Propensity-score matched analysis to evaluate the safety and utility of intraoperative cellsalvaged autologous blood transfusion in metastatic spine tumour surgery

Si Jian Hui¹, Praveen Jeyachandran, James Thomas Patrick Decourcy Hallinan, Jiong Hao Jonathan Tan², Naresh S Kumar

¹Orthopaedic Surgery, National University Health Systems, ²National University Health System - NUHS INTRODUCTION:

Blood loss is an important consideration in metastatic spine tumour surgery (MSTS). Allogeneic blood transfusion (ABT) is the current standard of blood replenishment for MSTS despite known complications. Salvaged blood transfusion (SBT) through intra-operative cell salvage (IOCS) addresses majority of complications related to ABT. However, use of SBT in MSTS remains controversial. We aim to conduct a prospective propensity-score (PS) matched analysis to evaluate the long-term clinical outcomes of IOCS in MSTS.

METHODS: Our study included 98 patients who underwent MSTS from 2014-2017. A PS matched cohort was created using the relevant and available predictors of treatment assignment and outcomes of interest. Clinical outcomes consisting of overall survival (OS), as well tumour progression (TP) that was evaluated using RECIST (v1.1) were compared in the matched cohort.

RESULTS:

Our study had a total of 98 patients with a mean age of 60yrs. Our cohort had 39 patients who received ABT, 33 who received SBT and 29 who received NBT. Overall median blood loss was 400 mL [IQR 200-900 mL] and overall median BT was 328.5 mL (IQR: 0 - 1042 mL). Group PS matching included 30 patients who received ABT and 28 patients who received SBT. There was also no significant difference between the OS of patients who underwent ABT or SBT (p=0.250). SBT did not show any significant increase in 4-year tumour progression [PS matched HR 1.1; 95% CI 0.29-4.1; p=0.908].

DISCUSSION AND CONCLUSION:

SBT has shown to have similar clinical outcomes to that of ABT in patients undergoing MSTS, with benefits of avoiding complications of ABT. Ours is the first long term PS matched analysis reporting clinical outcomes of SBT, affirming its role in MSTS today.