

Weight and think - Does our prescribing weigh up?



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Background

Published reports suggest obese patients are frequently under-dosed for medications with weight-dependent^{1, 2} dosing, for fear of adverse effects or toxicity leading to potential subtherapeutic dosing³.

Challenges to effective dosing in obesity include lack of evidence, limited guidelines, inaccurate weight determination, and perceived toxicity risk.

Aim

To investigate the prevalence of under-dosing weight-based medications in patients with excessive bodyweight at a metropolitan teaching public hospital.

Method

A retrospective cross-sectional study was conducted in obese adult inpatients collected on nine random dates between December 2015 and April 2016. Eligible patients for this study were obese according to the World Health Organisation definition (body mass index (BMI) $\geq 30\text{kg/m}^2$)⁴, and had to be prescribed at least one medication with weight-dependent dosing. Patients' BMI were determined using electronic height and weight reports from Cerner Powerchart®.

From the captured patients, medication administration records (electronic medication charts) were reviewed to identify weight-dependent medication dosing. Patient data was assessed for dose appropriateness by calculating the recommended dosing according to current guidelines (electronic Therapeutic Guidelines) and comparing it to the actual dose prescribed. Prescribed doses outside the recommended reference range or that were not supported by therapeutic drug monitoring (TDM) were considered inappropriate.

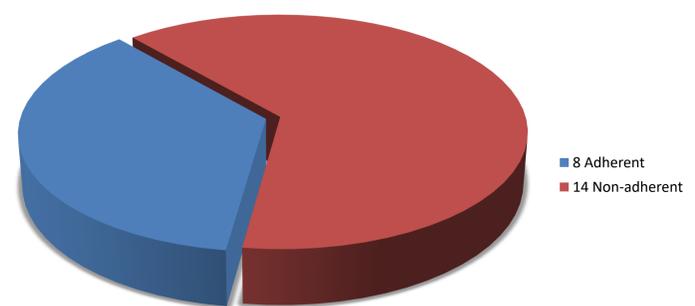
This study was approved by the Human Research Ethics Committee.

Results

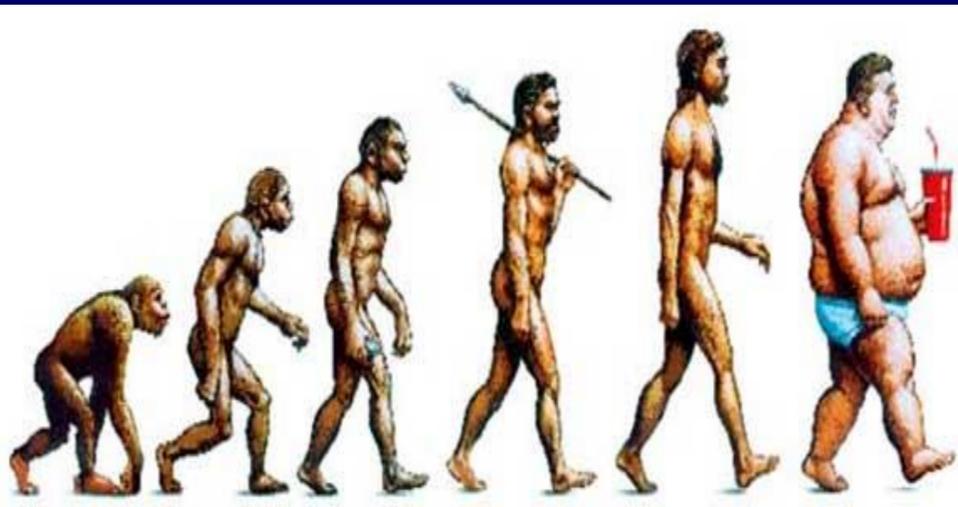
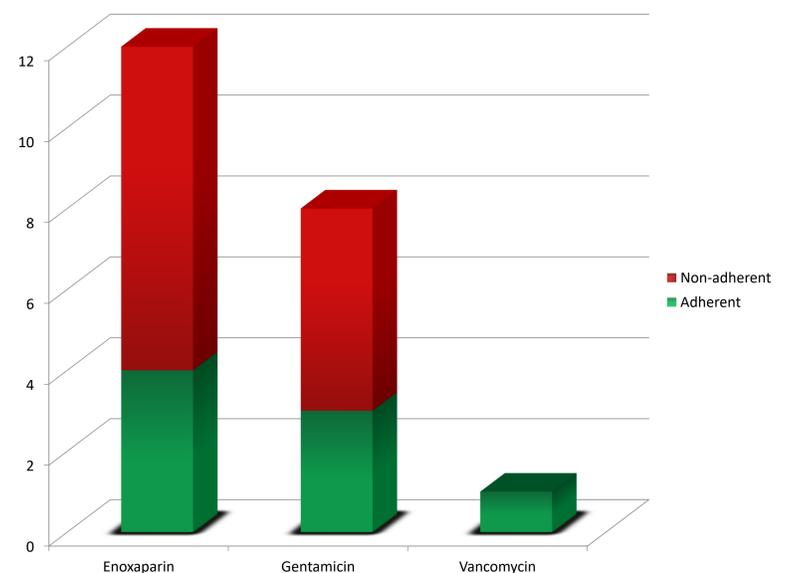
135 patients with a median BMI of 37kg/m^2 (range= $30\text{--}57\text{kg/m}^2$) were included in this study. From the 135 patients 16% (n=21) of these patients were prescribed at least one medication with weight-dependent dosing (n=21). Weight dependent medications prescribed were Enoxaparin, Gentamicin and Vancomycin.

38% (8/21) of doses were consistent with guidelines or were supported by TDM and 62% (13/21) of doses were less than recommended. Medications commonly under-dosed were Enoxaparin (8/13) and Gentamicin (5/13).

Adherence to recommended weight based dosing



Recommended weight based dosing



Discussion

A limitation of this study was inconsistent documentation of height and weight on or during admission, contributing to a small sample size. These patients may potentially be at the greatest risk of under-dosing, as estimated weight may be used. Published reports have found that patient weights are usually underestimated for fear of overdosing and that it becomes harder to estimate weight in patients who have higher BMI's³. Dosing in obese patients is challenging as guidelines are often unclear. TDM is recommended for obese patients.

References

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Conclusion

This study found the majority of obese patients were under-dosed according to product information recommendations, and strategies to improve prescribing in obese patients are warranted.