Gemcitabine and Platinum (GC) chemotherapy alone or with a Taxane (GC-T) as first-line therapy for urothelial cancer (UC): a meta-analysis

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Background: The impact of adding T to GC as first-line therapy for metastatic UC needs to be clarified. We aimed to address this question through a meta-analysis of efficacy and safety results.

Patients and methods: PubMed, EMBASE, and ASCO abstracts were searched for studies including GC +/- T in the first-line setting. We pooled trial level data including the median, proportions and confidence intervals on PFS, OS, and adverse effects. Descriptive statistics were used to summarize information across trials, and grouped by whether they contained T (docetaxel or paclitaxel) and by platinum (CBDCA or CDDP). Uni- and multivariable regression models evaluated the prognostic role of T or platinum type, after adjusting for each other, performance status (PS), and visceral disease. Data were weighted by the logarithm of the trial sample size.

Results: 31 arms of trials including 2057 patients were selected (7 with T [n = 617], 15 with CBDCA [n = 623] and 16 CDDP [n = 1434]). Median OS was univariably significantly (p = 0.029) different between trials with T and those without T. Across trials, the median OS amongst trials containing T was 15.5 months (mo), compared with 12.5 mo in trials which did not. The % of pts with neuropathy (p = 0.025) and with neutropenic fever (p = 0.033) were also statistically significantly higher in T arms. Median of median OS was also statistically significantly superior (p = 0.041) in trials with CBDCA compared to CDDP (13.9 vs. 10.3 mo). Additionally, the rate of G3 pulmonary side effects was significantly higher in the CBDCA group (p = 0.039) while GCSF use was more frequent with CDDP (p = 0.042). Multivariably, visceral disease and PS were significantly associated with OS, while the addition of T trended to significantly better OS (p = 0.092), and platinum type was not statistically significant. The CBDCA group had a significantly higher rate of febrile neutropenia than the CDDP group (p = 0.035).

Conclusions: In this meta-analysis, adding T to GC significantly extended OS on univariable analysis and trended towards improved OS on multivariable analysis. The evaluation of a more potent and tolerable tubulin inhibitor in combination with GC in a well-powered trial may be considered.