POSTER SESSION

1015 Cardioversion of Atrial Fibrillation

Sunday, March 30, 2003, 9:00 a.m.-11:00 a.m.
McCormick Place, Hall A
Presentation Hour: 10:00 a.m.-11:00 a.m.

1015-13 Intravenous Amiodarone in Cardioversion of New-Onset Atrial Fibrillation

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Background: Paroxysmal atrial fibrillation (PAF) is one of the most common causes of hospital admission. However, until now, no standard antiarrhythmic therapy has been accepted for pharmacological cardioversion of PAF. Amiodarone seems to be a promising candidate, but only a few small, randomised trials are available and the results are inconsitent.
Aim of the study: To assess efficacy of intravenous amiodarone in cardioversion of PAF.
Methods: 160 patients with PAF lasting less than 24 hours were randomly assigned (2:1) to amiodarone group (n=106) receiving 5 mg/kg as a 30 min. iv infusion, followed by infusion of 10 mg/kg during 20 hours and to the control grup (n=54). Both groups received 1000 ml of 10% glucose with 20 IU of rapid action insulin, 80 mEq of potassium chloride and 8 g of magnesium sulphate (GIKM) which is electrolyte supplementation routinely used in our department in patients with PAF. Patients requiring emergency DC cardioversion were excluded.
Results: Up to 8 hours after initiation of treatment 53 (50%) patients in amiodarone group and 14 (26%) patients in control group were converted to sinus rhythm ($p<0.05$). Twenty hours after initiation of the therapy sinus rhythm was restored in 88 (83%) patients in the amiodarone group and in 24 (44%) patients in the control group ($p<0.0001$).
Conclusion: This study, which is one of the largest ever done on this subject, showed that amiodarone is effective in termination of PAF lasting less than 24 hours. It may be particularly useful in patients with left ventricular dysfunction, in whom class I antiarrhythmic agents are contraindicated.

1015-14 DALTON Study: A Randomized Study Comparing Outpatient Dalteparin Administration to Inpatient Heparin for the Initiation of Anticoagulation in Atrial Fibrillation

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Atrial fibrillation (AF) patients who need to be anticoagulated are often admitted to the hospital to receive IV heparin until the therapeutic INR has been reached. Some pts are sent home on warfarin alone with a potential risk for stroke. We conducted a prospective randomized trial comparing an outpatient strategy using dalteparin (200 I.U./Kg, maximum 18 000 I.U.) + warfarin (Da) to standard IV heparin + warfarin (He). A total of 192 pts were randomized in a 3(Da):1(He) ratio and 186 (Da:142, He:44) completed the study (56 women, 130 men). The mean age was 70 ± 10 yrs and 44 % had a cardiovascular history and 50% had hypertension. 47% presented with paroxysmal AF, 50% with persistent AF and 3% were in chronic AF. The mean EF was 59 ± 11% and mean left atrial size 42 ± 7 mm. Sinus rhythm was achieved spontaneously in 64 pts, 18 received an antiarrhythmic agent and 18 were electrically cardioverted. To achieve proper anticoagulation, the He group required a mean of 6.4 ± 2.0 days of in-hospital IV heparin and the Da group 6.4 ±1.6 s/c injections. After 21 days, all pts were seen in clinic, 57 were in AF, 5 in atrial flutter, 5 were paced and 119 were in sinus rhythm. Cost-effective and quality of life analysis were performed. No major complications or death were observed during the study period. Two thromboembolic complications were seen: one in the Da group with a pt presenting initially with a TIA the day before randomization (later recognized) and one pt in the He group where on day 21 a minor neurological deficit was noticed. Three pts in the He group presented with minor hemorrhagic complications (1 ecchymosis and 2 slight Hb drops). In the Da group, 12 pts had small ecchymosis at the injection site, 5 had minor epistaxis (one requiring medical attention without transfusion or hospital admission in a pt with concomitant clopidogrel use), 4 had hematomas at the injection site (one required medical attention without transfusion while receiving concomitant celecoxib). Conclusion: The use of dalteparin for the initiation of anticoagulation in pts with atrial fibrillation is a safe alternative to the conventional approach using IV heparin. It offers a cost-effective outpatient strategy that can alleviate the need for hospitalization.

1015-15 Effect of Atrial Fibrillation Duration on Probability of Immediate Recurrence After Transthoracic Cardioversion

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Background: An immediate recurrence of atrial fibrillation (IRAF) appears to be more common after early restoration of sinus rhythm with an implantable atrial defibrillator than after elective transthoracic cardioversion, suggesting that the probability of IRAF may be related to the duration of AF.
Methods and Results: Transthoracic cardioversion was performed 85 ± 187 days (range 7 minutes to 8 years) after the onset of atrial fibrillation in 315 patients who had a mean age of 61±13 years. IRAF was defined as a recurrence of AF within 60 seconds after restoration of sinus rhythm.
Results: IRAF occurred in 56% of patients when cardioversion was performed within 1 hour of the onset of AF, compared to 12% of patients when cardioversion was performed after 24 hours of AF ($p<0.001$). The duration of AF was the only independent predictor of IRAF among the clinical variables of age, gender, structural heart disease, antiarrhythmic drug therapy, and cardioversion energy ($p<0.01$).
Conclusions: IRAF is more likely to occur when the duration of AF is <1 hour than when the duration is >24 hours. This observation has clinical implications for the most appropriate timing of cardioversion, particularly in patients who receive device therapy for AF.

1015-16 Comparison of the Safety and Efficacy of Enoxaparin With Unfractionated Heparin and Phenprocoumon as Anticoagulation in Cardioversion of Nonvalvular Atrial Fibrillation

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In cardioversion (CV) of atrial fibrillation (AF), anticoagulation with UFH plus oral anticoagulant (OAC) is recommended. Conventional CV (OAC for 3 wks before and 4 wks after CV) or transesophageal echocardiography (TEE)-guided CV (i.v. UFH infusion plus 4 wks of OAC, upon exclusion of left atrial (LA) thrombus) can be used. CV using i.v. UFH/OAC is associated with extended hospitalization and stringent anticoagulation monitoring. Therefore LMWH may be a feasible alternative.
Methods: Patients (n=496) with non-valvular AF lasting 48 h - 1 year underwent conventional (group A, n=65) or TEE-guided CV (group B, n=431). Patients were randomized to either the LMWH enoxaparin (n=248), or to UFH plus the OAC phenoprocoumon (n=248). Patients without TEE-confirmed LA thrombus underwent CV (group B1); patients with LA thrombus were anticoagulated for a further 3 wks, and underwent CV if repeat TEE did not detect LA thrombus (group B2). The combined primary efficacy and safety endpoint was: stroke, transitory ischemic attacks, systemic embolism, death, and major bleeding events.
Results: In the per-protocol population (n=428), there were no differences in the baseline characteristics of the enoxaparin (n=216) and UFH/OAC (n=212) groups. LA thrombi were detected in 9.7% of group B (n=370). Mean duration of treatment was 46+/-11 days, (group A), 29+/-5 days (group B1), and 48+/-15 days (group B2). Successful CV was achieved in 70.8% (303/428 patients): 66.2% (143/216) for enoxaparin and 75.5% (160/212) for UFH/OAC, respectively ($p=0.043$, explorative). At the end of treatment, sinus rhythm was still present in 70.8% (214/303 patients) of successfully cardioverted patients: 67.1% (96/143) for enoxaparin and 73.8% (118/160) for UFH/OAC, respectively ($p=0.21$, explorative). Incidence of the primary endpoint was 3.2% (7/216) for enoxaparin vs 5.6% (12/212) for UFH/OAC ($p=0.017$, confirmatory for equivalence with delta=2%).
Conclusions: Enoxaparin shows non-inferior efficacy and safety to UFH/OAC in CV of AF, and may be preferred due to its reproducibility of anticoagulative effect and more convenient s.c. administration.

1015-17 Brain Natriuretic Peptide Levels Predict Successful Cardioversion and Rhythm Maintenance in Patients With Chronic Atrial Fibrillation

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Background: Brain natriuretic Peptide (BNP) is released from the heart by hemodynamically induced muscle stretch. Patients with atrial fibrillation have higher levels of BNP than controls in sinus rhythm. The aim of this study is to assess the usefulness of BNP as a predictor of successful cardioversion in patients with chronic atrial fibrillation.
Methods: We enrolled 20 patients undergoing cardioversion for chronic atrial fibrillation. BNP levels were measured prior, 30 min, and two weeks after electric cardioversion. Baseline echocardiograms and 12-lead electrocardiogram were obtained from all patients. Patients with valvular disease, previous mitral valve surgery or moderate to severe left ventricular dysfunction were excluded.
Results: The mean BNP level and the mean heart rate were significantly higher before cardioversion than 30 min after (218 ± 176 versus 194 ± 196 pg/ml, $p=0.057$; 80 ± 22 versus 56 ± 11 pg/ml, $p=0.0005$) respectively. Patients' mean ejection fraction was 55 ± 11%. Patients who reverted back to atrial fibrillation after two weeks had baseline BNP of 260±13 pg/ml, while those who continued to be in sinus rhythm for two weeks had baseline BNP of 149±124 pg/ml, $p=0.027$. No correlation was found between left atrial size and BNP levels. Left atrial size did not predict successful cardioversion, although most of the patients had mild left atrial dilatation (left atrial diameter = 4.6 ± 0.6 cm)
Conclusion: In patients with chronic atrial fibrillation BNP levels may predict successful cardioversion and maintenance of sinus rhythm two weeks after cardioversion.

1015-18 Highly Sensitive C-Reactive Protein Level Predicts Recurrence of Atrial Fibrillation After Cardioversion in Patients on Antiarrhythmic Drugs

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C-Reactive Protein (CRP) is a sensitive marker of systemic inflammation. Chronic elevations of baseline CRP is a marker of low level systemic inflammation and has been used to predict increased risk for future myocardial infarction and stroke. Recently CRP levels