When it comes to cancer care, **choose hope.**

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THE IMPACT OF ADOPTING THE ANTICANCER DRUG DOSING IN KIDNEY DYSFUNCTION GUIDELINE ON CARBOPLATIN DOSING

BACKGROUND

Carboplatin dosing is calculated using the Calvert method to achieve a target AUC (area under the curve). A new international consensus guideline for Anticancer Drug Dosing in Kidney Dysfunction (ADDIKD) recommends the use of BSA (body surface area) adjusted CKD-EPI in place of Cockcroft-Gault to estimate glomerular filtration rate (eGFR) [1], as it is considered more accurate[2].

AIM

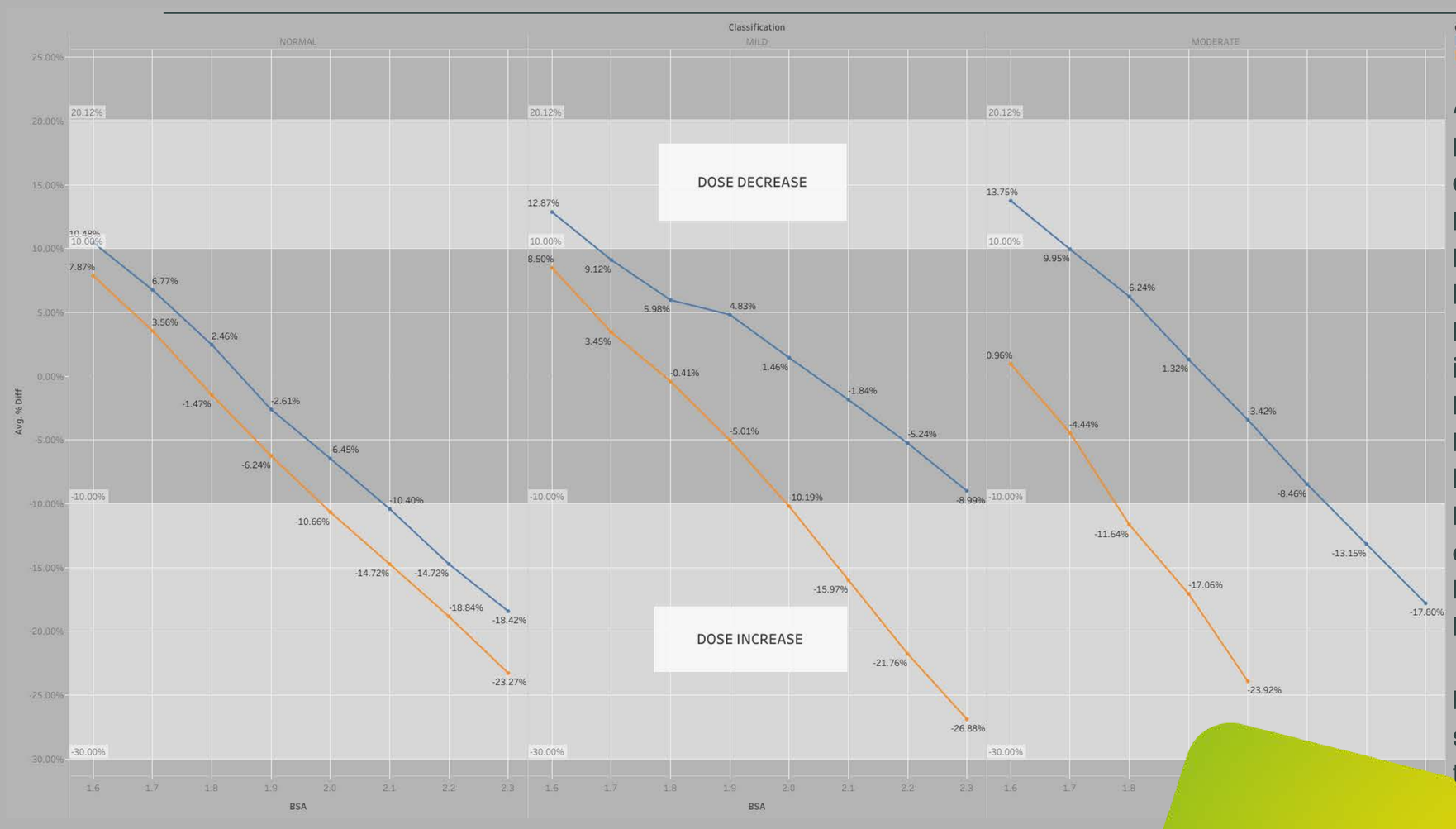
To assess the impact of the new eGFR calculation on carboplatin dosing.

METHODOLOGY

A dosing simulation was created using two different calculations of eGFR, Cockcroft-Gault and the BSA adjusted CKD-EPI through the National Kidney Foundation eGFR Calculator[1]. Variations in BSA, age, weight, serum creatinine and sex were analysed and generated a total of 21,600 dose simulations using a target AUC of 5. Clinically significant dose change was set at >10% difference.

RESULTS

Discordance to Cockcroft-Gault calculation was at 57.37% for males (dose increase 42.85%; dose decrease 14.52%) and 80.65% for females (dose increase 33.87%; dose decrease 46.78%). Moderate renal impairment in younger populations required more dose reductions, while older populations with normal and mild renal impairment required more dose increases.



ANALYSIS

Fig 1: Average dose differences between Cockcroft-Gault and CKD-EPI methods.
Normal renal function:
Males with BSAs over 2.0 on average tend to have significant dose increases. Females with BSAs over 2.1 tend to have significant dose increases.
Mild renal impairment:
Males with BSAs over 2.0 on average tend to have significant dose increases. Females with BSAs under 1.7 tend to have significant dose decreases.
Moderate renal impairment:
Males with BSAs over 1.8 on average tend to have significant dose increases. Females with BSAs under 1.7 tend to have significant dose decreases while BSAs over 2.1 tend to have more dose increases.

CONCLUSION

Further studies and risk assessment on the impact of these dose changes on actual patients receiving carboplatin should be considered before implementation. A balance between dosing accuracy, efficacy and likelihood of adverse events should be considered.

REFERENCES

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