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Introduction

- There is growing evidence on the influence of general anaesthesia (GA) in promoting the proliferation of cancer cells.
- RA comprised of epidural, spinal and nerve block, which can attenuate surgical stress response by reducing catecholamine levels and minimizing immunosuppression.
- The benefits of regional anaesthesia (RA) on cancer recurrence rate in cancer surgery remains unclear in the literature.

Objectives

- To examine the effect of RA-only on the incidence of post-operative cancer recurrence rate in cancer resection surgery.

Methods

- This review was conducted and reported in adherence to the Cochrane Handbook and PRISMA statement 2015.
- The protocol was registered and published on a public database, PROSPERO (CRD42020163780).
- Databases: MEDLINE, EMBASE and CENTRAL (its inception until April 2020)
- Inclusion criteria: Randomized clinical trials, observational studies (cohort or case-control)
- Exclusion criteria: Case reports, case series and editorials
- Primary outcome: Incidence of cancer recurrence rate
- Secondary outcomes: Overall survival rate, time to cancer recurrence and cancer-related mortality
- All the included observational studies were assessed for risk of bias using the Newcastle-Ottawa Scale.

Results

- The titles and abstracts of 4477 non-duplicate articles were screened, of which 44 articles were retrieved. After applying inclusion and exclusion criteria, 10 observational studies with a total of 9708 patients (4567 GA vs 5141 RA-only) were included for qualitative and quantitative meta-analysis.
- In comparison to GA, RA-only was not significantly associated with a lower cancer recurrence rate in cancer resection surgery (p=0.95, certainty of evidence=very low, Fig 1). However, the trial sequential analysis for cancer recurrence rate was inconclusive (Fig 2).
- Our analysis demonstrated no significant difference between the RA-only and GA groups in the overall survival rate (odds ratio 1.51, 95% CI 0.65 to 3.51, p=0.34, certainty of evidence=very low), time to cancer recurrence (mean difference 1.45 months, 95% CI -8.69 to 11.59, p=0.78, certainty of evidence=very low) and cancer-related mortality (odds ratio 1.79, 95% CI 0.57 to 5.62, p=0.32, certainty of evidence=very low).

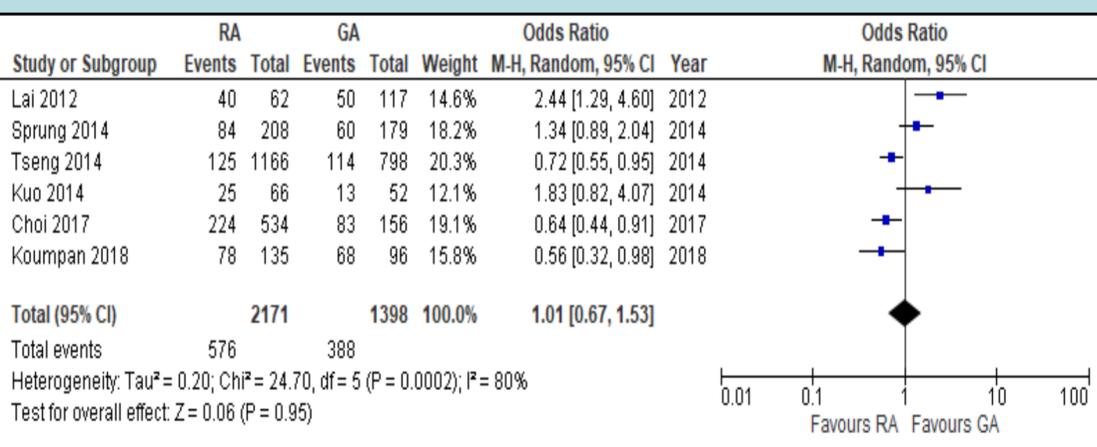


Fig 1: Forest plot of cancer recurrence rate

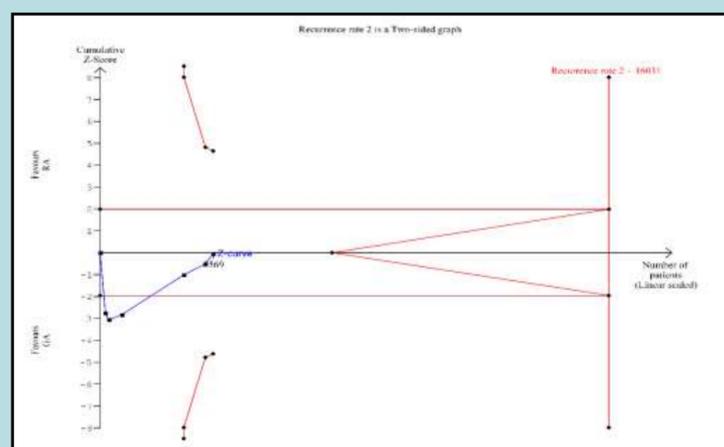


Fig 2 Trial sequential analysis

Discussions

- First meta-analysis of the effect of RA-only versus routine care GA in cancer resection surgery.
- At present, only 22.2% of required information size (16031 patients) available to detect significance difference of 20% reduction in incidence of cancer recurrence.
- Substantial heterogeneity → non-RCT, inadequate sample size
- True effect of GA-only may be skewed by many small sample size observational studies with conflicting results and substantial heterogeneity.
- Confounding factors: types of GA (TIVA/ volatile), amount of opioids use, types of cancer surgery

Conclusions:

➤ Given the low level of evidence and underpowered trial sequential analysis, our review neither support nor oppose that the use of RA-only was associated with lower incidence of cancer recurrence rate than GA in cancer resection surgery.