NEOADJUVANT IMMUNOTHERAPY PLUS CHEMOTHERAPY IN TRIPLE-NEGATIVE BREAST CANCER A METAANALYSIS AND SYSTEMATIC REVIEW

PANDY, JESSA GILDA P., ALCANTARA, MICHELLE,
CRUZ-ORDINARIO, MEL VALERIE B., LI, RUBI K.

Section of Medical Oncology, Cancer Institute, St. Luke's Medical Center, Quezon City

INTRODUCTION

In the early stages, the use of neoadjuvant treatment is the standard of care in triple negative breast cancers (TNBCs). Patients who achieve a pathological complete response (pCR) with primary therapy have improved survival outcomes. The programmed cell death protein 1 (PD-1) is an immune checkpoint that inhibits T-cell effector function within tissues. Its ligand, PD-L1, has been shown to have high expression in TNBCs. To date, major research efforts are being undertaken to determine the use of **PD-1/PD-L1 immune checkpoint inhibitors in TNBC.** Recent randomized controlled trials (RCTs) have shown promising activity of PD-1/PD-L1 inhibitors in the neo-adjuvant setting.

METHODS

A systematic search of Pubmed, Embase, Cochrane, Clinical trials databases and hand search were utilized to identify RCTs investigating the use of neo-adjuvant PD-1/PD-L1 inhibitors plus standard chemotherapy in TNBC. Trials published up to March 2020 were included. Using the random effects model, pooled Odds ratios (ORs) with 95% confidence intervals (CI) were calculated for pCR. Subgroup analysis of pCR rates based on PD-L1 expression was also done.

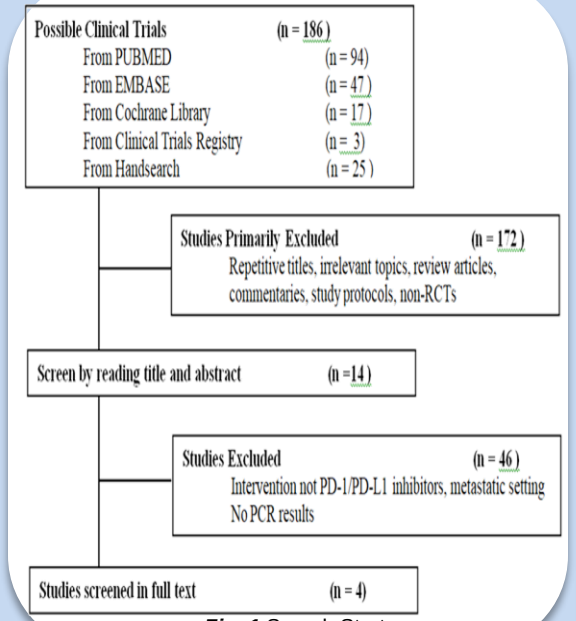

Fig. 1 Search Strategy

RESULTS

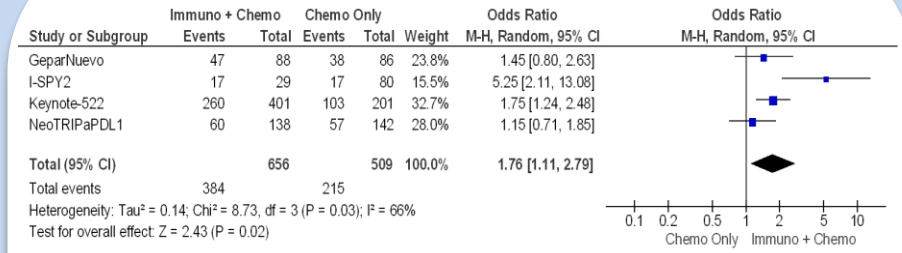

Fig. 2 Four RCTs were included (N=1306) and analyzed. Neoadjuvant immunotherapy plus chemotherapy showed significant pCR benefit of 58.5% vs 42.2% compared to chemotherapy alone (OR1.76, 95%CI1.11-2.79,P<0.02).

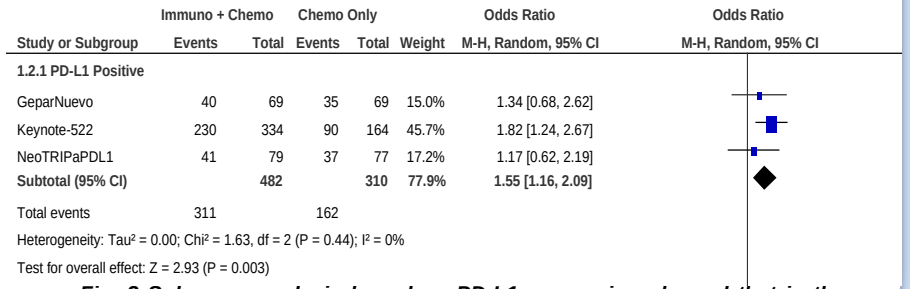

Fig. 3 Subgroup analysis based on PD-L1 expression showed that in the immunotherapy group, there is a significantly higher pCR rate in the PD-L1-positive population than in the PD-L1 negative group (64.5%vs39.4%, OR1.55, 95%CI 1.16-2.09, p=0.003, I2 = 0%).

CONCLUSIONS

PD-1/PD-L1 inhibitors combined with chemotherapy was associated with increased pCR rates in TNBC, hence, supporting its use in the neo-adjuvant setting. Subgroup analysis showed that the benefit of adding immunotherapy was more significant in those with PD-L1-expressing tumors. This indicates that the PD-L1 immune marker may have utility in selecting TNBC patients who can benefit more from PD-L1 inhibitors. Longer follow-up of these studies would hopefully show significance in progression-free survival and overall survival.

The authors state no conflict of interest. The manuscript has not been supported by any source of support, including sponsorship or any financial sources.

Costa R, Gradishar WJ. Triple-negative breast cancer: current practice and future directions. Journal of oncology practice 293, 2018.
Diana A, Franzese E, et al. Triple-negative breast cancers: systematic review of the literature on molecular and clinical features with a focus on treatment with innovative drugs. Current Oncology Reports 20:76, 2018.