Quinidine Effects on Heart Muscle

Positive and negative inotropy

in relation to depression of the
cardiac sarcotubular calcium pump

Dear Sir:

The purpose of the study and the interpretation of the data by Fuchs et al. (1968) was based on the generally held assumption that quinidine has only opposite contractile effects on skeletal muscle and cardiac muscle. As the authors indicated, quinidine potentiates twitch tension in skeletal muscle, and at high concentrations causes contracture (Isaacson and Sandow, 1967), whereas in the heart, quinidine has generally been considered a myocardial depressant. The authors failed to recognize, however, that in addition to a depression of cardiac contractility, quinidine can increase the contractile force of cardiac muscle (Kruta et al., 1963; Kruta, 1964; Pruett and Woods, 1967; Kennedy and West, 1968; West, 1968). This enhancement of cardiac contractility is most readily observed at long beat intervals and low concentrations of quinidine, and it is dependent upon the extracellular calcium and sodium concentration (West, 1968).\(^1\) In attempting to correlate inhibition of calcium uptake by sarcoplasmic reticulum with the contractile effects of quinidine, both the quinidine-induced depression and enhancement of cardiac contractility should be considered.

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REFERENCES


\(^1\) Kennedy, B. L., and T. C. West. 1969. Factors influencing quinidine-induced changes in excitability and contractility. Data to be published.


