Study Protocol

Protocol Title: The Efficacy of Xeomin as a Prophylactic Therapy for Migraine in Patients with Traumatic Brain Injuries (TBIs) versus Anomalous Health Incidents (AHIs)

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1.0 Background and Significance

Headaches that have migraine-like characteristics are a common issue following traumatic brain injury (TBI) and anomalous health incidents (AHIs). While the mechanisms of post-TBI headaches are linked to biomechanical forces and neuroinflammation, the underlying causes in AHI are less understood. Treatments for these headaches often mirror those for primary headache disorders, with botulinum toxins like OnabotulinumtoxinA (OBA) and incobotulinumtoxinA (Xeomin) being effective options. There is limited research directly comparing the characteristics and efficacy of Xeomin treatments between TBI and AHI patients. This study aims to quantify similarities and differences in how these two groups respond to Xeomin for migraine management, which could lead to more personalized therapies and inform clinical guidelines.

2.0 Objectives and Research Questions

- **Primary Objective:** To compare the efficacy of Xeomin injections for the management of migraines in patients with a history of TBI versus those with a history of AHI.
- **Specific Aims:**
    - Characterize and compare migraine features, including frequency, severity, and duration, in both TBI and AHI patients before and after Xeomin treatment.
    - Evaluate and compare the reduction in migraine frequency, severity, and duration in both patient groups following Xeomin injections.
    - Assess and compare the duration of the treatment effect in both groups.

    - Explore potential factors (e.g., age, sex, comorbidites) that may predict treatment response in TBI and AHI patients.
- **Research Questions:**
    - Do Xeomin injections reduce migraine frequency, severity, and duration differently in TBI patients compared to AHI patients?
    - Is the duration of Xeomin's therapeutic effect similar in both TBI and AHI patients?
    - Are there specific factors that predict a better response to Xeomin treatment in TBI patients versus AHI patients?

3.0 Study Design

This is a combined retrospective and prospective cohort study. The study will enroll two types of participants: patients with AHI or TBI who are about to receive their first botulinum toxin treatment (prospective cohorts) and patients with AHI or TBI who are already receiving treatments (retrospective cohorts). Data from both cohorts will be analyzed jointly for primary outcomes and independently for secondary outcomes.

4.0 Study Procedures

1. **Patient Identification:** Patients scheduled for Xeomin treatments at the National Intrepid Center of Excellence (NICOE) will be identified via clinic schedules and medical records and categorized as having a history of either TBI or AHI.
2. **Informed Consent:** Eligible patients will be approached by research staff, provided with a detailed explanation of the study, and written informed consent will be obtained.
3. **Baseline Questionnaire:** Consenting participants will complete a baseline questionnaire covering their migraine history, medical history, and demographics.
4. **Xeomin Treatment:** Patients will receive their scheduled Xeomin treatment as prescribed by their physician, and the details will be documented.
5. **Follow-up Interviews:** Patients will participate in follow-up interviews at two time points:
    - **4-6 weeks post-treatment** to evaluate initial changes in migraine characteristics.
    - **10-12 weeks post-treatment** (around the time of their next injection) to assess sustained effects as the treatment wears off.

5.0 Participant Information

- **Target Population:** The study population includes active duty or retired military members with a history of TBI, as well as military members, retirees, or federal agents who have experienced an AHI.
- **Inclusion Criteria:**
    - At least 18 years of age
    - Able to provide written consent in English
    - An employee of the US Government or an adult family member of one
    - Have received Xeomin treatment for migraine related to TBI or AHI
    - Able to participate in at least 80% of assessments
    - A US Citizen
- **Exclusion Criteria:**
    - Prisoner
    - Decisionally impaired and unable to provide informed consent
    - Non-US citizen