Actual or Adjusted: Which Should We Use?

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Background

Calculation of chemotherapeutic drugs doses was standardized to Body Surface Area, with the aim to produce optimum systemic drug level & minimize drug toxicity; it also can be very challenging in obese cancer patients. Obesity is a common & increasing problem affecting the developed world, beside it>s considered an endemic problem between the Egyptian populations. It represents a condition of excessive adipose tissue with its currently accepted definition based on Body Mass Index (calculated as follows: Weight (kg)/ [Height (cm) 2]1 obesity is defined as Body Mass Index >30 kg/m2); it once believed that obese patients who received chemotherapy on their actual body weight would result in increased toxicity, secondary to distribution of lipid soluble drugs into the adipose tissue. The current practice of using Body Surface Area in dosing anti-cancer drugs was implemented in clinical oncology half a century ago, by using Adjusted Body Weight it>s assumed that cancer patients would receive a dose of a particular cytotoxic drug associated with an acceptable degree of toxicity without reducing its therapeutic effect2, it also has been proposed as a method to improve the accuracy of calculating chemotherapeutic drugs doses especially for obese patients.

Aim

Considering the use of adjusted body weight for calculation of chemotherapeutic drugs doses and its impact on the disease free survival in obese female breast cancer patients.

Method

Significant correlation between a given demographic characteristic(body surface area and disease free survival). The dose of chemotherapeutic drugs based on Body Weight, and the traditional formula is DuBoin and DuBoin formula which is the most widely accepted nomogram which is simplified by Mosteller to:
BSA (m2) =√Ht. (cm) * Wt. (kg)/36003,6
Adjusted Body Weight= Ideal Body weight+ 0.4 (Actual Body Weight- Ideal Body Weight)
Ideal Body Weight for females = 45 + 2.3kg for each inch > 60 inches*. *60 inches =152 cm.4

We compared two groups of Adjuvant female breast cancer patients, both groups received FEC 100 regimen (Epirubicin 100mg/m2, 5-FU 500 mg/m2, Cyclophosphamide 500 mg/m2) 5for (4-6 cycles), between the period (2000-2008).

* Group A: (149 patients) received their regimen based on their actual body weight.
* Group B: (100 patients) received their regimen based on their adjusted body weight.

Conclusion and Recommendations

At median follow up period of 17 months there was statistical significance of disease free survival in favor of group B(patients received their regimen according to the adjusted body weight), (70.3 months Vs. 52.4 months, p= 0.004). Both groups were homogenous in other factors: ER, PR, HER2 status, Age, T & N, which by comparison showed non-significant difference. Using adjusted body weight is considered a proper alternative method for the calculation of anti-cancer drugs doses. An effort is currently using the substantial information to retrospectively examine outcome with respect to toxicities.

References

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