Authors: Saltus, CW; Kaplan, S; Gordon MF; Calingaert, B; Andrews, EB; Kaye, JA; Johannes, CB

Validation of Diagnosis Algorithms for Melanoma and Nonmelanoma Skin Cancer Among Patients With Parkinson's Disease in the United States Medicare Database

Background: Information is lacking on the validity of algorithms to identify cases of cutaneous melanoma or nonmelanoma skin cancer (NMSC) in Medicare claims data. We assessed the validity of algorithms for both outcomes in a retrospective cohort study evaluating the safety of antiparkinsonian drugs (APD) in the Medicare database (2006-2015).

Objective: To evaluate the validity of International Classification of Disease code algorithms for identifying cutaneous melanoma and NMSC from Medicare claims data.

Methods: The study included adults aged ≥65 years with claims for Parkinson's disease enrolled in Medicare fee-for-service Parts A, B, and D. Cohort A initiated rasagiline, and cohort B (matched 4:1 on age, sex, and entry date) initiated other APDs. Potential melanoma cases were identified by ICD-9-CM (172.*) or ICD-10-CM (C43*) codes on ≥ 2 outpatient or physician visit claims or ≥ 1 hospital claim. NMSC was identified by an ICD-9-CM (173.*) or ICD-10-CM (C44*) code and a procedure code for treatment. Clinicians blinded to treatment reviewed chronological claims for each potential melanoma case and a random sample of NMSC cases to select medical encounters for record review. They then used de-identified clinical information abstracted from medical records and redacted pathology reports to adjudicate each case as confirmed, possible (medical record not obtained or contained inadequate information), or noncase. Positive predictive value (PPV) of the algorithms was estimated as the number of confirmed cases divided by the number of abstracted records. Two algorithm-identified melanoma cases judged as noncases during profile review were added to the denominator.

Results: For melanoma, records were obtained and abstracted for 145 of 260 requested (55.8%) in cohort A and 274/526 (52.1%) in cohort B. In cohort A, 122 melanomas were confirmed (PPV = 84.1% [95% confidence interval, 77.2-89.7]); in cohort B, 227 were confirmed (PPV = 82.2% [77.2-86.6]). Of 100 NMSC records abstracted, 83 cases were confirmed (PPV = 83.0% [74.2-89.8]).

Conclusions: Medicare claims-based algorithms for both melanoma and NMSC performed well in a Parkinson's disease population (over 80% of identified cases were true cases). This information may be useful due to recent restrictions on access to Medicare beneficiaries' medical records because of privacy concerns.

Character count: 2,136 (2,258 allowed without spaces, including title)