



Characteristics and Co-morbidities of Patients with Movement Disorders and Melanoma

Eugene C. Lai, MD, PhD^{1,2} and Suzanne Moore, BA¹

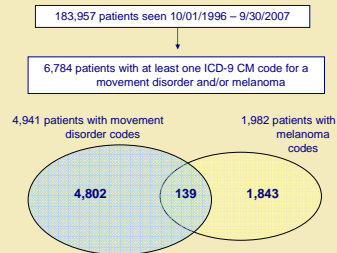
¹Michael E. DeBakey Veterans Affairs Medical Center, Parkinson's Disease Research, Education and Clinical Center, ²Baylor College of Medicine, Houston, Texas



Objective: To use a regional data warehouse and electronic medical record (EMR) to learn more about the co-occurrence of movement disorders with melanoma among patients seen at Department of Veterans Affairs Medical Centers

Results: Of 183,957 patients seen at the Houston area VA during the 11 years, 40 patients had both a movement disorder and melanoma: 24 with PD, 1 PD+, 9 Essential tremor (ET), and 6 Tremor. All 40 were white and all but one were men. Of the PD patients, two-thirds had PD diagnosed before melanoma. Skin cancers were the most common other cancer co-morbidities, occurring in 24 of 40 patients, followed by prostate cancer in 6 patients. Based on the range of body weights in the EMR, 50% were obese at some time, 40% overweight and 10% remained at normal weight.

ICD-9 CM Code Search



Charts were reviewed for 139 patients who had ICD-9 CM codes for **both** a movement disorder and melanoma

ICD-9 CM codes included in the Data Warehouse search:

Movement Disorders: Parkinson's Disease (332.0), Secondary Parkinsonism (332.1), Basal Ganglia Disorders (333.0), Essential Tremor (333.1) and Tremor (781.0)

Melanoma: Melanoma (172.x) and Personal History of Malignant Melanoma (V10.82)

Melanoma evidence in medical record	N
Melanoma or history of melanoma	63
Other form of skin cancer	67
No skin cancer in medical record	19
Total	139

Not all patients with melanoma evidence in the medical record also had evidence of a movement disorder. (53 melanoma, 40 with both melanoma and a movement disorder)
Coding error in one dermatology clinic resulted in 'Personal history of skin cancer' (V10.85) being coded by 'Personal history of melanoma' (V10.82)

Although screened out for lack of melanoma for this study, there were 42 PD patients and 17 ET patients with other forms of skin cancer found via the ICD code matching.

Systematic miscoding early in the conversion to EMR, and since corrected, necessitates additional information beyond the use of ICD-9 codes alone (linkage with pharmacy data, chart review, or text word searches).

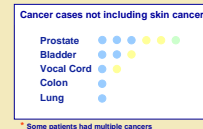
Chart review at one location

Diagnosis of both a movement disorder and malignant melanoma	N
Parkinson's Disease dx by neurologist	17
Drug-induced parkinsonism?	1
Probable/suspected PD	3
PD and Essential tremor	3
Essential tremor	6
Essential tremor originally treated as PD	3
Tremor	5
Tremor originally treated as PD	1
Parkinson's Plus	1
Total	40

Movement disorder diagnosed before melanoma	
16/24 (66.7%)	
3/9 (33.3%)	
2/6 (33.3%)	

History of smoking: current or past	
16/24 (66.7%)	
6/9 (66.7%)	
4/6 (66.7%)	

Overweight or obese	BMI	Diabetes
21/24 (87.5%)		
9/9 (100%)		
5/6 (83.3%)		



* Some patients had multiple cancers

Comparison of age at diagnosis for idiopathic PD and ET				
Movement Disorder	N	Mean	Std Dev	p=0.78
Idiopathic PD dx by neurologist	16	70.6	8.1	
Essential tremor	9	69.6	8.5	
Melanoma	N	Mean	Std Dev	p=0.07
Idiopathic PD dx by neurologist	17	74.4	7.7	
Essential tremor	9	66.8	12.5	

This study expands an earlier study to add an additional year of data plus additional ICD-9 codes. Previously, we noted a high percentage of diabetes and increased BMI among the cases of PD-MM seen at our medical center.

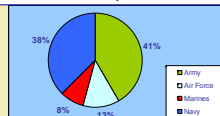
Although the number of patients is small, we also see a high amount of diabetes and obesity among other movement disorder patients with melanoma. There were no significant differences between the groups in height, weight or BMI.

There was a similar amount of smoking history among the patients. The types of cancer cases co-occurring with the movement disorders and melanoma may reflect the smoking history of this particular veteran population.

For initial diagnosis, PD preceded melanoma in 2 out of 3 cases, while melanoma preceded in 2 of 3 of the non-PD cases.

In this small sample, 38% of the PD-MM cases were members of the Navy during their military service. Navy veterans are estimated to be 25% of the US total veteran population. There is one published study of melanoma in active duty Navy personnel (Garland, 1990) and several studies of either melanoma or PD in World War II prisoners of war (Page, 2000). As this study is expanded to other VA Medical Centers in our region, we will continue to collect this information.

Branch of service for PD patients with melanoma



Charts for review at remaining locations

VA Medical Center	# of patients
Alexandria, LA	30
Biloxi, MS	82
Fayetteville, AR	31
Jackson, MS	64
Little Rock, AR	119
Muskogee, OK	20
New Orleans, LA	31
Oklahoma City, OK	121
Shreveport, LA	57
Total	555

The Data Warehouse ICD-9 CM code search found patients at these VA Medical Centers with codes for both a movement disorder and melanoma.

As IRB approval is received at each center, additional records will be reviewed to find additional cases.

Conclusions/Relevance: PD-melanoma occurred with greater frequency compared to other movement disorder-melanoma combinations. The use of the Data Warehouse/EMR allows location and characterization of movement disorder-melanoma cases. Additional data from the other participating centers will be used to further characterize this patient population

