

amount of drug in the body at any time to the corresponding plasma concentration (Dhillon and Gill 2006).

1.1.3 Excretion

Both metabolism and excretion are the major processes responsible for elimination of the parent drug and its metabolite(s) from the body (Craig and Stitzel 2004). Excretion is the termination of the biological effect of exogenous substances by combined processes of redistribution, metabolism, and excretion. Each of these processes governs plasma drug concentrations at any time (Dhillon and Gill 2006; Leucuta and Vlase 2006; Raffa 2010).

1.1.3.1 Factors affecting drug excretion

Several factors influence the rate and extent of elimination. Accumulation occurs if the rate of absorption and distribution of a drug or a nutrient exceeds the rate of elimination (Raffa 2010). In humans, the kidneys are the major route of elimination for many drugs due to the fact that the kidneys receive about 20–25% of the cardiac output. Other sites of elimination include the feces and to a lesser extent sweat, saliva, gastric fluid, breast milk, and semen. However, some medications are eliminated unchanged in the bile (Bauer 2001; Raffa 2010).

1.1.4 Metabolism

Metabolism terminates the action of many drugs by forming a more water soluble metabolites which can be easily excreted by the kidney. Metabolism also changes the chemical structure of the drugs producing metabolites which are less pharmacologically active than the parent drug (Corrie and Hardman 2011; Craig and Stitzel 2004). However,