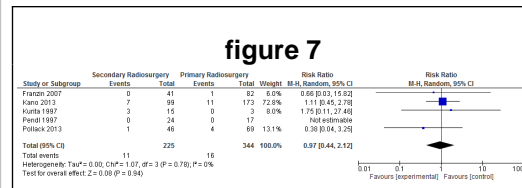


Introduction

The goal of our study was to conduct a meta-analysis comparing the individual CN (cranial nerve) improvement rates between 3 groups: primary microsurgery, primary stereotactic radiosurgery (SRS) and SRS after prior microsurgery. Outcomes analyzed were the proportion of new cranial nerve deficits in the treatment arms stated above. Systematic Review of Literature was conducted for studies which did not qualify for meta-analysis.

Methods

Following the PRISMA guidelines, we isolated 12 studies for primary microsurgery group (n=644). To obtain a homogenous data (Primary and Secondary SRS), five studies [Primary SRS (n=290), Secondary SRS (n=191)] were included which reported individual CN outcomes. Pooled percentages of CN outcomes were compared. Sub-group meta-analysis to evaluate the difference in CN outcomes between primary and secondary SRS groups was done. Similar stratification of groups was done to measure the new cranial nerve deficits after microsurgery, primary and secondary SRS. For systematic review, 20 studies (n=2275) were included

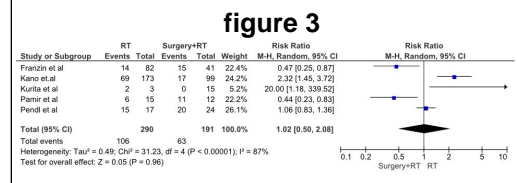
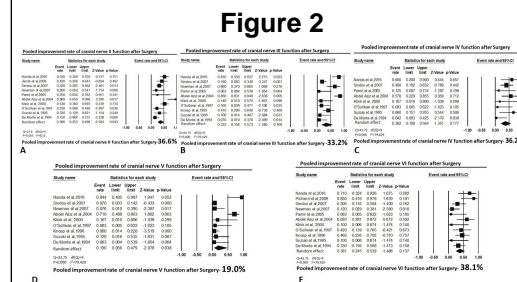
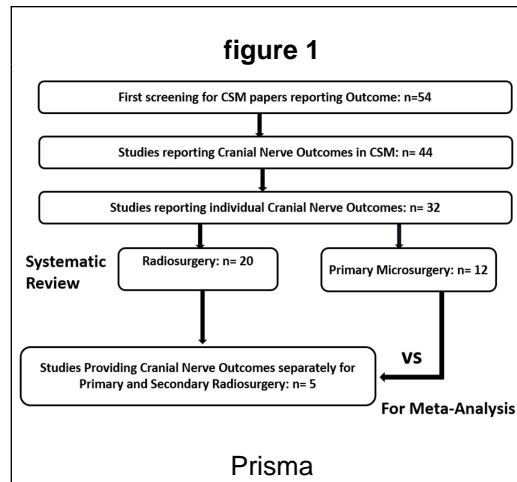


Results

Visual outcomes (CN II) were better in surgery group (36.6%) as compared to Primary (21.7%) and Secondary (21.9%) SRS group. Cranial nerves affecting optometrics also had a significantly higher improvement rates in microsurgery as compared to SRS. No difference in outcomes of CN V was noted through the groups. Having a prior microsurgery did not worsen the chances of preoperative cranial nerve dysfunction recovery rates after SRS, RR=1.02 (05-2.08) or post-operative new cranial nerve deficits after SRS, RR 0.97 (CI 0.44 - 2.12). New CNV were markedly higher in microsurgery group (43.7%) vs. Primary SRS (4.5%) vs. Secondary SRS (4.3%).

Conclusions

When assessing visual and extraocular movement outcomes, microsurgery had a higher recovery rates as compared to primary and secondary SRS. Prior microsurgery did not make significant difference in cranial nerve outcomes among patients receiving SRS. Better preoperative cranial nerve outcomes in microsurgery group come at a cost of new cranial nerve deficit in patients with CSM.



Learning Objectives

By conclusion of the session, participants would be able to, 1. Describe the incidence and outcome of cranial nerve dysfunction in Cavernous Sinus Meningiomas. 2). Able to differentiate the results from gamma knife and microsurgery 3. Provide likelihood of providing estimation of new cranial nerve dysfunction.

