**Tracy Davis Post**

**Variations in Drug Response**

Pharmacokinetics refers to the process through which a given drug moves into, through, and out of the body. Understanding this process, as well as the dosage or type of drug taken, helps one understand the concentration of the drug at its sites of action. Drugs that are administered orally must be soluble. They also must be resistant to gastric acids in the body such that they are not destroyed before their use. Normally, the pharmacokinetic process is characterized by four steps; absorption, distribution, metabolism, and elimination (Advokat, Comaty, & Julien, 2018). However, there are some factors that can affect these processes. For example, in our case, the primary issues to consider include age, weight, metabolic state, gender, distribution of body water and fat, and alcohol use.

***Comparative Analysis of the Metabolism Process***

Assuming both Ms. Jones and Mr.Smith are taking aspirin, the metabolism process will be faster in Ms.Jones body. One reason is that age influences the metabolism process. Research shows that the elderly have a reduction in gastric pH, which lowers the solubility rate of drugs. Another factor that might lower the absorption rate of the drug in Mr. Smith’s body is body weight. An increase in body BMI affects the gastric emptying and guts permeability. For people with a higher BMI or those at the obese level, more dosage might be required in order to attain effective concentrations.

However, there are a few other elements that might lower the metabolism rate in Jone’s body as compared to the case in Smith. Research shows that when compared to men, women have a higher concentration of body fats but lower water content (Gunja, 2013). In this case, the fats act as a reservoir, hence increasing the half-life of drugs in the body. Pharmacokinetics of drugs can also be significantly influenced by the rate of alcohol intake. High concentrations of the ethanol element delay the drug absorption rate due to gastric irritation. Considering that Jones is a regular drinker, the ethanol content might lower the metabolism process in her body. Lastly, based on clinical research, men have a higher metabolic state as compared to women. This means that their drug absorption rate might be higher than that of women. However, this element is affected by other factors such as age and proportion of body fat.

***Risk-benefit Analsysis***

The risk-benefit analysis of the impact of aspirin level in the body helps in comparing the difference between long-term and occasional use of this drug. Considering that the drug is suitable for primary prevention, low amounts of the drug are recommended (Advokat, Comaty, & Julien, 2018). Higher amounts of the drug might contribute to other health problems such as stroke and allergic reactions.

**References**

Advokat, C. D., Comaty, J. E., & Julien, R. M. (2018). Julien's primer of drug action: A comprehensive guide to the actions, uses, and side effects of psychoactive drugs (14th ed.)

Gunja, N. (2013). The clinical and forensic toxicology of Z-drugs. Journal of Medical Toxicology, 9(2), 155-162.