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Dr. Paul McHenry was queried this morning and his experience is that greater than 50% of the older subjects his group has tested develop ventricular arrhythmias varying from single premature beats to ventricular tachycardia. He uses the same indications for stopping exercise in older subjects as in young ones, and has encountered no instances of morbidity or mortality associated with exercise induced arrhythmias in older subjects. His opinion is that it is reasonable and appropriate to exercise test elderly subjects if they are included in the Lipid Project Research Plan.

Dr. Herman Hellerstein was contacted about this question and he saw no reason at all to refrain from exercise testing elderly individuals because of the known increase in exercise induced arrhythmias in this group. His own experience is that at least 25% of his subjects develop exercise arrhythmias and he does not refrain from testing on the basis of age alone. He specifically stated that of all the exercise tests that have been conducted by him and his group, there has been no incidence of illness requiring hospitalization or death produced by an exercise induced arrhythmia. He was in favor of exercising this group if they are participating in the Research Study.

Dr. Robert A. Bruce was contacted and he has also found the increased incidence of ventricular arrhythmias in persons over 60. He states that in the course of performing about 15,000 tests at his laboratory there have been 3 instances of exercise induced ventricular arrhythmia which developed into ventricular fibrillation. All three of the subjects were defibrillated with the first shock and suffered no morbidity or mortality. He also related to me the experience of the CAPRI Program in Seattle operated by Dr. Howard Peiffer. They have approximately 52,000 hours of supervised exercise experience with cardiac patients, and have had 9 instances of exercise induced ventricular fibrillation. All of these have also been successfully defibrillated with the first shock and have not experienced morbidity or mortality from the exercise induced arrhythmia. In both the CAPRI Program and Dr. Bruce's laboratory the incidence of fibrillation was on the order of 1 per 5,000 or 6,000. In all cases it occurred in persons with advanced coronary heart disease. Dr. Bruce does not exclude elderly patients from exercise testing on the basis of age alone and he saw no reason for our Project to do that either.

Dr. Gunnar Blomqvist was also contacted and he states that he too has been aware of the increased incidence of ventricular arrhythmias with increased patient age. He has found all such arrhythmias conducted in his laboratory to be benign and self-limited with one exception. There was a single case of atrio-ventricular block which developed in a patient with severe coronary artery disease which did not revert to normal conduction until after intravenous atropine had been given. No other complication of exercise induced arrhythmia was seen. Dr. Blomqvist does not refrain from exercise testing patients on the basis of age; he and his group have indications for stopping exercise which are virtually the same as those of the Lipid Project Exercise Protocol. It is his opinion that subjects in the Lipid Research Clinic Project do not need to be excluded from exercise testing on the basis of age, but only on the basis of findings specific to the individual which would make exercise a hazard or would preclude interpretation.

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The experience in the exercise laboratories at the University of Alabama in Birmingham have been comparable to those preceeding. In approximately 15,000 exercise tests we have had countless occurrences of ventricular premature beats, both uniform and multiform, both rare and frequent, and occasionally there have been brief runs of ventricular tachycardia. On two occasions exercise induced ventricular tachycardia has lasted after succession of exercise; in one case 30 seconds and in the other case 90 seconds. The first case terminated spontaneously, and the second terminated after a bolus of Xylocaine was injected. It might of course also have self-terminated. In addition there was an instance of paroxysmal atrial tachycardia which persisted 4 minutes after the end of exercise and then responded to carotid sinus massage. Lastly there was one case of atrial fibrillation precipitated by exercise. It did not terminate spontaneously. It did not result in circulatory embarrassment, and was treated by oral digitalization on an outpatient basis. Normal sinus rhythm was restored by the time of followup visit. These laboratories also do not exclude exercise testing on the basis of age, and because of our experience with the benign clinical nature of these exercise induced arrhythmias, I do not recommend that Lipid Clinic patients be excluded on the basis of age either.