

AWARD NUMBER: W81XWH-19-1-0868

TITLE:

Does Military Traumatic Brain Injury Increase the Risk for Developing Early-Onset Dementia and Mild Cognitive Impairment?

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REPORT DATE: OCT 2020

TYPE OF REPORT: Annual

PREPARED FOR: U.S. Army Medical Research and Development Command
Fort Detrick, Maryland 21702-5012

DISTRIBUTION STATEMENT: Approved for Public Release;
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REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

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|---|--|---|---|---|---|
| 1. REPORT DATE OCT 2020 | | 2. REPORT TYPE ANNUAL | | 3. DATES COVERED 30SEPT2019 - 29SEPT 2020 | |
| 4. TITLE AND SUBTITLE Does Military Traumatic Brain Injury Increase the Risk for Developing Early-Onset Dementia and Mild Cognitive Impairment? | | | | 5a. CONTRACT NUMBER | |
| | | | | 5b. GRANT NUMBER W81XWH-19-1-0868 | |
| | | | | 5c. PROGRAM ELEMENT NUMBER | |
| 6. AUTHOR(S) Jack Tsao, MD, DPhil E-Mail: jtsao@uthsc.edu | | | | 5d. PROJECT NUMBER | |
| | | | | 5e. TASK NUMBER | |
| | | | | 5f. WORK UNIT NUMBER | |
| 7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) University of Tennessee Health Science Center 910 Madison Avenue Memphis, TN 38163 | | | | 8. PERFORMING ORGANIZATION REPORT NUMBER | |
| 9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES) U.S. Army Medical Research and Development Command Fort Detrick, Maryland 21702-5012 | | | | 10. SPONSOR/MONITOR'S ACRONYM(S) | |
| | | | | 11. SPONSOR/MONITOR'S REPORT NUMBER(S) | |
| 12. DISTRIBUTION / AVAILABILITY STATEMENT Approved for Public Release; Distribution Unlimited | | | | | |
| 13. SUPPLEMENTARY NOTES | | | | | |
| 14. ABSTRACT This project seeks to examine whether traumatic brain injury sustained during military service increases the risk for early-onset of neurodegenerative conditions. | | | | | |
| 15. SUBJECT TERMS Traumatic brain injury, mild cognitive impairment, dementia, early-onset | | | | | |
| 16. SECURITY CLASSIFICATION OF: | | | 17. LIMITATION OF ABSTRACT Unclassified | 18. NUMBER OF PAGES 6 | 19a. NAME OF RESPONSIBLE PERSON USAMRMC |
| a. REPORT Unclassified | b. ABSTRACT Unclassified | c. THIS PAGE Unclassified | | | 19b. TELEPHONE NUMBER (include area code) |

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Introduction

This is the first annual update. The grant seeks to examine whether traumatic brain injury of any severity sustained during military service increases the risk of early-onset of neurodegenerative disorders, including dementia and mild cognitive impairment.

Keywords

Traumatic brain injury, dementia, mild cognitive impairment, early-onset

Accomplishments

Our primary hypothesis is that having sustained a single or multiple TBIs during military service is associated with an increased risk for early-onset of dementia (EOD), including AD, and early-onset MCI and that this relationship is correlated with the severity of the TBI.

This research will occur in two phases corresponding to the following specific aims:

1. To determine and compare the baseline prevalence of EOD, including AD and other dementia types, and early-onset MCI in a Veteran population with a history of single and multiple TBIs of any severity sustained during military service to a demographically-matched Veteran population without a history of TBI. We will use Department of Veterans Affairs databases and obtain military medical records through a proprietary database held at the Naval Health Research Center in San Diego, CA to verify that a clinician-diagnosed concussion, moderate, severe, or penetrating TBI occurred during military service.
2. To identify a cohort of veterans diagnosed with single or multiple TBIs of any severity and a matched cohort of unexposed veterans that will be leveraged to study the association between TBI of any severity and EOD, including AD and other types of dementia, and early-onset MCI longitudinally to determine the incidence of these conditions. We will include the presence or absence of co-occurring conditions such as hypertension, diabetes, hypercholesterolemia, sleep disturbances and mental health sequelae as co-variates in the analyses.

Specific Accomplishments: During the first year, we obtained IRB approvals from the Memphis Veterans Affairs Medical Center and the Naval Health Research Center. We are currently obtaining access to the VA health records database in order to pull data for analyses to determine in the prevalence and incidence of early-onset neurodegenerative conditions. We have also initiated the sub-award process with our statistician at the University of Memphis.

Impact

Nothing to report

Changes/Problems

We have encountered two specific problems. Coronavirus stopped all research activities from March through August 2020. Upon resumption of activities, we are now delayed due to paperwork delays for approvals of personnel to access the VA medical records databases. We believe we now have a way forward and anticipate gaining access to the records soon. After pulling records we will then analyze the data as planned in our aims.

Products

Nothing to report

Participants & Other Collaborating Organizations

Jack Tsao – PI – UTHSC – 2.4 cal. Mo.

Jeffrey, Metter – AI – UTHSC – 0.6 cal. Mo.

Xinhua Yu – AI – University of Memphis – sub-award pending

Leah Somerville – Graduate Student – UTHSC – 12 cal. Mo.

Jennifer Belding – PI – NHRC – 3.6 cal. Mo.

Special Reporting Requirements

Nothing to report

Appendices

Nothing to report