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FOLDER Information + Publications August 28, 1973  
In response to inquiry 4-2

J.W. Range  
1356

71843J

James H. Hill, Assistant Manager for Operations

Per your request, I have evaluated the need for helicopter sample delivery of tumor samples between UT Hospital and ORNL Biology and have concluded that it is a justified need.

The facts of the present case as relayed to me by Mike Hanna are as follows. The UT patient is a female who had breast cancer and a "radical" some time ago. Three new tumors have appeared in the chest flesh where the breast had been. BCG has already been injected into one of these tumors. After three weeks when the BCG has had a chance to activate the blood lymphatic system to destroy the cancer cells, one or all of the three tumors will be removed. These tumor(s) must be biopsied at ORNL in the same fashion as we have with animal tumors. Due to degeneration of tissue, thirty minutes is often critical in timing for the biopsy. The drive from UT Hospital to Biology is about 35 minutes at an unsafe speed whereas the helicopter guarantees 15-minute delivery lab to lab.

Other aspects of the present case. We expect the injected tumor to regress. A major question is whether the BCG activates immune response systems adequately to get the more distant tumor. If the most distant tumor in the woman's chest shows signs of regression after three weeks, it will not be removed but will be left in to be neutralized by the BCG. If the distant tumor shows no visible signs of regression after three weeks, it will be removed and taken to ORNL also. The distant tumor will then be separated cell by cell and about 1-10,000 cells will be cultured in a medium to continue growth. After three days, some of the woman's blood will be removed; the white (immune response) blood cells will be separated from the red cells at UT and the white cells will be brought by helicopter to ORNL Biology to see if the white cells can kill the cancer growth. Here, timing is even more essential since white blood cells lose their "punch" in a half hour or less.

The whole point of all of this is to see if people "response" systems are like that of mice. This technique works on mice. We get to see in a human patient if (1) the BCG gets the injected cell, (2) the BCG activates the white cells of the blood, and (3) whether the white cells can "get to" the tumor in vivo as contrasted with in a petri dish. Basically, we would like to give one shot of BCG and have it go throughout the body and destroy any stray cancer cells that may metastasize (restart growth in a different tissue or organ, such as breast cancer cells in liver or skin).

The need for helicopter delivery was agreed upon by UT and ORNL biomedical experts. The whole cooperative programs is part of the cancer center function supported by NCI to get laboratory research methods to the patient. As such, it is expected to continue and even increase, perhaps remarkably. I feel we should take whatever actions are necessary to make these cooperative programs and associated sample deliveries by helicopter or otherwise more or less matter of fact.

Joe Lenhard

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cc: R. J. Hart  
~~L. W. Range~~  
K. M. Haythorn