

Off-Label Drug Uses

Acebutolol: Ventricular Tachycardia

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This *Hospital Pharmacy* feature is extracted from *Off-Label Drug Facts*, a quarterly publication available from Wolters Kluwer Health. *Off-Label Drug Facts* is a practitioner-oriented resource for information about specific drug uses that are unapproved by the US Food and Drug Administration. This new guide to the literature enables the health care professional or clinician to quickly identify published studies on off-label uses and determine if a specific use is rational in a patient care scenario. A summary of the most relevant data is provided, including background, study design, patient population, dosage information, therapy duration, results, safety, and therapeutic considerations. References direct the reader to the full literature for more comprehensive information before patient care decisions are made. Direct questions or comments regarding *Off-Label Drug Uses* to hospitalpharmacy@drugfacts.com.

BACKGROUND

Ventricular tachycardia is a cardiac arrhythmia in which the ventricles beat at a rate greater than 100 bpm. Ventricular tachycardia may occur in patients with or without any previous cardiac disease. Patients can be asymptomatic (in which ventricular arrhythmias are detected by electrocardiogram [ECG] monitoring or physical examination), or they may have symptoms of palpitations, dyspnea, or chest pain. Rapid ventricular tachycardia may decrease tissue perfusion and can eventually lead to sudden cardiac arrest.¹

Beta-blockers, including acebutolol, treat ventricular tachycardia by reducing heart rate and decreasing heart contractility.¹ Because nonselective beta-blockers, such as propranolol and sotalol, can exacerbate bronchospasms, cardioselective acebutolol may be

beneficial for the treatment of ventricular tachycardia.

PATIENT POPULATION

Adults with at least 30 ventricular ectopic beats (VEB) per hour.

DOSAGE AND DURATION

Oral acebutolol 200 to 400 mg 3 times daily.

RESULTS

The use of acebutolol for the treatment of ventricular tachycardia has been evaluated in 7 clinical trials and 2 case reports enrolling more than 100 patients.

GUIDELINES

American Heart Association (AHA) guidelines recommend beta-blockers and antiarrhythmic agents, such as procainamide or amiodarone, as first-line treatment for patients with ventricular tachycardia.¹

Controlled Trials

Twenty-five patients with at least 30 VEB per hour were randomized for receipt of acebutolol or placebo. They were then crossed over to the opposite therapy. To evaluate the effects of acebutolol on the frequency of VEB, patients were given acebutolol 200 mg 3 times daily, acebutolol 400 mg 3 times daily, or placebo for 2-week intervals, with 1-week washout periods between each therapy for a total of 12 weeks. ECG monitoring was performed for 24 hours at baseline and after each period of acebutolol or placebo. VEB was observed and percent suppression was calculated for each patient from the ECG readings. Of those enrolled in the study, 14 patients had at least a 60% reduction in VEB with acebutolol ($P < 0.01$). Eleven patients with at least a 70% VEB reduction from baseline had significantly higher mean VEB reduction with acebutolol (200 and 400 mg) compared with placebo (71.3% [$P < 0.05$], 86.4% [$P < 0.01$], and 51%, respectively). Mean VEB reduction was not statistically significant between acebutolol 200 and 400 mg. Nineteen patients who experienced paired VEB (couplets) during baseline were shown as having a significantly higher mean reduction of paired beats with acebutolol (200 and 400 mg) compared with placebo (70.5% [$P < 0.05$], 74.5% [$P < 0.01$], and 48.8%, respectively). Of

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13 patients who experienced ventricular tachycardia during baseline and placebo, 5 had complete ventricular tachycardia suppression when given acebutolol. Four of those patients had at least a 70% VEB reduction with acebutolol.²

In a double-blind crossover study, 60 men with at least 30 premature ventricular complexes per hour were randomized for receipt of acebutolol 200 and 400 mg 3 times daily and placebo for 2-week intervals, with 1-week washout periods for a total of 12 weeks. All patients were given placebo during baseline collection of data, and 24-hour ECG monitoring was performed 3 times over the course of 2 weeks. An additional 24-hour ECG reading was taken after acebutolol or placebo therapy. Significantly more patients had a greater than 70% ventricular ectopy (VE) reduction with acebutolol compared with placebo ($P < 0.005$). The number of patients with a 0% VE reduction was significantly lower with acebutolol compared with placebo ($P < 0.01$). Ventricular tachycardia was abolished in significantly more patients with acebutolol compared with placebo ($P < 0.05$). Acebutolol 400 mg was more effective than 200 mg at lowering VE compared with baseline (mean VE total per hour = 213.1, 296.4, 413.1, respectively [$P < 0.05$]).³

Noncontrolled Trial

Acebutolol 50 mg intravenous (IV) was administered for 15 minutes to 20 patients with paroxysmal supraventricular tachycardia with manifest or concealed accessory pathways. Anterograde conduction properties, retrograde conduction properties, conduction intervals, refractory periods, and echo zones were measured by atrial and ventricular incremental pac-

ing and extrastimulus techniques. Electrophysiologic studies were repeated every 5 to 10 minutes after acebutolol administration. In addition to IV therapy, 8 of 20 patients received acebutolol 200 mg orally every 6 hours for 4 doses; electrophysiologic studies were conducted 2 hours after the last dose was administered. The longest atrial-paced cycle length producing block in the atrioventricular node was increased with acebutolol versus baseline (319 vs 290 msec, respectively; $P < 0.01$) in 18 patients. The retrograde effective refractory period of the accessory pathway was not statistically different before and after acebutolol (260 and 270 msec, respectively) in 10 patients. All 20 patients were susceptible to sustained atrioventricular reentrant tachycardia. Ventricular conduction increased before and after acebutolol (323 and 352 msec, respectively; $P < 0.01$). The increment of cycle length significantly increased from 148 to 174 msec after acebutolol ($P < 0.01$). The conduction time of the remaining components of the circuit was not significantly different before and after acebutolol (175 and 178 msec, respectively). Of the 8 patients who received oral acebutolol, ventricular conduction was 340 msec during baseline, 364 msec after IV acebutolol, and 358 msec after oral acebutolol. The longest atrial-paced cycle length producing block in the normal pathway was 298 msec during baseline, 326 msec after IV acebutolol, and 330 msec after oral acebutolol. There was no statistically significant difference between IV and oral acebutolol.⁴

SAFETY

This is a limited safety profile. Refer to package labeling for com-

plete prescribing information (eg, warnings/precautions, adverse reactions, drug interactions).

Acebutolol was generally well tolerated in the published reports described here. Patients did not experience any bronchospasms, significant bradycardia, heart block, congestive heart failure, or any central nervous system adverse effects with acebutolol.²

THERAPY CONSIDERATIONS

Initial data from limited trials indicate that acebutolol reduces VEB and may be beneficial in patients with ventricular tachycardia. AHA guidelines also recommend the use of beta-blockers as first-line therapy for the treatment of ventricular tachycardia.¹

REFERENCES

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