Caffeine: Effects on SKOV-3 Human Ovarian Cancer Cells

Brooks, Faith (School: Kamehameha Schools Kapalama Campus)

Cancer is one of the major adverse health issues in the world, and is the second leading cause of death amongst Native Hawaiians. Ovarian cancer specifically, is known to have a stronger effect on Native Hawaiian females. Caffeine is a chemical compound that is found in various drinks and medications, and is frequently consumed today. Considering caffeine's prominence, the purpose of this research was to determine if caffeine may inhibit the growth and viability of ovarian cancer through the use of SKOV-3 Human Ovarian Cancer Cells. A 100 μM caffeine stock solution was made using H2O as a solvent. This solution was treated on SKOV-3 cells at varying doses, ranging from 250 μM to 5 mM, depending on the assay being used. Cell counting revealed that caffeine induced a greater decrease in the cellular proliferation and viability of SKOV-3 cells with higher caffeine concentrations ($p<0.001$), and longer exposure to caffeine ($p<0.001$). A Sulforhodamine B (SRB) Assay showed that the higher the caffeine dosage, the greater the decrease in cellular viability ($p<0.001$). Finally, through a Wound-Healing Assay, all tested caffeine dosages were found to inhibit cellular migration, and affect cellular viability. The most consistent and effective caffeine dosage was the 1 mM caffeine dosage amongst all treatments tested. It is comparable to daily caffeine consumption levels, which is something that many published studies fail to consider. The results of this study, if explored further, could reveal caffeine's role in the health of ovarian cancer patients.

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