

 **CARDIAC ARRHYTHMIAS**

**MELPHALAN INDUCED ATRIAL ARRHYTHMIAS: INCIDENCE AND RISK FACTORS**

ACC Poster Contributions  
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**Background:** Cardiology consults in cancer centers are often generated by atrial arrhythmias (AA). It is not well established which chemotherapy is associated with the highest AA rate.

**Methods:** We retrospectively reviewed the data on patients who received hematopoietic stem cell transplant (HSCT) in 1998-2005 and compared the proportion of patients who developed AA based on the drug regimen. Fisher's chi square test and Student's t-test were used for comparison of categorical and continuous variables, respectively.

**Results:** In 1998-2005 there were 1221 HSCTs, 62 (5.1%) of which were complicated by AA. Only melphalan demonstrated significantly higher rate of AA than any other chemotherapy. Out of 438 patients who received melphalan, 48 (11%) developed atrial fibrillation (AF) (35) or supraventricular tachycardia (13) during same hospital admission, and 390 did not (Table). Patients with AA were older (62.8 ±7.9 versus 55.5 ±10.2, p<0.001). Concomitant hypertension was associated with higher rate of AA. Length of stay was greater (24.9 ±8.9 days versus 19.6 ±5.8 days, p<0.0001) in those who developed AA, even after adjustment for co-morbidities.

**Conclusion:** Atrial arrhythmias, mostly AF, complicate about 5% of chemotherapeutic treatments used with HSCT. Melphalan is most arrhythmogenic and is associated with atrial arrhythmias in 11% of patients. Atrial arrhythmias are more common in patients with increased age and concomitant hypertension and result in about a four day increase in length of hospital stay.

Table: Co-morbidities and Length of Stay in Melphalan Cases.

AF/SVT	AF/SVT		No AF/SVT		
	N	%	N	%	p
	(48)	(100)	(390)	(100)	
Hypertension	25	52.1%	122	31.3%	<0.01
Diabetes Mellitus	4	8.3%	23	5.9%	NS
Coronary artery disease	3	6.3%	10	2.6%	NS
Hemodialysis	4	8.3%	9	2.3%	NS
White	42	87.5	322	82.5%	NS
Black	4	8.3%	33	8.5%	NS
Hispanic	2	4.2%	35	9.0%	NS
Female	27	56.3%	174	44.6%	NS
Male	21	43.8%	216	55.4%	NS
Length of stay unadjusted	24.9 ± 8.9		19.6 ± 5.8		P<0.0001
Length of stay adjusted for co-morbidities	23.7 ± 5.2		19.4 ± 5.5		P<0.0001