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Commentary

Introduction to Micro Culture Kinetic Assays (Mick Assay)

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ABOUT THE STUDY

Micro-Culture Kinetic (MiCK) assay is a clinical pathology test that assesses apoptosis in cancer cells generated by chemotherapy in a specific patient. Oncologists can use the MiCK assay to get a clinically relevant drug sensitivity profile of a patient's tumour cells. Chemotherapeutic drugs work by triggering apoptosis in cancer cells. The Microculture Kinetic (MiCK) assay is used to evaluate apoptosis in a cell population in an automated and continuous manner The chemo sensitivities of human promyelocytic HL-60 and lymphoblastic CEM cell lines, as well as leukaemia cells freshly isolated from patients with Acute Non Lymphocytic (ANLL) or Acute Lymphocytic (ALL) leukemias, were determined using the MiCK assay. The time to maximum apoptosis (Tm) and its two components, initiation time (Ti) and Development Time (Dt), can be calculated using continuous apoptosis monitoring in the MiCK experiment. Depending on the drug, drug concentration, and kind of target cells, the duration of the three apoptosis timing components might range from hours to days. The MiCK assay has been developed as a drug-induced apoptosis assay. Patients with acute myelocytic leukaemia and epithelial ovarian cancer who were treated with medicines that showed high apoptosis in the MiCK assay had higher response rates and longer life in blinded clinical trials. Unblended clinical trials in a variety of tumor types have indicated that the assay will be used frequently by clinicians to determine treatment, and that when it is utilized, it leads to higher response rates, longer time to recurrence, and longer survival durations. Based on rising generic medicine use and single-agent substitution for combo therapy, model economic evaluations imply possible cost savings in clinical use. Two preliminary trials involving medications under development show promise. The assay could help cut costs and shorten turnaround times. The oncologist will send a sample of the specimen (the type of specimen depends on the type of cancer) to DiaTech Oncology, which will extract and purify the tumour cells in order to perform the MiCK assay. The results of the MiCK assay assist oncologists in selecting the most effective chemotherapeutic treatment for killing the patient's specific cancer cells. The MiCK test is easily adapted to the 96-well microplate size and may be used to quickly and quantitatively screen a wide range of compounds for their effects on cell growth. The innovative MiCK assay allows for a quantitative, informative, and quick assessment of malignant cell growth kinetics, and it shows enough potential for future usage in chemotherapeutic drug sensitivity testing. An automated MiCK technique has been developed for evaluating drug-induced apoptosis in tumour cells. Apoptosis is a type of cell death that happens naturally in healthy cells but can be triggered in cancerous cells by chemical and physical stimuli such as anticancer drugs. Chemotherapeutic agents have been known to induce apoptosis in tumour cells sensitive to chemotherapeutic agents for the past decade. This means that the MiCK apoptosis assay can be used to investigate the impact of cytotoxic drugs on tumour cells using a mechanism-based approach. A comparison of the MiCK assay to clonogenic and calorimetric chemosensitivity tests is currently being conducted. Drug-induced apoptosis in solid tumours, such as neuroblastoma and colon adenocarcinoma cell lines, has also been studied using the MiCK assay. The MiCK assay can identify drug-induced apoptosis in primary cultures of tumour cells isolated from patients with ovarian carcinoma, gastric carcinoma, metastatic breast cancer, and high-grade soft tissue sarcoma, according to new data gathered by DiaTech. The MiCK examine can be acted in malignant growth examples, and results are frequently utilized by doctors in malignant growth patients with repetitive or metastatic illness. These outcomes from a decent lab stage can be the reason for a future bigger planned multicenter study to more conclusively laying out of these assays.

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