Despite the fact that cardiologists differ markedly in their convictions regarding the value and risks of quinidine as well as their methods of its administration, they are the chief users of the drug. An increase in the number of bowel movements with or without mild abdominal distress, more characteristically a nuisance than a serious problem, is a well-known side reaction. This complication of therapy occasionally limits the potential usefulness of quinidine in certain patients with cardiac arrhythmias.

A recent report by Garrett and associates has given basic information concerning the pharmacological effects of quinidine.

Two electrical phenomena are recorded normally from the small bowel. One, which has been referred to as the basic electrical rhythm (BER), is an omnipresent, cyclically recurring change in potential in the longitudinal (outer) smooth-muscle layer, and is considered to be the pacemaker or synchronizer of motor function of the bowel. The second type of electric activity consists of a burst of "spike," "fast," or action potentials, which accompany contraction of muscle. The spikes occur only during a restricted or limited portion of each cycle of the BER, specifically near the crest of the slowly oscillating waveform when the membrane potential is lowest.

In either smooth-muscle layer, it was only the spike discharges that were followed by contraction of the muscle. Quinidine produced a dramatic increase in the incidence of "spikes" or action potentials, so that each cycle of the basic rhythm included spiking potentials in both muscle layers (fig. 1). The intrinsic pacemaking electric cycle was reported as unchanged. In association with the increased spiking activity the motor action of the bowel was greatly increased.

Following the suggestion by Code (personal communication), quinidine has seemed to facilitate the advancement of the balloon in intestinal intubation in some patients.

A recent report by Kobayashi and associates appears to establish the fact that electrical interaction between the muscle layers is dependent upon small muscle bridges, the inner circular layer being electrically and mechanically quiescent if isolated from the outer longitudinal layer. The pacemaker activity normally triggers the "spikes" in both layers, and thus the rhythmic contractions ensue. Of immediate interest to cardiovascular investigators is the possibility that the electrical and...
mechanical events in the bowel, particularly as modified by drugs or by changes in electrolyte milieu, or both, might have a basic parallelism to similar manifestations observed in the heart. The term "pacemaking" in the bowel is used with obviously different implications from those when it relates to a pacemaker locus in the heart. The undulating potentials related to partial depolarization, followed by recovery of complete polarization at a cycle length of 3 to 4 seconds in the longitudinal muscle of the bowel, would appear, at this time, to have no exact counterpart in the normal myocardium or its specialized tissues.

While the mechanism of the quinidine facilitation of the electromechanical coupling in the bowel has not been elucidated, the reported data should be of interest to the cardiologist. It is trite to say that developments from electrophysiological research on the bowel could lead to understanding of problems in myocardial electromechanical coupling, and I do so only to emphasize again the fact that in basic research, one recognizes no categorical organ or disease boundaries.

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References
Purging Action of Quinidine Potentiation of Contraction Coupling to Basic Electric Rhythms
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