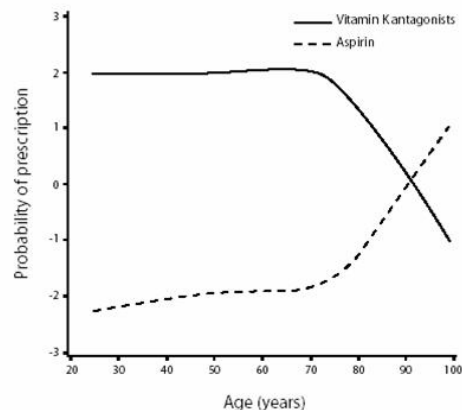


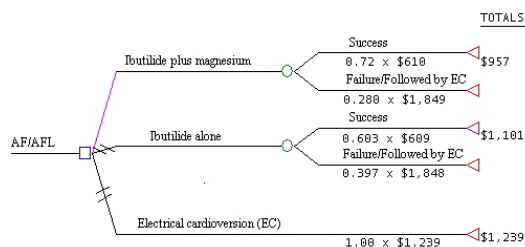
receiving antithrombotic therapy. However, the use of VKA was not optimal in elderly patients and better prophylactic strategies may be warranted for them.



1129-217 A Decision-Tree Model Comparing First-Line Electrical Cardioversion to Ibutilide With or Without Magnesium Prophylaxis in the Treatment of Atrial Fibrillation

Craig I. Coleman, James S. Kalus, C. Michael White, Jeffrey Kluger, University of Connecticut, Storrs, CT, Hartford Hospital, Hartford, CT

Background: Ibutilide is cost-effective when compared to first-line electrical cardioversion (EC) for atrial fibrillation (AF); however, these results are sensitive to alterations in conversion rate. Prophylactic magnesium augments the efficacy of ibutilide as demonstrated by an increased rate of successful conversion. The objective of this evaluation was to compare the costs associated with first-line EC and ibutilide in the presence and absence of magnesium prophylaxis for the conversion of AF. **Methods:** A decision-tree model was developed to estimate the cost-effectiveness of first-line EC compared to ibutilide with or without prophylactic intravenous magnesium sulfate followed by EC in those patients who do not convert. Conversion rates for patients receiving ibutilide with or without magnesium were based upon results of a multi-center, retrospective, cohort study (n=319). Healthcare utilization costs including drugs, intravenous admixture and administration, EC, electrocardiographs and physicians' fees were based upon actual costs from our institution. Cost-effectiveness was calculated by multiplying the cost of a successful and unsuccessful outcome by their probability of occurrence and then adding these two figures to determine total cost. **Results:** Ibutilide+magnesium was found to be the most cost-effective for conversion of AF (see figure). **Conclusion:** The decision-tree model suggests that ibutilide+magnesium is more cost-effective than ibutilide alone or first-line EC.



1129-218 Ibutilide Improves Cardioversion Success Rates in Patients on Chronic Amiodarone Therapy With Persistent Atrial Fibrillation

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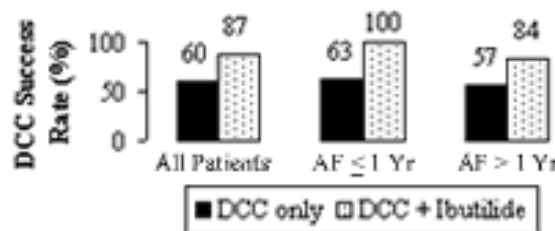
Background: Atrial fibrillation (AF) is the most common arrhythmia, affecting approximately 2.2 million people in the United States. A combination of amiodarone and ibutilide has been used with results suggesting an additive or synergistic effect on AF conversion. **Methods:** We retrospectively studied 90 consecutive patients with persistent AF receiving oral amiodarone therapy who elected for electrical cardioversion. Patients underwent either direct current cardioversion (DCC) (Group A, n=67) or DCC with ibutilide pretreatment (Group B, n=23). To evaluate the effect of AF duration on DCC success rate,

patients were further divided into AF duration ≤ 1 year (Group A₁, n=30 and Group B₁, n=4) and AF duration > 1 year (Group A₂, n=37 and Group B₂, n=19). Chi-square analysis was used to evaluate the statistical significance (set at $p < 0.05$) between groups.

Results:

All patients were male, mostly hypertensive (86%) and age 64 ± 9.6 years, body mass index 34 ± 8.1 kg/m², left atrial size 52 ± 8.4 mm, ejection fraction 52 ± 10 %, and AF duration 2.8 years ± 3.1 years. DCC success rates were 60% in Group A and 87% in Group B ($p=0.02$). A trend for DCC success rate improvement with ibutilide was seen in patients with AF duration > 1 year (Group A₂=57% vs. Group B₂=84%, $p=0.07$). One patient in the ibutilide pretreatment group developed torsade de pointes.

Conclusion: Ibutilide pretreatment for DCC may be a safe and effective method of improving DCC success rates in patients with long duration persistent AF receiving amiodarone therapy.



POSTER SESSION

1130

Channelopathies and Idiopathic Ventricular Tachycardia

Tuesday, March 09, 2004, 9:00 a.m.-11:00 a.m.

Morial Convention Center, Hall G

Presentation Hour: 10:00 a.m.-11:00 a.m.

1130-207

Prevalence and Spectrum of Mutations in the Cardiac Ryanodine Receptor in Patients Referred for Long QT Syndrome Genetic Testing

Laura J. Kopplin, David J. Tester, Michael J. Ackerman, Mayo Clinic, Rochester, MN

Background: Pathogenic mutations in the gene, *RYR2*, encoding the cardiac ryanodine receptor cause type 1 catecholaminergic polymorphic ventricular tachycardia (CPVT1). There is phenotypic overlap between the clinical presentation of CPVT and long QT syndrome (LQTS). Because the diagnosis of CPVT can be elusive, we sought to determine the spectrum and prevalence of *RYR2* mutations in a cohort of unrelated patients referred specifically for LQTS genetic testing.

Methods: Since 1997, nearly 500 unrelated patients have been referred to Mayo Clinic's Sudden Death Genomics Laboratory for LQTS genetic testing. Putative pathogenic mutations in the known LQTS-causing genes have been identified in approximately 50% of the cases. Mutational analysis of 18 exons of *RYR2* previously implicated in CPVT was performed on genomic DNA from 240 genotype-negative subjects using polymerase chain reaction, denaturing high performance liquid chromatography, and direct DNA sequencing.

Results: Seventeen distinct *RYR2* mutations (16 missense, 1 duplication insertion, 15 novel) were found in 20 out of 240 genotype-negative subjects (8.3%). None of these mutations were present in 400 reference alleles. Two mutations localized to the FKBP12.6 binding domain. Upon review of the clinical records, the referral diagnosis for 19 out of 20 patients was "atypical" or "borderline" LQTS rather than CPVT. None of the individuals displayed diagnostic QT prolongation (QTc > 470 ms).

Conclusion: Putative pathogenic CPVT1-causing mutations in *RYR2* were detected in nearly 10% of unrelated and LQTS genotype-negative patients who were referred for LQTS genetic testing. These findings suggest that CPVT may be under-recognized among physicians referring patients with a suspected channelopathy. A diagnosis of "atypical LQTS" may warrant consideration of CPVT and analysis of *RYR2* if the primary LQTS-causing channel screen is negative.

1130-208

Diagnostic Value of the Ajmaline Test Based on the Gene Analysis in Concealed Brugada Syndrome

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Background Brugada syndrome is an arrhythmic disease caused in part by mutations in the cardiac sodium channel gene, *SCN5A*. The electrocardiogram in Brugada syndrome is variable over time up to the point of normalization in some individuals. Diagnosis of possible affected individuals is performed with the use of sodium channel-blocking agents which unmask the EKG abnormality. However, validation of the testing has not been performed. The use of genetic data as a gold standard in large families allows to examine the effectiveness of ajmaline for diagnosis.

Methods We collected 4 large families with a total of 128 members. Ninety members were relatives at possible risk of Brugada syndrome. Sixteen had a positive EKG at base-