Efficacy of immune checkpoint inhibitors in Adrenocortical carcinoma: a meta-analysis

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Introduction
• Adrenocortical carcinoma (ACC) is a rare and aggressive malignancy with few treatment options.
• The use of immune checkpoint inhibitors (ICI) has revolutionized the way many malignancies are treated. However, its role in ACC is still unclear. Thus, we performed a meta-analysis to summarize the efficacy of ICI in patients with ACC.

Methodology
• A systematic review was performed for studies for that used different ICI regimens in treating ACC.
• Databases: PubMed, Scopus, CENTRAL, ASCO and ESMO meeting abstracts.
• Inclusion criteria:
   Case reports, case series, retrospective studies, cohort studies or prospective clinical trials.
   Studies that reported at least one overall survival (OS), progression-free survival (PFS) or objective response rate (ORR).
• Exclusion criteria:
   Non-English language
   Basic studies, cross-sectional studies, and reviews
• Meta-analysis was conducted for efficacy data when there are at least 2 studies in each subgroup and each study contain at least 5 patients.

Results
• We included 10 studies with a total number of 168 patients. Patients’ median age across studies ranged from 43 to 62 with 60.6% being females.
• Six studies used anti-PD(L)-1 monotherapy (n=113), 2 studies used anti-PD(L)-1 and anti-CTLA4 combination therapy (n=24), and 2 studies used anti-PD1 combined with chemotherapy (n=31).
• The pooled ORR was 10.1% (95% CI: 36.3%-54.4%, I² = 0%) for anti-PD(L)-1 monotherapy (figure 1), 54.9% (95% CI: 34.4%-75.5%, I² = 0%) for anti-PD(L)-1 and anti-CTLA4 combination therapy, and 70.5% (95%CI: 26.5%-100%, I² = 90.3%) for anti-PD1 combined with chemotherapy.

Conclusion
• ICI-based regimens are feasible options in ACC settings.
• Combination therapy showed a similar ORR but higher DCR than single-agent anti-PD(L)-1.
• Using chemotherapy in addition ICI resulted in numerically the highest DCR. However, the lack of studies limit the accuracy of such results.
• The use of combination-based ICI should be further investigated by larger clinical trials.