The Effects of Different Glucose Ketone Index (GKI) Values on the Proliferation of VM-M3 Brain Cancer Cells

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The purpose of this experiment was to identify the effects of different Glucose Ketone Index (GKI) values on the proliferation of cancer cells. It was hypothesized that if a GKI diet of .5, 1, 2.5, 5, 10, and 100, were applied to the VM-M3 brain cancer cells then the .5 GKI would most effectively slow the proliferation of the VM-M3 brain cancer cells because it would have the highest concentration of ketones. The initial step in experimentation was to calculate cancer cell concentrations to find the volume of solution needed to place 10,000 cells for trial 1, and 25,000 cells for trial 2, in each of 27 wells. Each well plate was treated with the corresponding GKI values of 0.5, 1, 2.5, 5, 10, and 100 as well as a control of ketones, glucose, and no food. All cells were counted and analyzed after incubating for 5 days in trial 1. Trial 2 was incubated for 2 days. The researcher found that in trial one, the GKI value of 2.5 had the least proliferation of the VM-M3 cancer cells, of the GKI values tested, whereas the GKI value of 1 had the second least. In trial two, the GKI value of 1 had the least proliferation of the cancer cells, whereas the GKI value of 2.5 had the second least. Through this research, the date indicates that a GKI of 1 or 2.5 provides the most effective decrease in proliferation amongst cancer cells.

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