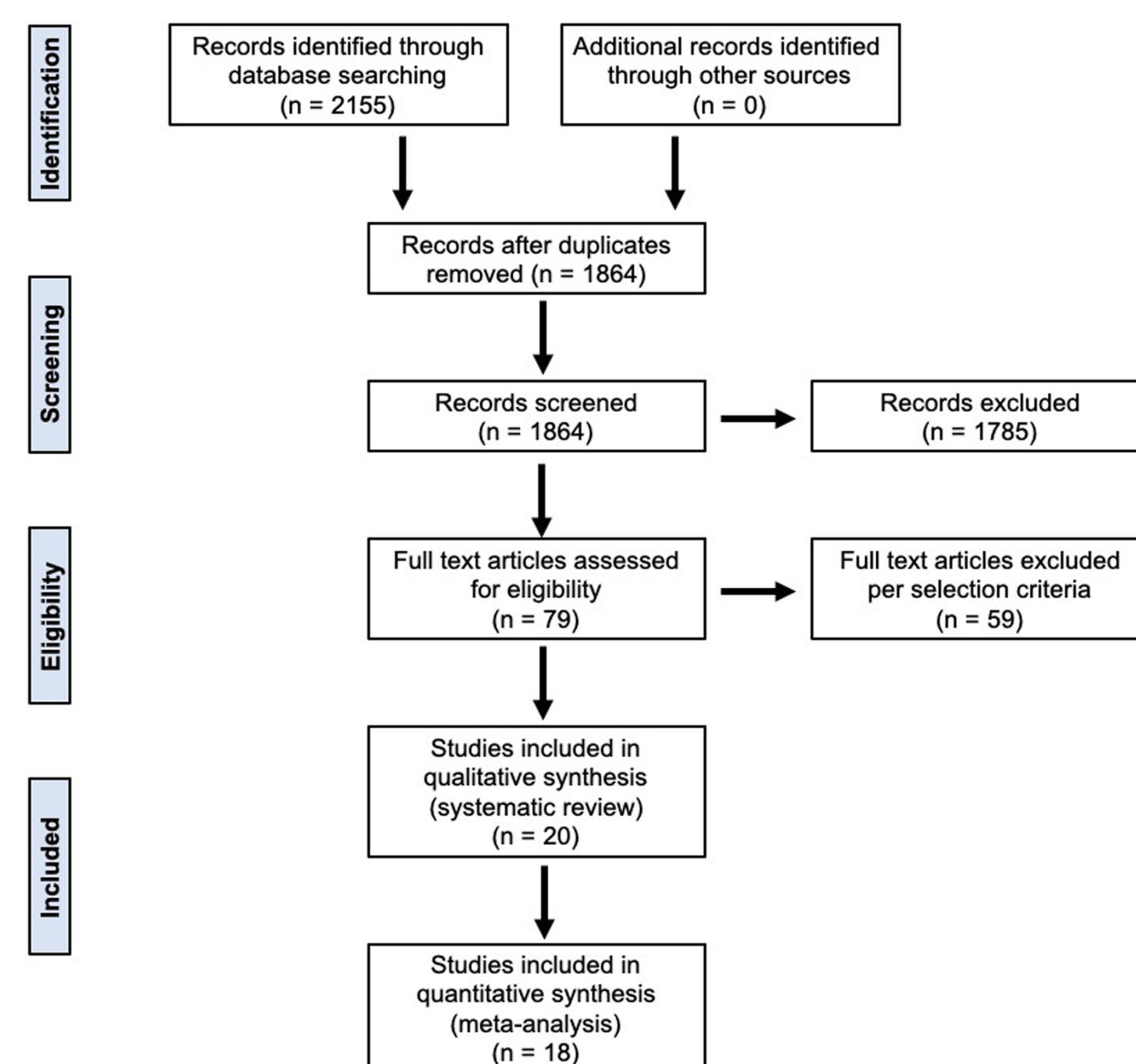
OBJECTIVES

The aim of the present systematic review and meta-analysis was to analyze the available clinical literature with regards the prevalence and prognostic predictors of post-ICH cognitive impairment. We conducted a pooled analysis of available studies to estimate the prevalence of post ICH cognitive impairment
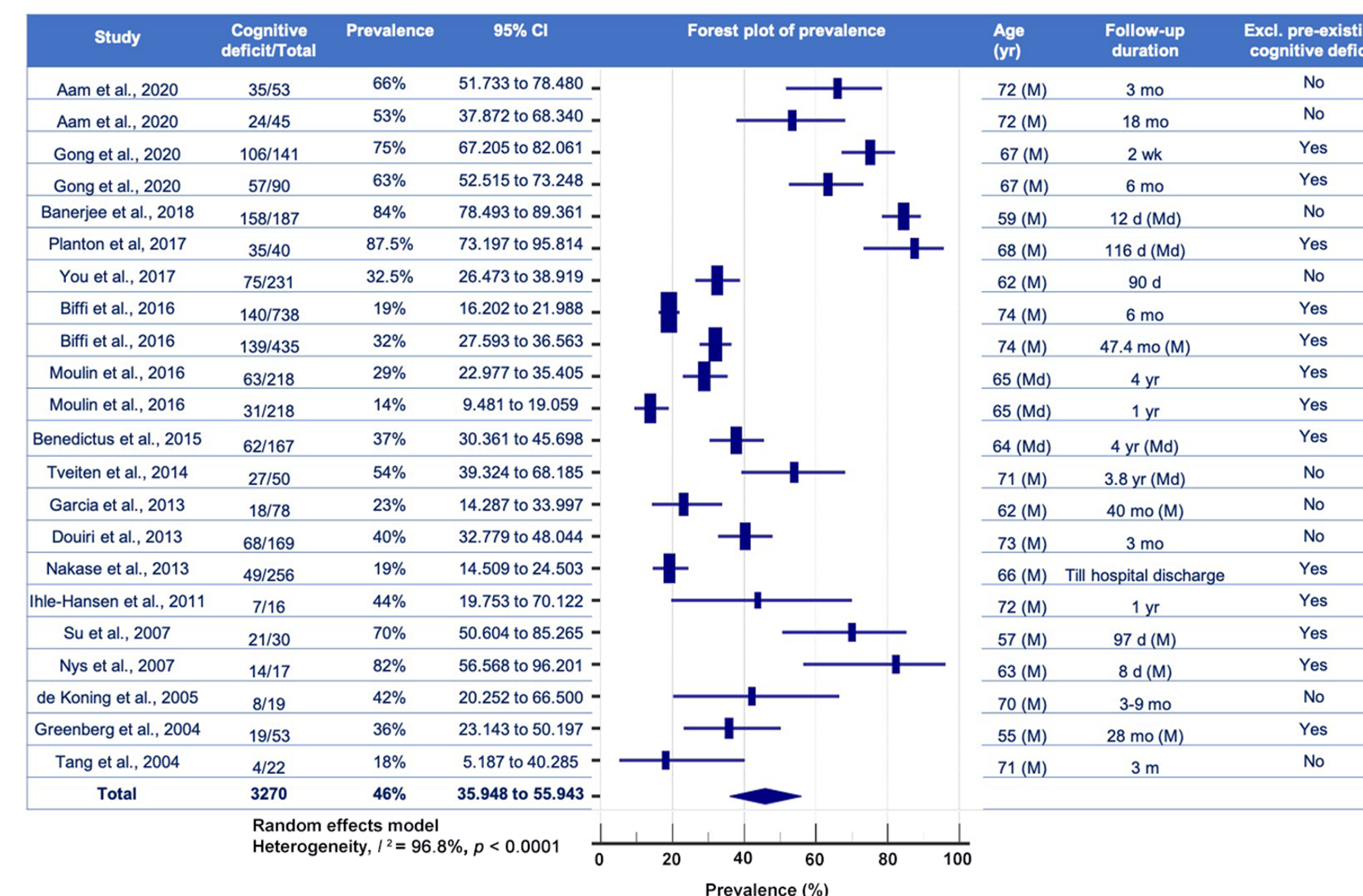
MATERIALS AND METHODS

- The present systematic review and meta-analysis was performed following the PRISMA guidelines

- We conducted literature search until July 31, 2020 from following databases: PubMed, ScienceDirect, Scopus, and Web of Science

- The quality of the included studies was assessed by using the STROBE statement checklist

- The metaphor R package for R statistical software version 3.5.3 and MedCalc Statistical Software version 19.2.3 were used to perform the meta-analysis

RESULTS

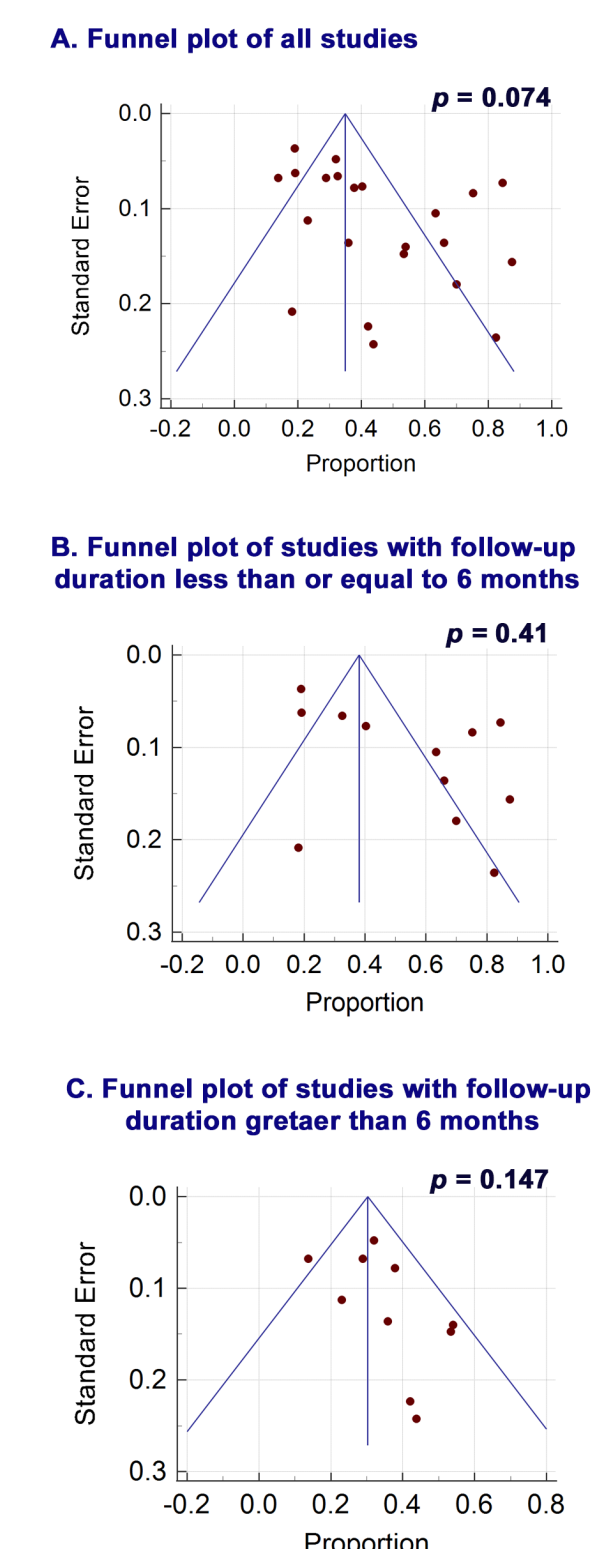**1. Flow diagram of literature selection process per PRISMA guidelines in the present systematic review and meta-analysis**

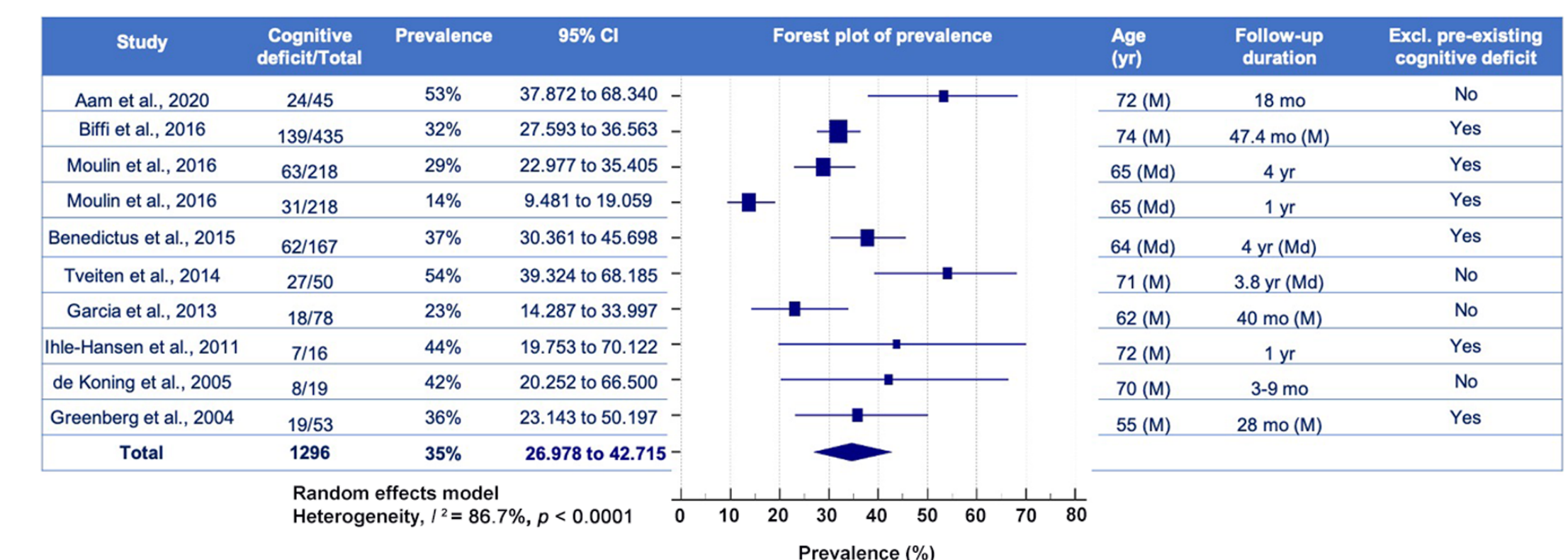**2. Forest plot of pooled prevalence of post-ICH cognitive impairment in all studies included in the meta-analysis**

3. Forest plot of pooled prevalence of post-ICH cognitive impairment in acute to subacute group (studies with follow-up duration ≤ 6 months)
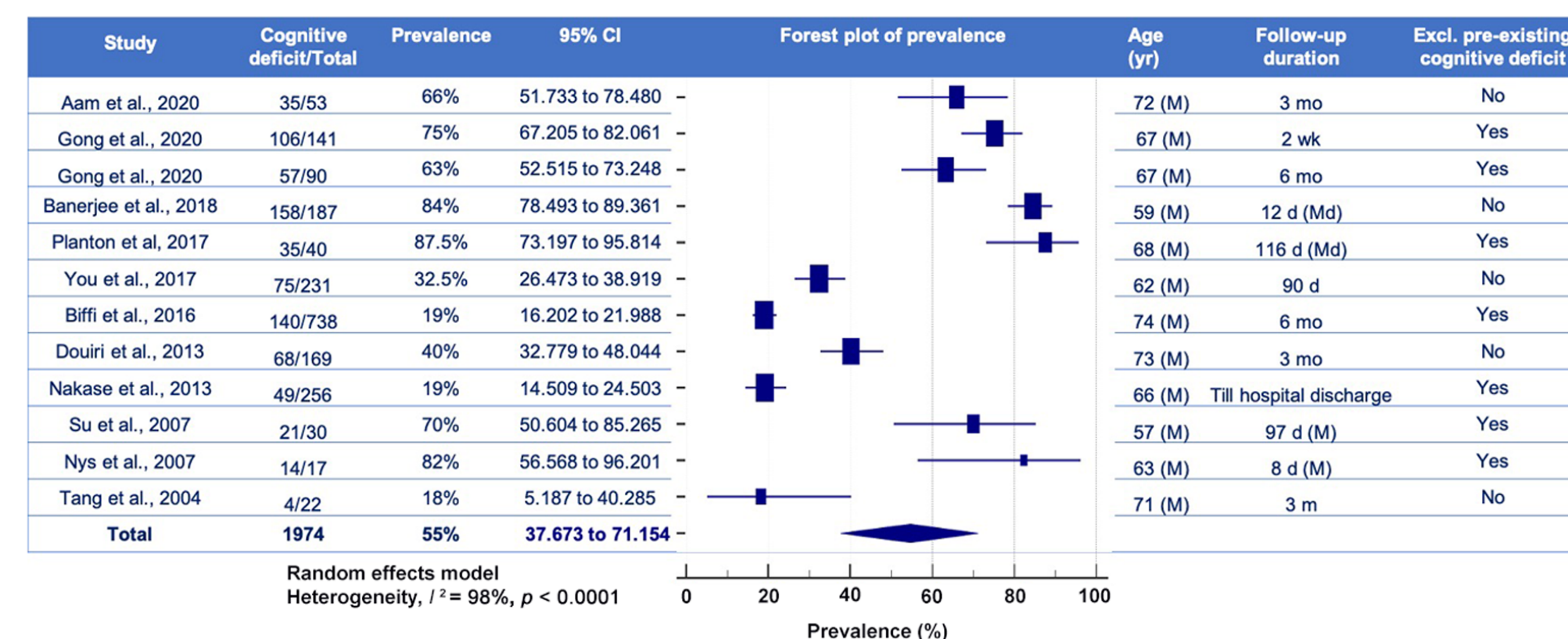
4. Forest plot of pooled prevalence of post-ICH cognitive impairment in long-term follow-up group (studies with follow-up duration greater than 6 months)

5. Funnel plots demonstrating the absence of publication bias

SUMMARY & CONCLUSIONS

- The prevalence of post-ICH cognitive impairment is high. Based on analysis of data from 18 studies (3270 patients), we found prevalence of post-ICH cognitive impairment to be 46% (CI, 35.9-55.9) with a follow-up duration ranging from 8 days to 4 years.
- The estimated pooled prevalence of cognitive decline decreased over longitudinal follow-up, from 55% (range 37.7-71.15%) within 6 months of ICH to 35% (range 27-42.7%) with > 6 months to 4 years follow-up post-ICH.