

# Neoadjuvant Chemotherapy Review in Penang Hospital: Comparing the adult and pediatric neoadjuvant chemotherapy regime

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## INTRODUCTION:

Extent of tumour necrosis post neoadjuvant chemotherapy is important factor in predicting outcome of patients with osteosarcoma. The study aimed to evaluate tumour necrosis percentage between 2 distinct chemotherapy regimes (EOI versus AOST 0331/MAP) given in Penang hospital.

## METHODS:

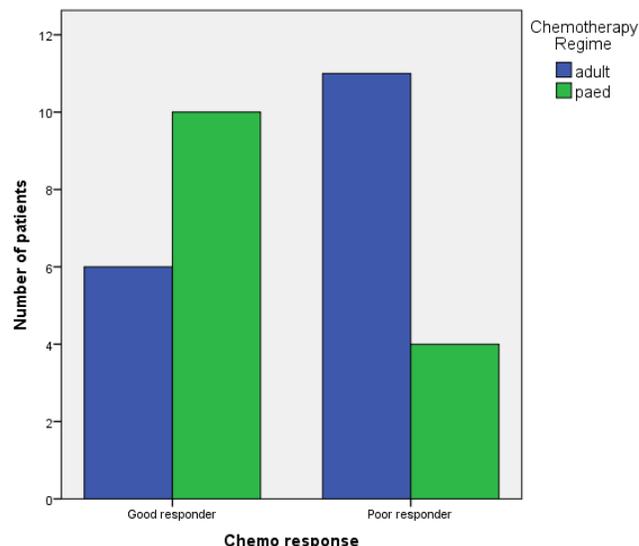
This is a single center retrospective study of patients with osteosarcoma, who underwent neoadjuvant chemotherapy followed by resection surgery. Patients were divided to 2 groups based on chemotherapy regime adopted: adult (EOI) regime and pediatric (AOST 0331/MAP) regime. All resection specimen was sent for histopathological examination. The main outcome measure was degree of tumour necrosis based on Huvos grading.

## RESULTS:

Total of 30 patients were included in the study, comprised of 17 (55%) who underwent adult regime and 13 (45%) who underwent pediatric regime. The mean age was  $19.7 \pm 10.6$  years, predominantly female (51.6%). The majority of tumours were at distal femur (64.5%).

Compared to adult regime, tumour necrosis percentage was significantly higher in patients who received paediatric regime ( $88.4 \pm 16.7$  versus  $68.7 \pm 31.7$ ,  $p < 0.05$ ). Based on Huvos staging, patient with paediatric regimen were more likely to have good respond (71.4% vs 35.3%). No significant difference in tumour margin upon histopathological assessment.

**Figure 1:** Bar chart showing the chemotherapy response between different chemotherapy regimes.



## DISCUSSIONS:

Introduction of high dose methotrexate (HDMTX) is the core difference of paediatric regime (AOST 0331/MAP) compared to adult regime (EOI). However, the concern of HDMTX related toxicity limited the use in adult patients. Our retrospective result demonstrated the higher tumour necrosis percentage in patient with HDMTX.

## CONCLUSION:

The potential benefit of HDMTX in paediatric regime showed significantly higher tumour necrosis in osteosarcoma patient compared to adult arm.

## REFERENCES:

1. Craft AW. Osteosarcoma: the European Osteosarcoma Intergroup (EOI) perspective. *Cancer Treat Res.* 2009;152:263-74. doi: 10.1007/978-1-4419-0284-9\_13. PMID: 20213395.