Ideal Body Weight And Obesity

L Jayaraman, N Seth, J Sood

Citation

L Jayaraman, N Seth, J Sood. *Ideal Body Weight And Obesity*. The Internet Journal of Anesthesiology. 2005 Volume 11 Number 1.

Abstract

As anesthesiologists calculation of drugs is vital as most of them are administered on the basis of total body weight(TBW) .With a surge in bariatric surgery these calculations are very vital for the anesthesiologist because certain class of drugs with poor lipophilicity and narrow therapeutic index ,when administered on the basis of total body weight (TBW) can lead to over dosage and drug toxicity. The aim of bariatric surgery is to reduce the patients weight to as close to the ideal body weight .The formula used to calculate the body mass index is readily available BMI(body mass index) = weight in kilograms / height in square meters Ideal BMI is between 22-26 .
Therefore weight in kilograms = Ideal BMI ie 26 (higher range of ideal BMI) multiplied by height in square meters.

This formula is easier to calculate in the operation theatres and thus there is no need to assume the ideal body weight.

INTRODUCTION

As anesthesiologists calculation of drugs is vital as most of them are administered on the basis of total body weight(TBW) .With a surge in bariatric surgery these calculations are very vital for the anesthesiologist because certain class of drugs with poor lipophilicity and narrow therapeutic index ,when administered on the basis of total body weight (TBW) can lead to overdosage and drug toxicity.[1]

METHOD

In view of the increased sensitivity of obese patients Wada et al [2] have suggested that the dose of thiopentone should be adjusted according to the lean body mass. For propofol though minimal data is available on the pharmacokinetics of propofol administered on the basis of administered as bolus, a dose based on ideal body weight is advised. For benzodiazepines the loading dose should be administered on the basis of ideal body weight[3] Neuromuscular blockers are polar hydrophilic drugs with no significant changes in the pharmacokinetics in obese patients .However dosing of these drugs based on actual body weight results in a longer duration of action, suggesting that ideal rather than the TBW should be used to calculate the dosing regimen in obese patients.[4] Regarding narcotics though there has been no difference in the pharmacokinetics of fentanyl in obese and non obese patients, one would still like to judiciously titrate and give appropriate doses[5].

Routinely, we assume a ideal body weight eg 60 kilograms or so and then titrate the drugs. For morbidly obese patients who are significantly larger than ideal body weight (IBW) drug dosages should be scaled to IBW or IBW plus some fraction of the difference between TBW and IBW.[6]

CONCLUSION

Various normograms and formulas are available to calculate IBW but these are not readily available in the operation theatres.

The aim of bariatric surgery is to reduce the patient's weight to as close to the ideal body weight. The formula used to calculate the body mass index is readily available BMI (body mass index) = weight in kilograms / height in square meters

So weight in kilograms = BMI multiplied by height in square meters

Ideal BMI is between 22-26 .

Therefore weight in kilograms = Ideal BMI ie 26 (higher range of ideal BMI) multiplied by height in square meters.

This formula is easier to calculate in the operation theatres and thus there is no need to assume the ideal body weight.

CORRESPONDENCE TO

lakshmi Jayaraman lakjayaraman@gmail.com

References

1. Cheymol.G Effects of obesity on pharmacokinetics implications for drug therapy Clin pharmacokinet 2000; 39:215-31
2. Wada DR ,Bjorkman S, Ebling W.F,et al Computer simulation of the effects of alteration in blood flow and body composition on thiopentone pharmacokinetics in humans Anesthesiol 1997;87;887-99
3. Greenblatt.DJ, Abernethy DR ,Locniskar A ,et al Effect of age ,gender,and obesity on midazolam kinetics Anesthesiol 1984;61:27-35
4. Leykin Y,PellisT .LuccaM, Lomangino G et al The pharmacodynamic effects of rocuronium when dosed according to real body weight or ideal body weight in morbidly obese patients Anesth Analg 2004 oct :99 (4) 1086-9
5. Scholz J,SteinfathM Schulz M Clinical pharmacokinetics of alfentanyl,fentanyl, and sufentanil An update clin Pharmacokinet 19965:31 275-92
6. Brodsky,Jay MD Anesthesia for bariatric surgery ASA Refreshor course in Anesthesiology 2005 Vol 33 ;49-63

Author Information

lakshmi Jayaraman, DA, MD
Consultant Anesthesiologist, Sir Ganga Ram Hospital

Nitin Seth, M.D.
Senior Resident, Sir Ganga Ram Hospital

Jayashree Sood, MD FFARCA PGDHHM
Chairperson Dept Of Anesthesia, Pain And Perioperative Medicine, Sir Ganga Ram Hospital