

# INTRAVENOUS NICORANDIL VERSUS ADENOSINE FOR FRACTIONAL FLOW RESERVE MEASUREMENT TO ASSESS CORONARY ARTERY STENOSIS- A META-ANALYSIS

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## Introduction

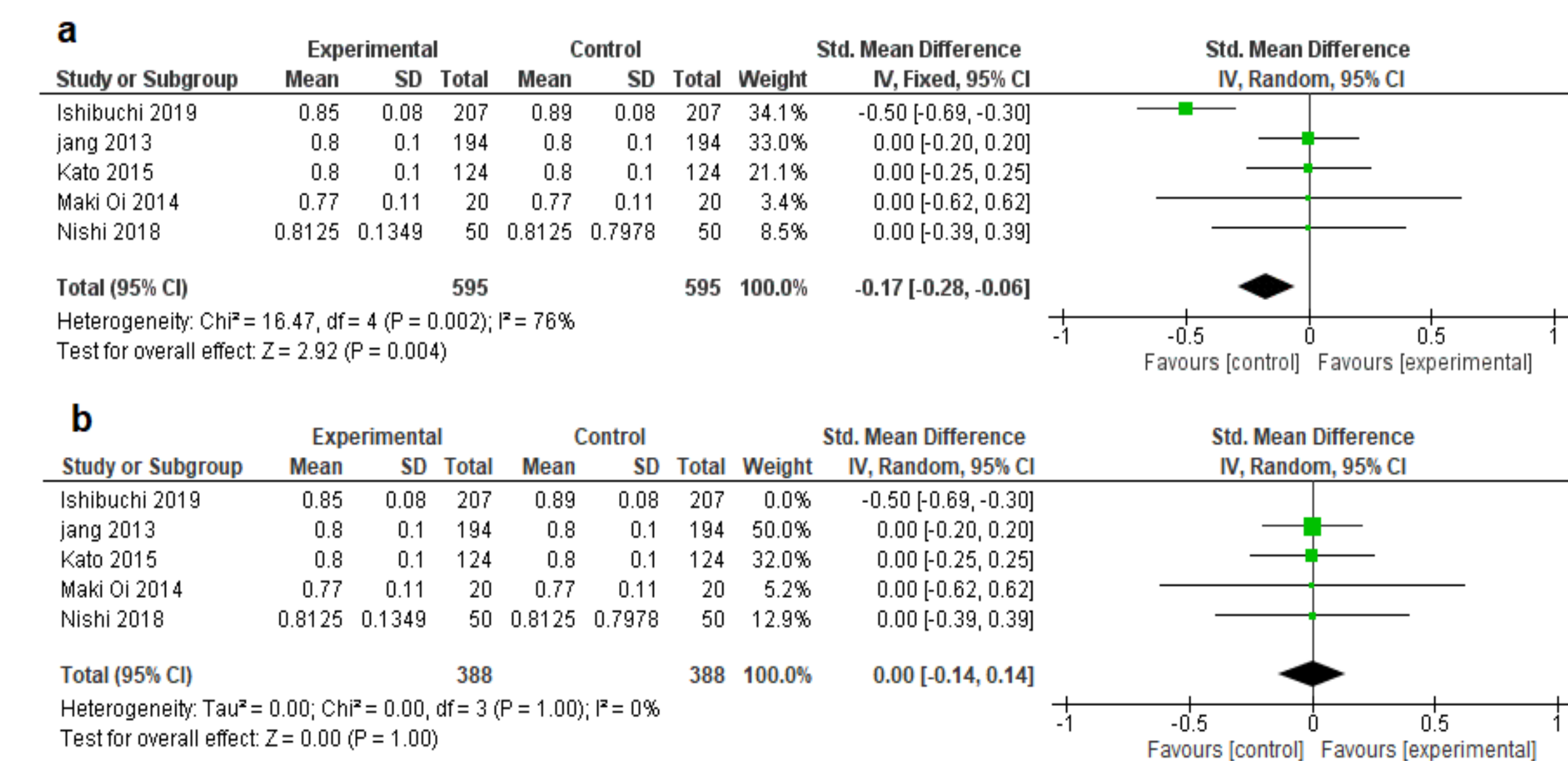
- Fractional flow reserve (FFR) is the gold investigation used to assess coronary artery stenosis.
- Several clinical trials have been conducted using different drugs to achieve the maximum possible coronary hyperemia.
- Nicorandil and Adenosine are on the top of the list with many trials comparing their efficacy.
- Superior clinical outcomes have been achieved with FFR-guided percutaneous coronary intervention (PCI) as compared to angiography-guided PCI.
- However, despite increasing evidence of cost-effectiveness and strong recommendations in current practice guidelines, FFR is still seldom used in the clinical setting

## Results

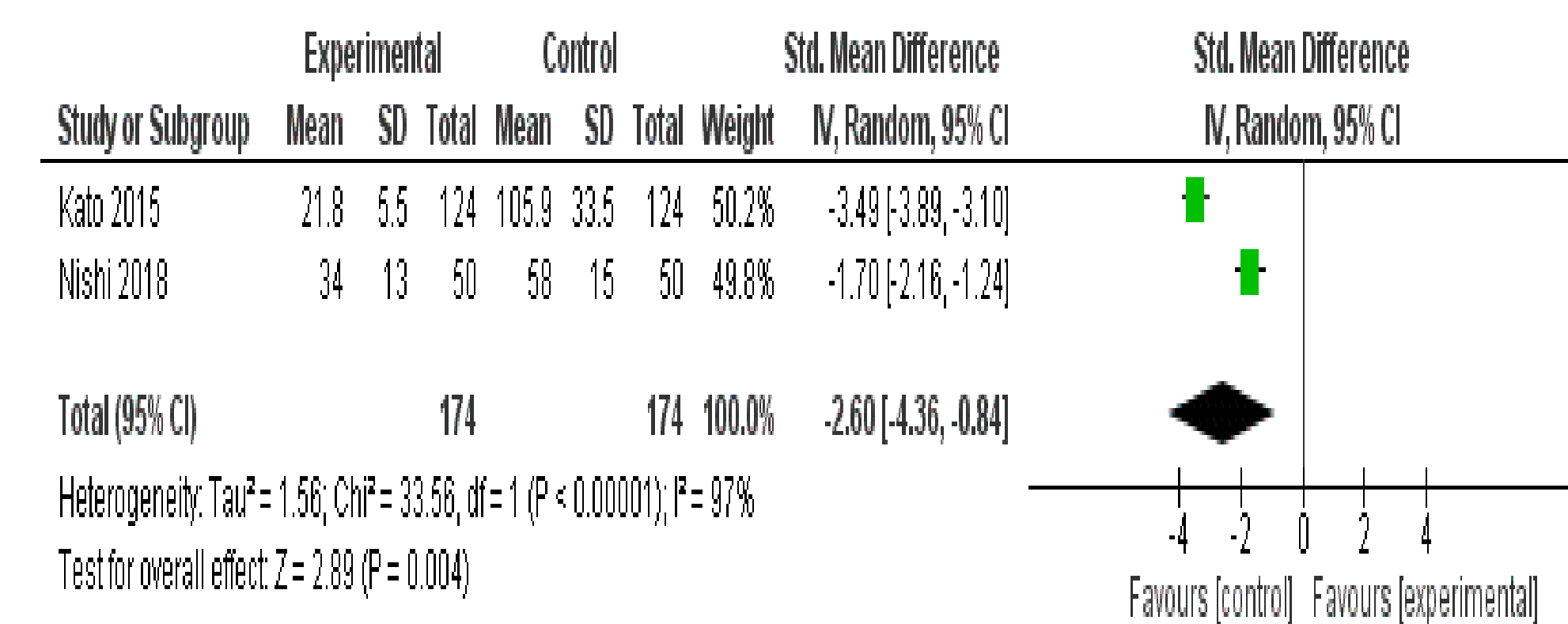
- Five studies met our inclusion criteria with 595 included patients.
- The combined effect estimate favored the nicorandil group over adenosine groups in terms of mean FFR (SMD=-0.17, 95% CI [-0.28, -0.06], P=0.004). ( Fig. 1)
- Nicorandil was more effective in achieving adequate hyperemia compared to adenosine (SMD=-2.06, 95% CI [-4.36, -0.84], P=0.004). ( Fig. 2)
- However, no significant differences were reported between nicorandil and adenosine in the duration of hyperemia, the decrease in systolic blood pressure, and VAS pain scores. (Fig. 3,4,5)
- Study characteristics were summarized in Tables and included: types of interventions, Dose, risk factors, Reference diameter, mm, Minimum luminal diameter (mm), Diameter stenosis (%), and Lesion length (mm).

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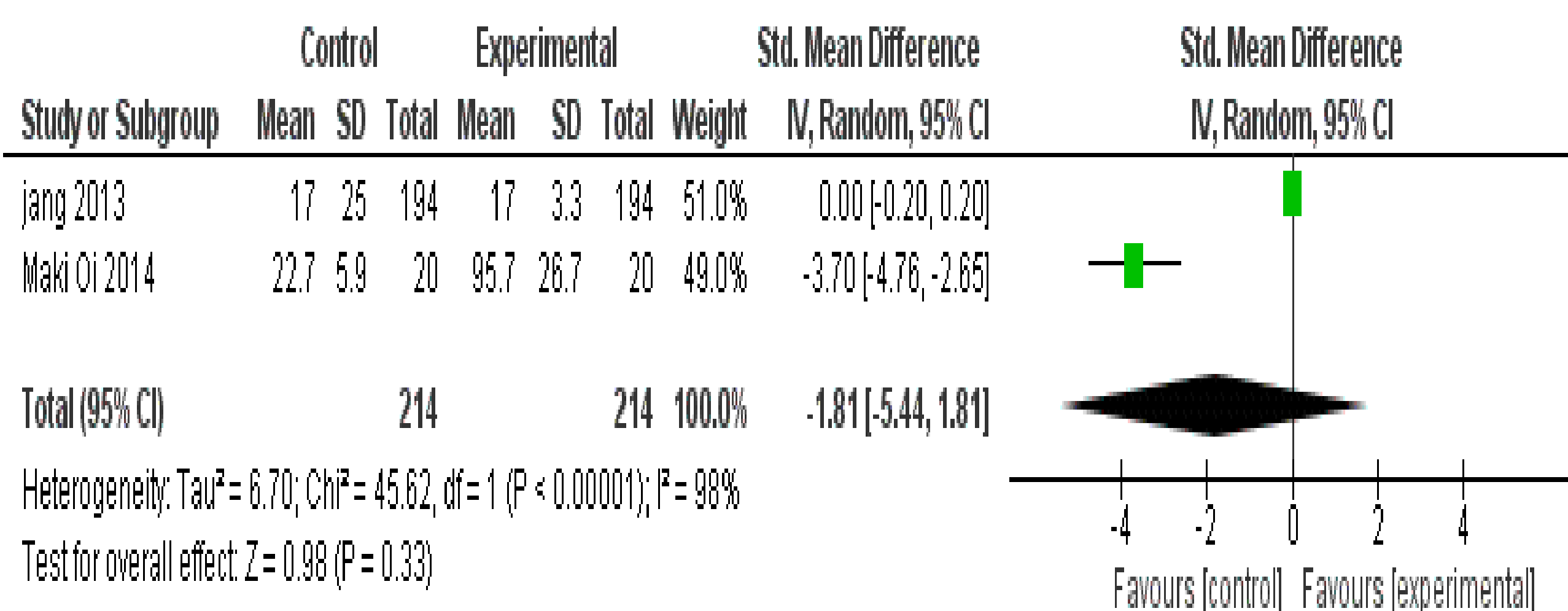
**Fig1:** shows a forest plot for analysis of FFR outcome, a) heterogeneous results, and b) homogeneous results after the leave-one-out



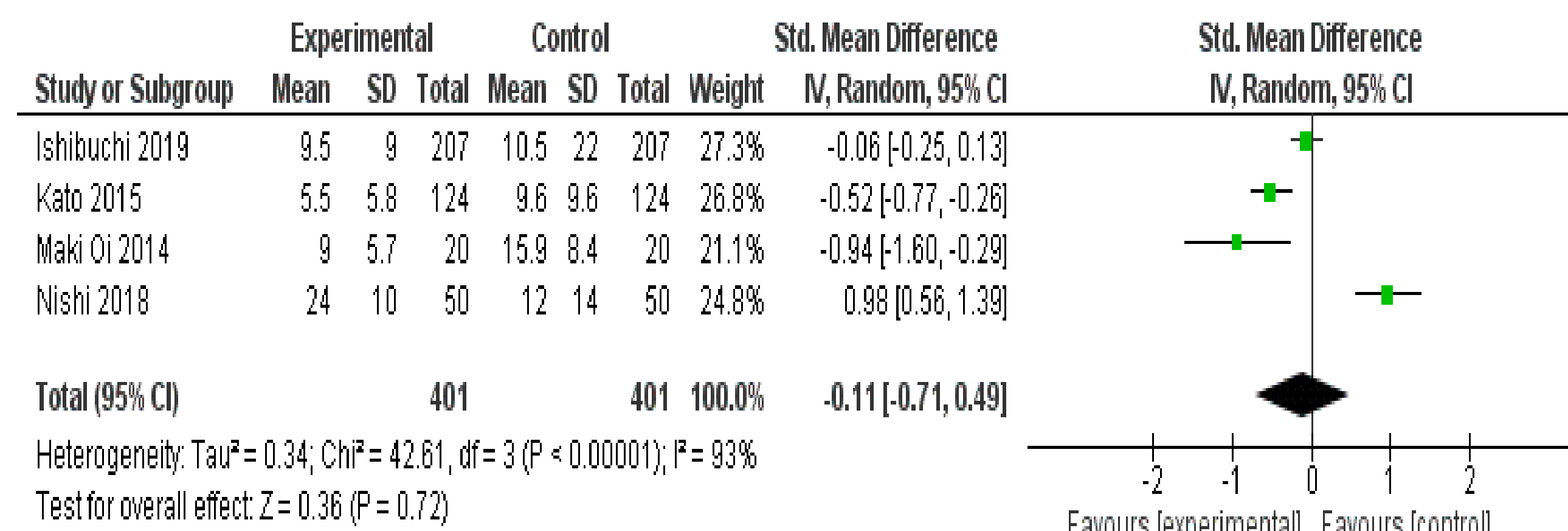
**Fig 2:** shows forest plot for analysis of hyperemia outcome.



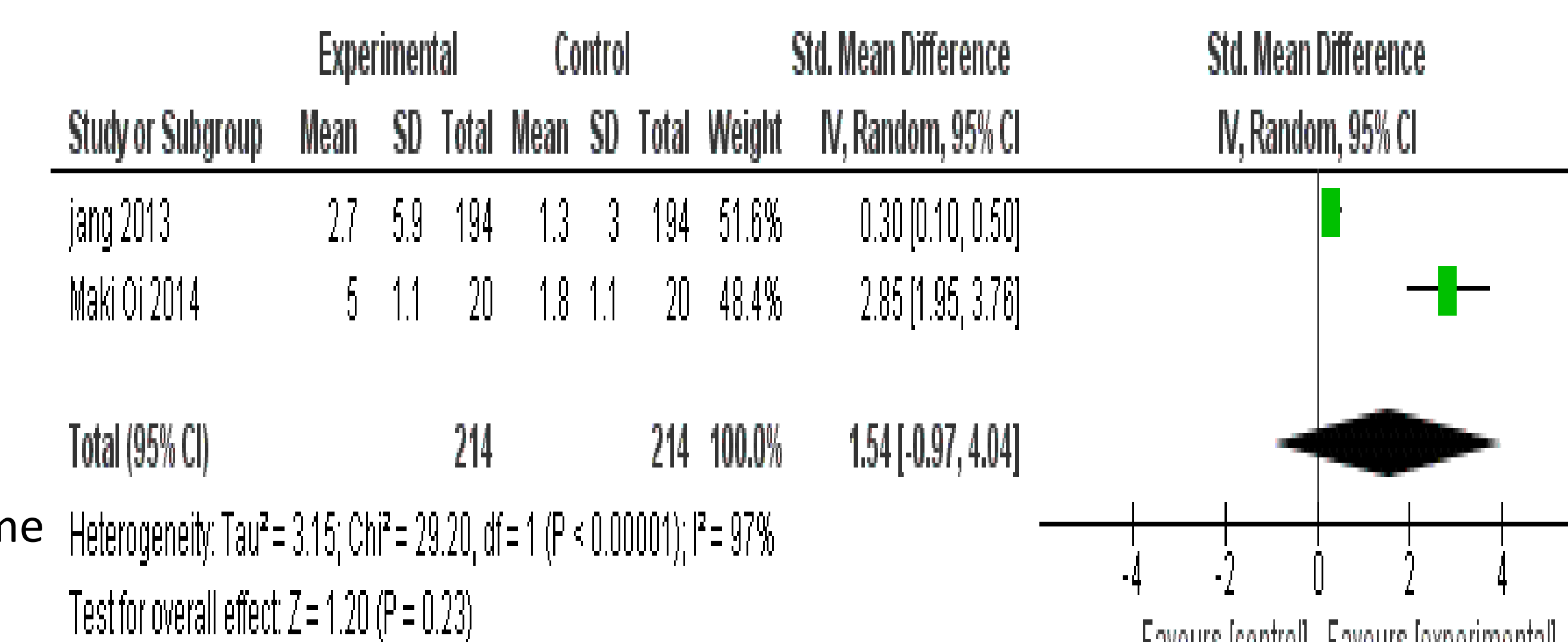
**Fig 3:** shows a forest plot for analysis of duration of hyperemia outcome



**Fig 4:** shows a forest plot for analysis of decrease in SBP outcome.



**Fig 5:** shows a forest plot for analysis of VAS score for pain outcome.



## Method

- We searched in PubMed, Cochrane Library, Scopus, and Web of Science for available studies from their inception through March 2020.
- We included different studies either randomized studies or observational studies that compared nicorandil versus adenosine for Fractional flow reserve (FFR) measurement.
- Data were extracted from the eligible studies and pooled in a meta-analysis model by means of Revman software.
- Dichotomous data were pooled as risk ratio (RR) and continuous data were pooled as standardized mean difference (SMD) with the corresponding 95% confidence intervals (CI).
- We intended to evaluate the average FFR, hyperemia, duration of hyperemia, decrease in systolic blood pressure, and pain scores assessed by visual analog scale (VAS).

## Conclusion

- Nicorandil is associated with better clinical and safety outcomes compared with adenosine.
- it is therefore recommended as an alternative hyperemic agent.