**Colleague Aaron W response to the assignment in regards to the two patients.**

Ms. Jones and Mr. Smith both partake in alcohol consumption, however at different rates.  Their body composition (height, fat, water, and weight), gender and age differ significantly thus resulting in metabolic results.  Based on these differences I’ll explain how these factors impact pharmacokinetics of alcohol in the context of half-life, dosage, consumption method and elimination of alcohol.

Drugs, or alcohol in this example are processed through the body in four phases: absorption, distribution, metabolism and elimination (ADME). Advokat, et al. 2018) The clinical term pharmacokinetics is described as the bodies ability to process a drug and relative to the duration of the peak to valley of the drugs impact on the body.  Drugs are generally administered one of six ways (tablet, injection, liquid, patch, gum or spray) and in the case of Ms. Jones and Mr. Smith alcohol was most likely consumed orally.

When a drug such as alcohol is taken orally it must pass through the gastrointestinal tract.  An enzyme called alcohol dehydrogenase lines the GI tract, and research indicates women have less of this enzyme.  Based on the amount of these enzymes, women can consume the same amount of alcohol as a man and have a higher blood alcohol level and a greater affect.

Drug termination occurs when the body processes and excretes the drug through bile, lungs, kidneys, and skin. (Advokat, et al. 2018) More often drugs leave the body through urine.  Heavy amounts of alcohol can cause “alcohol breath” and occurs when the lungs excrete via gas.

Several factors determine a drugs half-life.  Understanding the relationship between the effectiveness in a drug and timeline is important to determine the correct dosage in connection to predicting dosage levels, evaluating time periods, and terminating the drug and when it will leave the body relative to the person’s body disposition or needs.  In other words, the speed of which alcohol is consumed can have great impact on the bodies ability to process and excrete the drug.

Drug tolerance is the body’s ability to decrease the responsiveness while maintaining the same dosage.  Behavior and pharmacological mechanisms are two of the three responses of drug tolerances and the third is metabolic.  Relative alcohol tolerance and relativity between men and women also include a body’s water and fat content.  Water can dilute and fat can retain high concentrations of alcohol.

Based on aforementioned factors, Ms. Jones biological make-up, smaller body type was able to be neutralized by her frequent social drinking which may have built up her tolerance of alcohol, yet heavier bi-weekly book club drinking will likely drive her blood alcohol level to excessive levels.  Mr. Smith with a much larger body type, more water, great body mass index, and greater amount of alcohol dehydrogenase enzymes can handle occasional drinking without concern, however his infrequency of alcohol may impact his social behaviors.

Regards

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](https://ashford.instructure.com/courses/75300/modules/items/3809146) (14th ed.). Retrieved from https://vitalsource.com