Proposed Research Project Regulation of Human Intestinal Microbes to Treat and Manage Anxiety

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Hypothesis
- GAD and panic disorders
- When SNRIs and SSRIs do not work
Tricyclic Antidepressants
- Anxiety/panic attacks
- Short term treatment and quick
- Bipolar disorder and social anxiety

Figure 1. Different Types of Anxiety Disorders

What is the Problem?

Medications
Serotonin-Norepinephrine Reuptake Inhibitors (SNRIs)
- Not instant release
- Bipolar disorder and social anxiety
Selective Serotonin Reuptake Inhibitors (SSRIs)
- Not instant release
- OCD and PTSD

Benzodiazepines
- Most commonly used
- Short term treatment and quick
- Anxiety/panic attacks

Tricyclic Antidepressants
- Chronic pain
- When SNRIs and SSRIs do not work
- GAD and panic disorders

Side Effects
- Weight gain
- Nausea
- Insomnia
- Sexual dysfunction
- Hypertension
- Diarrhea
- Dependence
- Addiction
- Tolerance
- Irritability
- Flu-like symptoms
- Dry mouth
- Blurry vision
- Urinary retention
- Trigger depression
- Suicidal thoughts and actions

Major Problems

Probiotics
- Live microorganisms
- Fermented foods (yogurt) and in dietary supplements and beauty products
- Similar to the “good” microbiota that live in the human body
- Food ingredients that stimulate activity and growth of bacteria in the gut
- Found in asparagus, artichoke, banana, garlic, onions, whole wheat foods, oats, and soybeans

Probiotics
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Specific Aim

Recent Research
- Connection between microbiota in the human gut and their function in specific regions of the brain
- Imbalances gut microbiota has a direct relationship with anxiety disorders

Fibromyalgia and anxiety symptoms
Regulate stress and anxiety responses
Reduction in anxiety symptoms
Anxiety symptoms related to IBS

Aim
- Examine regulation methods with probiotics and prebiotics for improvement in Anxiety Disorders
- Examine which method is more effective

Hypothesis
- Regulation of bacteria in the gut with probiotics and prebiotics will significantly decrease Anxiety Disorders and their related symptoms
- Prebiotics will have a greater effect on anxiety than probiotics

Figure 2. Methods for study.

Potential Conclusions

Allow for an alternative treatment
Use the results to help with other mental disorders

Probiotics and Prebiotics will both help
Prebiotics more effective because degradation and quality control of probiotics

Research Plan

- Use ~200 participants
- Medical Outcomes Study Questionnaire SF-36 Health Survey

Questionnaires for assessing symptoms
- HADS
- STAI
- BAI
- HAM-A

Removal from study
- Allergies
- Pregnant
- Using nutritional supplements
- Using antibiotics

Collecting results
- Urine testing for cortisol concentrations
- Use competitive ELISA with a DU 530 Beckman spectrophotometer
- Normal distribution of variables with the Kolgomorov-Smirnov test
- Chi-squared test for categorical data and a student t-test for continuous data
- 2 probiotics and 2 prebiotics (Figure 2.)

Assessed for eligibility (n=initial sample size e.g. 70)
Excluded (n=e.g. 10)
Not meeting inclusion criteria (n=e.g. 8)
Declined to participate (n=e.g. 0)
Randomized
(n,e.g. 60)
Assessed every 3 weeks for 8 weeks
Data collected and analyzed

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Importance

Anxiety Disorders are the most common mental illness in America
- It is imperative that there is a successful long-lasting treatment available
- Help lower cooccurring disorders and diseases
- I am hoping that my proposed research can provide an alternative treatment and help people better manage their Anxiety Disorders

References