

Medication dosing and body weight

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Patient's weight is a crucial consideration in medication dosage since the size of the body affects the concentration of the drug in body fluids and at the site of action. Dose calculation based on body weight became standard for certain medications dosing. Dosing based on patient's specific weight makes the drug quantity administered specific to the patient being treated. When a drug is absorbed into the bloodstream, it is rapidly circulated through the body. Blood is circulated for about one minute on average. As the blood recirculates, the drug moves from the bloodstream into the body's tissues for example: fat, muscle, and brain tissue. Once absorbed, most drugs do not spread equally throughout the body. In the body, water soluble drugs tend to stay within the blood and surrounding tissues, while fat soluble drugs tend to concentrate in fatty tissues. Other drugs concentrate mainly in only one small part of the body for example: iodine concentrates mainly in the thyroid gland; because the tissues have a special attraction for affinity and the ability to retain that drug. Factors Affecting Drug distribution are plasma protein binding, physicochemical properties of the medication (lipophilicity, hydrophilicity), tissue blood flow and membrane transporters. Body composition in a normal body weight and obese patients, 20% from normal body weight is adipose weight and 80% lean weight, however, 40% from obese patient weight is adipose tissue and 60% is lean weight. Hydrophilic drugs excreted by renal clearance, has low volume of distribution, low Intracellular penetration and high extracellular distribution in comparison to lipophilic drugs that are excreted by hepatic clearance has high volume of distribution, high Intracellular penetration and low extracellular distribution.

Biography

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Received: August 24, 2022; **Accepted:** August 26, 2022; **Published:** November 21, 2022
