83P - Pathologic complete response after neoadjuvant chemoimmunotherapy in resectable non-small cell lung cancer (NSCLC): a systematic review and pooled analysis

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Poster #488

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Introduction

- Early results evaluating immunotherapy (IO)-based neoadjuvant strategies for NSCLC have been promising, with an emphasis on pathologic endpoints (i.e. CheckMate-816, NeoStar, etc) [1-2]
- Several recent studies in NSCLC suggest a strong association between pathologic complete response (pCR) and survival [3]
- Given the increasing number and variety of regimens, studies defining collective pathologic complete response (pCR) rates are needed for future clinical trial design and eventual practice.
- Comparing these novel neoadjuvant approaches to FDA approved chemotherapy (chemo) regimens can also provide insight into efficacy and utility.
- We sought to compare rates of pCR based on various neoadjuvant treatment options, along with clinically relevant subgroup analysis.

Methods

- MEDLINE and SCOPUS databases were searched to identify articles and abstracts, published before 2021/11, of prospective clinical trials reporting pCR and major pathologic response (MPR) of neoadjuvant IO, chemo and chemoimmunotherapy (chemo+IO) regimens in resectable NSCLC.
- Random effect meta-analysis was conducted to estimate pooled pCR and MPR rates of each regimen, and meta-regression was used to evaluate differences in pCR between regimens, by adjusting for stage (I/II vs. III). Sensitivity analyses were conducted to assess impact of cross-study variations.
- 41 total trials with a total of 2964 patients were included, including 19 IO-based trials, and 22 chemo-based trials. Of the IO-based trials, they were further broken down into IO-only vs chemo+IO regimens. 2 chemo-only control arms from IO RCTs were included under chemo analysis.

Table 1: Study search eligibility criteria using PICOS focused tool.

PICOS	Eligibility
Population	Resectable NSCLC (stage I-III)
Intervention	Neoadjuvant chemotherapy, IO, chemo+IO without XRT
Outcomes	pCR, OS, EFS
Design	RCTs, prospective trials, excluding observational/retrospective reports
Restriction	English language, year 2000 or >, platinum based chemo regimens

Results

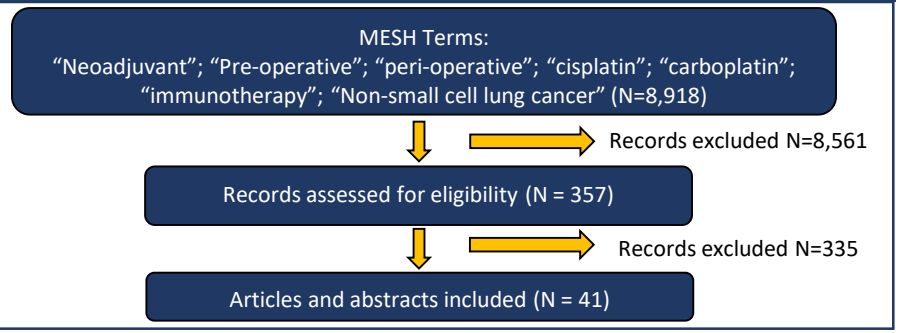

Figure 1: PRISMA flow diagram summarizing our article screening process

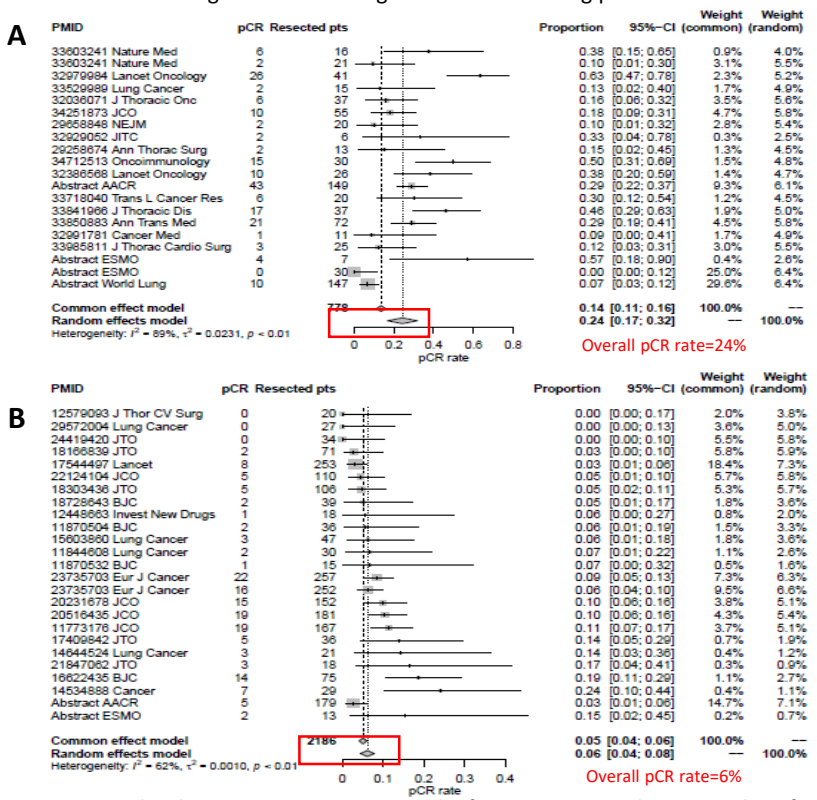

Figure 2: Forest plot diagrams summarizing results from proportional meta-analysis for (a) IO-based regimens and (b) chemotherapy regimens

Results- Subgroup Analysis

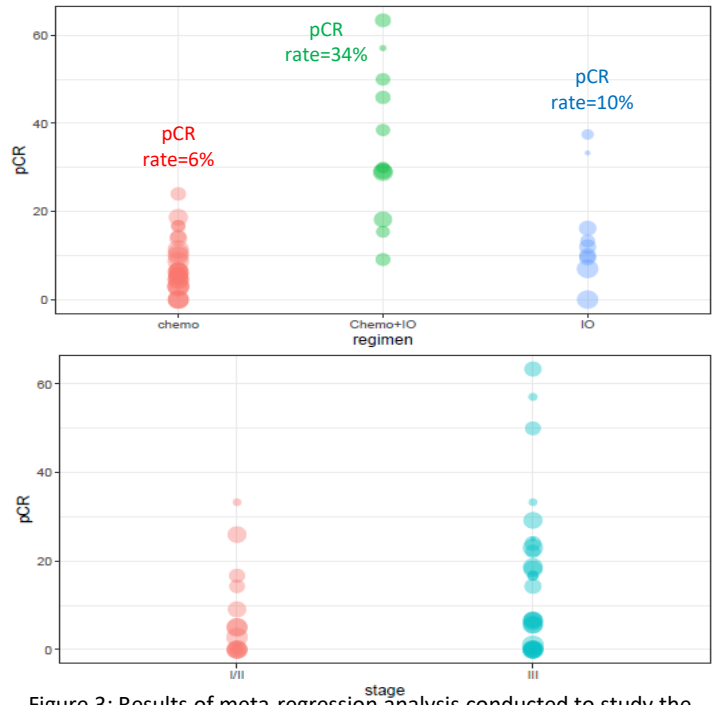

Figure 3: Results of meta-regression analysis conducted to study the effects of (a) regimen type and (b) stage (I/II vs. III) on rate of pCR

Conclusions

- Neoadjuvant chemo+IO achieved highest rates of pCR compared to chemo alone ($p < 0.0001$)- regardless of patient stage- while similar trends were not seen for either IO alone or chemo.
- There was a numerical difference in pCR between chemo and IO, however this did not reach statistical significance (p=0.34).
- Stage III patients trended toward increased pCR% regardless of regimen (p=0.09)
- These pooled rates of pCR may serve as useful benchmarks to inform future neoadjuvant trial design, prioritization and patient management.

References

1 Forde et al. AACR 2021 (oral presentation); 2 Cascone T, et al. *Nat Med* 2021; 3 Waser N, et al. ESMO 2020 (poster)