



# Previous Traumatic Brain Injury May Be a Risk Factor of Psychological Disorders in Parkinson's Disease

Jyhong Gabriel Hou, MD, PhD and Eugene C. Lai, MD, PhD

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



## Objective:

This preliminary study examines the relationship between a history of traumatic brain injury (TBI) and psychological disorders and cognitive impairment in patients with Parkinson's disease (PD).

## Background:

TBI and subsequent chronic traumatic encephalopathy have been shown to pose a risk for developing cognitive and psychological disorders later in life, even after many years. However, the impact of previous TBI on PD patients remains unanswered.

## Design/Methods:

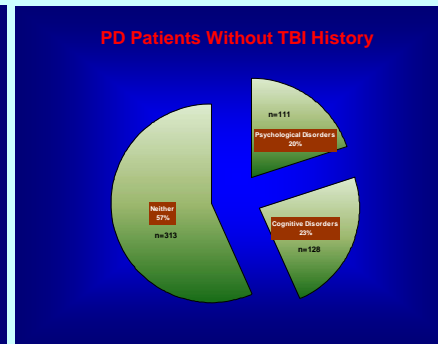
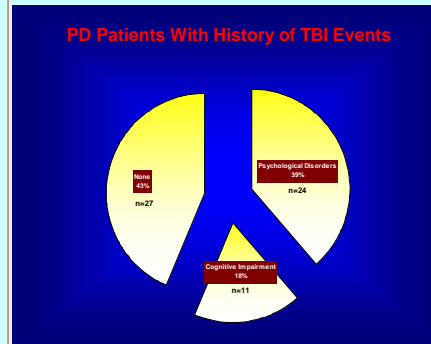
A retrospective study based on the clinical database was conducted. Parkinson's Disease Research, Education and Clinical Center at Houston VA Medical Center maintains the secured database of more than 1300 patients since 2001. A total of 768 patients had completed a detailed questionnaire including the item of TBI history. Different factors including subjects' ages, diagnoses, cognitive and psychological status (depression disorders, anxiety disorders, posttraumatic stress disorder, etc.) were compared between PD patients who have or do not have the history of TBI.

## Results:

There were 123 patients with TBI history from a total of 768 patients (16.0%) based on the questionnaires. Among them, 62 had idiopathic PD, 40 had essential tremor (ET), and 21 had other miscellaneous diagnoses. Among PD patients, 24 (38.7%) had psychological disorders (average age 64.2 years), 11 (19.4%) had cognitive impairment (including 6 patients who had both), with average age of 75.7 years. There were 552 idiopathic PD patients identified without TBI history. Among them, 111 (20.1%) had psychological disorders (average age 74.2 years), and 128 (23.2%) had cognitive impairment (average age 78.5 years).

•123 (16.0%) from a total of 768 PADRECC patients reported a positive history of TBI.

•62 (10.1%) idiopathic PD patients from a total of 614 PD patients reported a positive history of TBI.



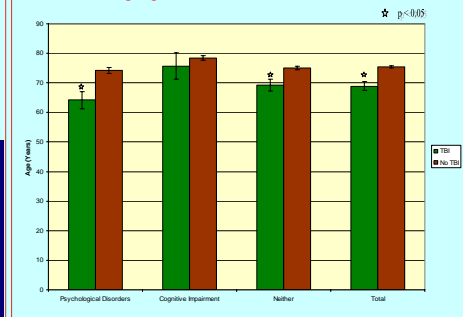
•PD patients with TBI are associated with higher prevalence of psychological disorders than PD patients without TBI history.

( $P < 0.05$ , according to chi-square test)

•PD patients with TBI are not associated with higher prevalence of cognitive impairment.

( $p > 0.05$ , according to chi-square test)

Average Ages Of PD Patients With And Without TBI



## CONCLUSION:

Based on the above results, PD patients with TBI history had higher prevalence of psychological disorders than those without TBI. These patients were also younger (by 8.4 years;  $p < 0.05$ ). TBI did not increase the prevalence of cognitive impairment in PD. Age differences between these two groups also had no statistical significant differences.

In conclusion, we proposed that TBI may be a risk factor for psychological disorders in PD. Such patients may also manifest psychological disorders at a younger age. Further investigations will be necessary to examine this hypothesis.

ACKNOWLEDGMENT: This research was supported by Department of Veterans Affairs.

