Parkinson' s Disease and Melanoma in a Veteran Population

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Objective: To use a data warehouse plus electronic medical records (EMR) to characterize patients with both Parkinson's disease (PD) and malignant melanoma (MM), to gain information on 1) the accuracy of using the ICD-9 CM codes and 2) the temporal nature of the two conditions.

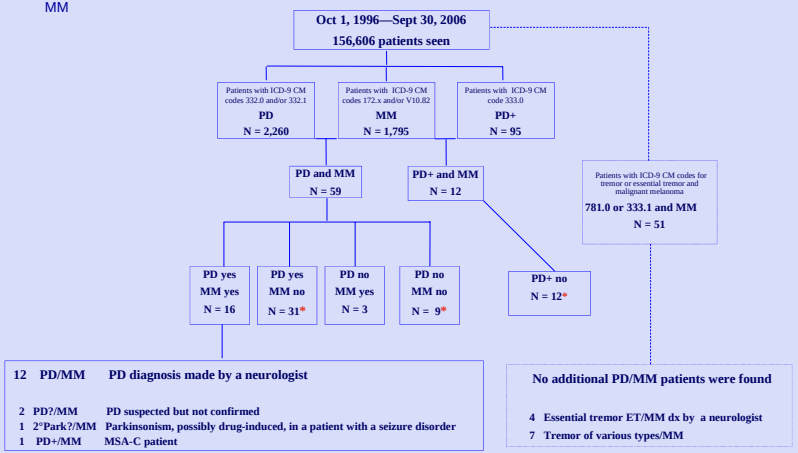
Background: Several studies have described an increased risk of MM among PD patients. Initial reports linked the use of L-dopa to melanoma activation; subsequent reviews found either condition at times preceded the other. Within the Department of Veterans Affairs healthcare system (VHA) there are large patient databases along with an extensive EMR system that together provide an opportunity to find and verify cases.

Design/Methods: A regional data warehouse was queried to find patients seen in the Houston region FY97-FY06 with ICD-9CM codes for Parkinson's disease (332.0), secondary parkinsonism (332.1) and basal ganglia disorders (333.0) who also had diagnostic codes for melanoma (172.x) or personal history of melanoma (V10.82). Additionally, the same period was searched for patients with essential tremor (333.1) or tremor (781.0) plus melanoma. Diagnostic codes were verified and additional information was abstracted from the electronic medical record (EMR).

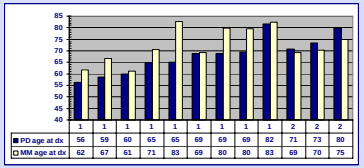
Results of chart review – Accuracy of ICD-9 CM codes

[(Parkinson's Disease OR Secondary Parkinsonism OR PD+ OR Essential Tremor OR Tremor) AND (Malignant Melanoma OR Hx of MM)]

332.0 or V10.82 PD | 332.1 or 333.0 PD+ | or 333.1 or 781.0 TR | and 172.x or V10.82 MM



Age and order of diagnosis for 12 patients with confirmed PD/MM



Patient and tumor characteristics

DX Order 1=PD 1st	Age at time of PD dx	BMI at 1st diagnosis (kg/m2)	Branch of military service	Malignant melanoma location	Type of melanoma
1	56	26 (42)	Marines	L upper arm	superficial spreading
1	59	30 (29)	Navy	R upper hand	malignant melanoma, nos (MM, nos)
1	60	29 (32)	Army	back	superficial spreading
1	65	32 (28)	Navy	L shoulder	mmis
1	65	34 (29)	Navy	L upper arm	MM, nos
1	69	27 (40)	Army	L ear	MM, nos
1	69	25 (20)	Army	R abdomen	mmis
1	69	23 (27)	Navy	back	outside facility, by history
1	82	19 (29)	Marines	elbow/scalp	MM, nos
2	71	26 (20)	Navy	L abdomen	only
2	73	30 (26)	Navy	back	outside facility
2	80	32)	Navy	L mid back	mmis

Results: Of 156,606 patients seen, 2,260 had at least one PD code, 1,795 a MM code, and 59 both codes. Sixteen of the 59 patients with both codes had evidence of both conditions within the EMR. All but one patient was male and ethnicity was Caucasian for all 16. Among the 16 cases with information on the presence of both conditions, 12 had PD diagnosed by a neurologist. Among those 12, the average age at diagnosis was 68.1 (56.4-79.7) for PD and 72.3 (61.1-82.7) for MM. Nine of the 12 developed PD first. Incidental findings of a disproportionate number of U.S. Navy veterans and an increased body mass index will be explored in future studies as more cases are collected.

* Two sources of error were found for the dermatology codes. Adding a database query to create a count for the word 'melanoma' in the EMR was successful in distinguishing the true melanoma cases from the miscoded ones.

The use of the PD codes was more accurate; all of the confirmed or suspected PD/parkinsonism patients had at least one 332.0 ICD-9 CM code within their medical record. Most also had 332.1 as well as 332.0 codes, so it is not possible to distinguish those two codes. Use of pharmacy data to check for the use of PD medication will be tried in the future to help minimize the PD and PD+ miscoding.

CONCLUSIONS:

An additional search for melanoma within the EMR is necessary to supplement the use of ICD-9 CM codes, but can be done electronically prior to chart review.

As has been reported before, more patients were seen with PD preceding MM. This may be due to differences in survival time between the two conditions, with some melanoma patients not surviving long enough to develop PD.

The completeness of the EMR allowed information on tumor stage, use of L-dopa, and certain risk factors, such as smoking, to be readily abstracted, thus this pilot study can be extended to ascertain cases for a future, larger case-control study.

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