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Dr. Walter H. Weisen - 2

Comments of the Staff:

1. This work represents an extension of the basic work done by Carr and associates published in 1962 in animals, and later in 1964 in animals and humans. Use of cesium-131 is impractical for general clinical medicine because ~~of~~ the 30 KeV photon is attenuated severely by other structures in the chest, particularly by the sternum and ribs. The studies thus far under this research protocol have shown nothing new over the definitive and rather conclusive studies of Carr in 1964.

2. Present objective of this program is to explore organic and inorganic mercury uptake in areas of blood flow diminution or tissue injury. Pilot studies by these investigators show that in the usual clinical situation there is no positive uptake in the area of the compromised tissue of the myocardium . The problem of isotope uptake in injured or diseased tissue of the myocardium overlaps with a similar problem in the detection of cancer tissues. The protocol does not indicate an exploration of some of the basic science aspects of chelated or nonchelated cation uptake.

3. Although the introduction suggests a search for a new effective isotope for myocardial blood flow scanning, the protocol indicates study restricted to organic and inorganic mercurial compounds amplified by cesium-131. The possibility that other cesium, rubidium and potassium isotopes can be prepared for diagnostic studies might be explored. Our findings with compounds of rubidium and cesium show a very definite improvement over all previous work. Positive uptake by indium or gallium might be better than by mercury.

4. The use of various image enhancing algorithms and hardware certainly needs more exploration. However, the development of the hardware systems seems more appropriate in the hands of about four very competitive, sophisticated companies who are working very hard on the problem. The statistics associated with most scan situations do not allow the use of many image enhancement techniques. However, much of the hardward necessary for dynamic studies will be available soon commercially. The protocol does not provide for dynamic studies, which should give a measure of uptake and thus blood flow by inference.

Sincerely yours,

John H. Lawrence, M.D.

JHL:b

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