the ratio between the size of the early and the late phase of myocardial ^{123}I clearance might information about myocardial fatty acid metabolism. From our experience, this is only valid in humans, if biexponential curve analysis is performed. Fitting of the first part of the monoexponential tracer elimination curve which has been performed in humans also by others (*3*, *4*) results in a fictive curve characterized by elimination half-life that is influenced by component ratio, and therefore indicates changes in the sizes of the two different components of myocardial IHA clearance.

To clarify terminology the terms "early" and "late phase" of ^{123}I time-activity curve should be used with caution, as the "late phase" or the slow component is also present during the early phase even if the slow component can be identified only by prolonged acquisition time (in humans up to 90 min) (*2*) and therefore commonly was not used in clinical studies. However, an increase in size of the slow phase prolongs the apparent half-life of the "early phase" even if the half-lives of the fast and the slow exponential components do not change.

The clinical relevance of this was demonstrated by the follow-up of a patient before and after aorto-coronary bypass-surgery for successful treatment of three-vessel disease. In this patient the functional severity of the disease before surgery was documented by scintigraphic exercise testing which resulted in a fall of left ventricular ejection fraction from 56 to 47%. The exercise test after surgery revealed a rise of left ventricular ejection fraction from 50 to 60% as a result of revascularisation. Prior to and after surgery, resting IHA scintigraphies have been performed and revealed an improvement after surgery for half-life in the "early phase" from 35 to 26 min and from 0.5 to 1.2 for component ratio, respectively, whereas the half-life of the fast component from 11 to 12 min and the half-life of the slow component from 50 to 56 min did not show any evaluable alteration.

This interindividual comparison bypasses the short-comings of conventional planar fatty acid scintigraphy as discussed earlier (*2*). It demonstrates impressively the superiority of component ratio to characterize noninvasively changes in the situation of myocardial fatty acid metabolism even under resting conditions that might be caused by long acting influences on myocardial metabolic equilibrium as repeated apparent and, or silent ischemia. Nevertheless the overall change in IHA kinetics during the "early phase" of elimination might be sufficient for judgement of serial changes in the same individual, with the advantages of saving acquisition time and reducing the amount of radioactivity needed and thus decreasing cost as well as radiation dose to the patient.

References

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REPLY: We are pleased that the clinical report of Fridrich et al. (*1*) confirms our proposal that the ratio between the size of the early and late component of the iodine-123 heptadecanoic acid (IHA) time-activity curve might provide qualitative information about myocardial IHA metabolism (*2*). As pointed out in both studies (*1,2*), this component ratio can only be determined when biexponential curve analysis is performed. Therefore, the terms "early phase" and "late phase" can only be used when the true phases are analyzed, i.e., the monoexponential late component has to be subtracted from the total myocardial time-activity curve to yield the true early component (*2*).

If the myocardial IHA time-activity curve is fitted monoexponentially (in most cases due to a too short monitoring of the curve after IHA injection), each curve point represents a combination of the early and late component until the true early phase has disappeared completely. Hence, the half-time of this monoexponential curve reflects a combination of early IHA turnover (which is not equivalent to IHA oxidation) and IHA storage (*2*). Whether the half-time of this monoexponential IHA time-activity curve according to Dr. Fridrich reflects changes of the component ratio as a qualitative indicator of myocardial fatty acid metabolism cannot be answered by our experiments. It would be of interest, however, to compare the half-time of this monoexponential curve with myocardial oxygen consumption as a measure of myocardial oxidative metabolism.

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Sequential Technetium-99m HMDP—Gallium-67 Citrate Imaging in the Painful Prosthesis

TO THE EDITOR: We were interested to read the excellent paper from the Mayo Clinic (*1*) on the results of technetium-