



Physicians Caring for Texans

TexMed 2016 Clinical Abstract

Please complete all of the following sections:

Procedure and Selection Criteria

- Submissions not directly related to quality improvement or research may be accepted and should follow the standardized format outlined below. Content should enhance knowledge in the field of clinical care and be relevant to a given patient population.

PROJECT NAME: Open Label Treatment of MDD Patients with MTHFR Polymorphisms and Low RBC Membrane Omega-3 Fatty Acids with a combination of Methylated B Vitamins and Omega-3 Fatty Acids

Institution or Practice Name: Mech Healthcare Associates

Setting of Care: Private Clinic

Primary Author: Arnold Mech, M.D.

Secondary Author: [Click here to enter text.](#)

Other Members of Project Team: [Click here to enter text.](#)

Is the Primary Author, Secondary Author or Member of Project Team a TMA member (required)?

Yes No

Please provide name(s): Arnold Mech

Enhanced Perioperative Recovery/Future of Surgical Care program

Clinical

Background (15 points max): *Describe the purpose for sharing the content. What caused this subject matter to be approached? Why is this content important to share? What is the potential impact if this content is not shared?*

Recent studies have investigated the relationship between MTHFR polymorphisms and elevations in homocysteine and have shown benefit in treating adult MDD patients with a methylated B vitamin prescription supplement (MBVPS). Treatment with phosphatidylserine-enriched omega 3 EPA/DHA (PS-O3FA) has recently demonstrated benefit in improving sleep and emotional regulation in children and adolescents with ADHD. More than 60% of MDD patients demonstrate such polymorphisms. These polymorphisms can reduce bioavailability for neurotransmitter synthesis of B vitamins to as low as %5. In the last forty years the U.S. diet has reflected an increase in the ratio of pro-inflammatory Omega-6 fatty acids to anti inflammatory Omega-3 fatty acids from 1:1 to as high as 30:1. Taken together, these two facts constitute a significant predisposition towards treatment resistance. Addressing these facts in evaluation of patients presenting with depressive symptoms can improve patient outcomes. This study focuses on the improvement in mental fatigue and is gathering objective changes in sleep quality that are associated with improvement in patient outcomes.

Intended Stakeholders (15 points max): *Identify those individuals, organizations, or interest groups that could be potentially impacted by this information or benefit by obtaining this information.*

All physicians see and treat patients suffering with depression, whether co-occurring or as the initial focus of treatment. While 5% of the U.S. population suffer with obstructive sleep apnea, 63% of people suffer from poor sleep quality and mental fatigue 2 or more nights every week of their lives.

Description of Accomplished Work (25 points max): *Provide an overview of the work that was accomplished, including any specific methods, tools or techniques. Also, include any milestones or key accomplishments. Note charts, graphs and tables here and send as addendum with abstract form.*

This study examined a population of MDD patients with C677T and A1298C MTHFR polymorphisms with co-occurring disorders in sleep architecture and mental fatigue. Thus far, thirty patients have been treated in an open-label design with both MBVPS and O3FAs. The total Fatigue Assessment Scale (FAS) score and the CGI-Improvement scale were compared pre-treatment and 8-weeks or longer post-treatment. The post-treatment FAS total score was significantly lower and the CGI-I much improved in 28 of 30 patients with 2 patients lost to follow-up.

Timeframe and Budget (20 points max): *Provide the start and end dates for the work along with any financial implications that were incurred due to the work accomplished. Note charts, graphs and tables here and send as addendum with abstract form.*

The timeframe for this study is 2014 to present.

Intended Use (25 points max): Describe how this information could be used moving forward to impact patient care.

While the study is being expanded to include the comparison of baseline and post-treatment polysomnography and pre- and post-treatment measures of O3FAs as percentage of RBC membrane composition and as O3FA blood levels, these preliminary results are encouraging. Addressing the need a majority of MDD patients have for BOTH methylated B vitamins (MBVPS) and omega 3 fatty acids (O3FAs) could be a significant benefit for treatment outcomes in patients with MTHFR polymorphisms who demonstrate mental fatigue.

