110) or matching placebo (P; n = 105) for 3 months with the first dose given 2 hrs before operation. There were no significant differences in baseline characteristics between the two groups. Overall, SVA occurred in 33.5% of pts (83% atrial fibrillation, 7% flutter, 10% other SVA). Hospital stay was 11 ± 4 days in pts with vs only 9 ± 2 days ($p < 0.001$) without SVA. Low dose S reduced the rate of SVA from 42% (P) to 25% (S; $p < 0.01$). On the fourth postoperative day heart rate was lower in S vs P pts (75 ± 12 vs 86 ± 14 bpm, $p < 0.0001$), QTc, however, was not significantly prolonged (S: 0.44 ± 0.03; P: 0.43 ± 0.03; p ns). Any drug-related side-effects were noted in 15% of S and 6% of P pts (p ns) and study medication had to be discontinued in 10% S and 6% P pts (p ns). In 2 S pts side-effects were non-fatal VT 18 and 31 days after surgery, respectively. Overall, hospital stay tended to be somewhat shorter on S vs P (9.9 ± 3.8 vs 10.1 ± 2.7 days, $p < 0.05$).

We conclude that (1) the incidence of SVA without treatment after surgery is high (42%) and SVA were associated with a prolonged hospital stay (+2 days), (2) prophylactic treatment with low dose S reduced the rate of SVA significantly (by 40%) and reduced overall hospital stay in treated pts ($p < 0.05$), (3) low dose S reduced postoperative heart rate without increasing QTc but there was a small proarrhythmic effect of S (1.8% non-fatal VT).

2:45

795-4 Do Age and Postoperative Atrial Fibrillation Explain Temporal Trends in Mortality and Stroke After Cardiac Surgery?

Mina K. Chung, Craig R. Asher, Dave P. Miller, Dawn Dykstra, Delos M. Cosgrove III. *Cleveland Clinic Foundation, Cleveland, OH*

The mean age of patients undergoing coronary artery surgery (CABG) has risen with time and may contribute to increases in postoperative (postop) complications and mortality. To determine if temporal changes in the incidence of hospital death or stroke (CVA) could be explained by changes in age and postop atrial fibrillation (AF), data were extracted from a clinical database of 49,975 pts who underwent isolated CABG from 1970–1993. Over this period, hospital mortality, mean age and incidences of AF and new postoperative AF increased ($p \leq 0.0001$, Table 1). Hospital mortality did not change significantly when adjusted for age (Table 2 Odds Ratio per year). The incidence of CVA did not significantly rise over time and decreased upon adjustment for age. Hospital mortality or CVA rates did not correlate with the increase in AF incidence.

Table 1

	N	%Death	%CVA	Mean	%AF	%Ne AF
1970–75	9419	1.4	1.7	53	16.9	16.7
1976–81	14679	1.4	1.7	56	19.7	19.2
1982–87	14472	1.8	1.7	60	25.7	25.1
1988–93	11405	2.8	2.1	63	30.0	28.6

Table 2

	Not Age Adjusted			Age Adjusted		
	OR	95% CI	p	OR	95% CI	p
AF, total	1.05	1.04–1.05	0.0001	1.01	1.00–1.01	0.0033
new postop	1.04	1.04–1.05	0.0001	1.00	1.00–1.01	0.0270
CVA	1.01	1.00–1.02	0.0514	0.97	0.96–0.98	0.0001
AF adjusted	1.00	0.99–1.01	0.5643	0.97	0.96–0.98	0.0001
Hospital death	1.05	1.03–1.06	0.0001	1.00	0.99–1.02	0.4684
AF adjusted	1.04	1.03–1.05	0.0001	1.00	0.99–1.02	0.4818

Conclusions: Over a 23-yr period, hospital mortality, mean age, and incidence of AF increased in pts undergoing isolated CABG. After correction for age, CVA incidence has improved. Increases in mortality and AF were correlated with the rising age of the population undergoing CABG. Increases in AF did not explain the changes in hospital mortality.

3:00

795-5 Advanced Age and Left Atrial Enlargement Predict Postoperative Atrial Fibrillation in Patients Undergoing Cardiac Valve Surgery

Craig R. Asher, Dawn Dykstra, Dave P. Miller, Richard A. Grimm, Patrick M. McCarthy, Delos M. Cosgrove, III, Mina K. Chung. *Cleveland Clinic Foundation, Cleveland, OH*

While the risk factors for postoperative (postop) atrial fibrillation (AF) following CABG have been extensively investigated, similar analyses of AF after valvular surgery have been limited. In order to identify predictors of postop AF in patients undergoing valve surgery, we analyzed data from a prospectively collected clinical database of 875 patients who underwent isolated valve surgery in 1993–1994 and who did not have AF prior to surgery. The incidence of postop AF in this group was 41.3%. Preoperative univariate factors associated with an increased risk of postop AF included higher age at surgery ($p < 0.001$), left atrial enlargement (LAE, $p < 0.001$), history of arrhythmias or heart block ($p = 0.003$), hypertension ($p = 0.047$), thyroid disease ($p = 0.048$), mitral stenosis ($p = 0.063$), mitral regurgitation ($p = 0.073$), peripheral vascular disease ($p = 0.081$), and history of rheumatic heart disease ($p = 0.09$). Multivariate stepwise logistic regression analysis identified age (mean age, postop AF 63 ± 12 yrs vs. no postop AF 53 ± 15 yrs) and LAE (incidence of postop AF with LAE 47% vs. 33% without LAE) to be significant independent predictors of postop AF (Table).

	Odds Ratio	95% CI	p value
Age (per 10 years)	1.59	1.43–1.77	< 0.001
LAE	1.78	1.32–2.40	< 0.001

Conclusion: Advanced age, which has been the only consistently reported significant predictor of atrial fibrillation occurring after CABG, is similarly an important predictor of AF after isolated valve surgery. However, other factors, such as LAE, which may reflect the additional hemodynamic effects of primary valvular disease, also predict postop AF after valve surgery. Therefore, effective prophylaxis and treatment of AF after valve surgery may differ from that after CABG due to differences in underlying mechanisms.

3:15

795-6 Atrial Fibrillation and Atrial Flutter Have No Significant Impact in Intensive Care Unit and Total Hospital Length of Stay After Coronary Artery Bypass Grafting

Piush Gupta, Marcelo E. Helguera, Patrick M. McCarthy. *The Cleveland Clinic Foundation, Cleveland, Ohio*

To determine if atrial fibrillation or atrial flutter (AFib/AF) are causal or confounding factors in prolonged intensive care unit and total hospital length of stay (LOS) after coronary artery bypass grafting (CABG), 257 consecutive patients (pts) were studied. Only episodes of AFib/AF lasting longer than 10 minutes were included (defined as sustained AFib/AF). The mean age was 63 ± 10 years, there were 188 males (73%), and 44 pts underwent CABG reoperation (17%). *Results:* The total incidence of postoperative AFib/AF was 32% (83 pts). AFib/AF was the only postoperative complication in 37 pts (14%) (group I), 113 pts had no postoperative complications at all (44%) (group II), and 107 pts (42%) had multiple complications (including or not AFib/AF) (group III). To avoid confounding variables, pts in group III (with multiple complications) were not included in the LOS analysis. The intensive care unit LOS was 1.35 ± 0.68 days (range 1 to 4) and 1.27 ± 0.57 days (range 1 to 4) for group I and II, respectively (p = NS). The total hospital LOS was 7.78 ± 20.8 (range 6 to 15) and 7.28 ± 1.42 (range 5 to 16) for group I and II, respectively (p = NS). *Conclusions:* The results of this study suggest that post-CABG atrial fibrillation and atrial flutter have no significant impact in prolonged intensive care unit or total hospital length of stay. Other postoperative complications, frequently associated with AFib/AF, are the determinants of prolonged hospitalization.

796 Electrocardiography in Myocardial Ischemia

Wednesday, March 27, 1996, 2:00 p.m.–3:30 p.m.
Orange County Convention Center, Room 224F

2:00

796-1 Fast Fourier Transform Underestimates T-Wave Alternans During Acute Myocardial Ischemia and Reperfusion

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Clinical evidence implicating T-wave alternans as an index of risk for VT/VF has prompted interest in optimizing alternans assessment. We compared the spectral techniques of Fast Fourier Transform (FFT) and Complex Demodulation (CD) in analyzing T-wave alternans magnitude from ECGs recorded by a left ventricular catheter during 10-min LAD coronary artery occlusion and reperfusion in anesthetized dogs. FFT yielded significantly lower alternans