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Postural Orthostatic Tachycardia Syndrome in relation to anxiety and cognitive impairments

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Background

- Postural Orthostatic Tachycardia Syndrome (POTS) is a heterogeneous syndrome that is a form of orthostatic intolerance and affects blood flow and circulation, and it affects over 1 million people in the United States alone1.
- POTS is widely unknown, the main factor is that when patient moves to an upright or standing position their heart rate rapidly increases2.
- POTS patients often complain of having increased anxiety, inattention and cognitive impairment3.
- Patients with POTS were compared to patients with ADHD and normal patients to determine if patients with POTS have attention problems4.
- Orthostatic Hypotension (OH) is a syndrome similar to POTS, showed that it affected anxiety and cognitive function in patients OH5.

Potential Pitfalls

- Since this is a study involving humans there is a lot of room for error and there are different variables that are specific to each individual on their health and how they perform in this study.
- There could be people in the control group that could have other medical issues that could affect their test results and skew the data.
- There are not a lot of ways to test for anxiety that is effective and nonbiased to different patients.
- There is just not a lot of information about this syndrome so it is hard to really determine if different variables are caused by different things.

Specific Aim

- This study will try to determine if patients with POTS have increased anxiety levels and decreased cognitive function.

Hypothesis: We predict that there will be an increase in anxiety levels and symptoms shown in patients with POTS, and there will be decrease in cognitive functions, such as memory and inattention issues.

Methods

- Group 1: Patients with POTS (20 people)
  - They will perform a Tilt Table Test to confirm that they have POTS
- Group 2: Healthy patients/control group (20 people)

  - IQ test that will be used in the Stanford-Binet Intelligence Scale
  - Memory skills tested by needing to memorize and recite a list of words
  - Speed rounds: Patients answer questions to determine how long it takes for them to process and answer the questions
- Undergo stressful stimuli and heart rate will be measured throughout to see how it is affected.
- Patients will complete the State-Trait Anxiety Inventory (STAI) to test anxiety levels.
- A two sample T test will be conducted to compare the results from the patients with POTS to the control group.

Potential Conclusions

- This study will bring more light to the syndrome as a whole.
  - If the hypothesis is correct then anxiety and cognitive impairments can be categorized as symptoms of POTS to better diagnose patients.
  - This information can result in new potential therapies and different treatment options, and also more effective diagnosing of POTS in patients.

Future Directions

Groups

- Group 1: Patients with POTS (20 people)
- Group 2: Healthy patients/control group (20 people)

Cognitive Ability

- IQ test that will be used in the Stanford-Binet Intelligence Scale.
- Memory skills tested by needing to memorize and recite a list of words.
- Speed rounds: Patients answer questions to determine how long it takes for them to process and answer the questions.

Testing Anxiety

- Undergo stressful stimuli and heart rate will be measured throughout to see how it is affected.
- Patients will complete the State-Trait Anxiety Inventory (STAI) to test anxiety levels.

Figure 1: Comparing patients with POTS to patients with ADHD on inattention scores.3

Figure 2: Symptoms that patients with POTS endure.

Figure 3: How the table tests are performed to help diagnose POTS.

Figure 4: The amount of time it takes for patients to have symptoms but not be diagnosed with POTS.

Literature Cited