Background: Atrial fibrillation (AF) is the most common arrhythmia requiring treatment. High dose oral anti-arrhythmics (mainly class IC or quinidine) at 75% to 100% of the normal daily dose given as a single dose has been used to convert recent-onset AF. This “pill in the pocket” (PITP) approach has allowed some patients to treat themselves on an as needed basis for infrequent recurrences; however, pro-arrhythmic risk has limited the application of this approach to patients without structural heart disease (SHD). Ranolazine is an anti-anginal agent, which inhibits abnormal late Na+ channel currents, decreases sodium-calcium overload, potently inhibits after-depolarizations, which have been implicated in the initiation and propagation of AF, and has reduced pulmonary vein firing. Ranolazine has no known pro-arrhythmic affects. The ability of ranolazine to terminate AF in man has not been described but if useful could be a safer PITP agent with application in the presence or absence of SHD. We have studied oral ranolazine given as a high loading dose to convert new or paroxysmal AF.

Method: 2000 mg of ranolazine were administered to 32 patients with new (14 patients) or paroxysmal (18 patients) AF of at least 3, but not greater than 48 hours duration. Twenty two patients were in the hospital, 5 in the office, and 5 at home at the time ranolazine was administered. Age, sex, echocardiographic data, associated health conditions and SHD were recorded. Successful conversion was defined as restoration of sinus rhythm within 6 hours of ranolazine administration.

Results: All but 4 patients had some form of structural heart disease and 22 patients had left atrial enlargement. High dose oral ranolazine shows utility as a possible safe agent to convert new or paroxysmal AF. Larger placebo-controlled studies with ranolazine as a PITP method in SHD patients seem warranted.

Conclusions:

- Ranolazine given as a 2,000 mg dose was well tolerated and produced no hemodynamic or electrophysiologic adverse events.
- Successful conversion with this dose was achieved in 72% of patients with new or recent onset AF within 6 hours of administration.
- This conversion rate was similar to previously reported PITP protocols and higher than placebo conversion rates[1-3].
- This success occurred despite the presence of SHD in most patients.
- Further research and controlled studies regarding this novel use of ranolazine are warranted.