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The Relationship between Fibrosis and Lactate Dehydrogenase Isoenzymes in the Experimental Hypertrophic Heart of Rabbits

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SUMMARY

Cardiac hypertrophy was induced in rabbits by injecting either thyroxine or isoprenaline or by surgically constricting the abdominal aorta. An increase in heart weight was associated with a change in the lactate dehydrogenase isoenzyme pattern and an increase in fibrosis (as measured by hydroxyproline concentrations). Isoprenaline treatment led to a moderate increase in heart weight, a marked decrease in the heart/skeletal muscle subunit ratio of lactate dehydrogenase, and a marked increase in hydroxyproline. Thyroxine treatment led to a small increase in both heart weight and hydroxyproline and a small decrease in the heart/skeletal muscle subunit ratio. Coarctation of the aorta, in contrast, caused a marked increase in heart weight, a moderate decrease in heart/skeletal muscle subunit ratio, and a moderate increase in hydroxyproline. These results suggest that the decrease in the heart/skeletal muscle subunit ratio of lactate dehydrogenase in the experimental hypertrophic heart reflects the extent of myocardial fibrosis, rather than changes within the hypertrophied myocardial cells.

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