Genetic Testing and Provider Awareness Training

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BACKGROUND

- Pharmacogenetics studies the genetic basis of an individual's ability to metabolize or respond to pharmacotherapy (Steimer, Muller, Leucht, & Kissling, 2001).
- Adverse drug reactions have an incidence of 2.2 million cases a year (Steimer & Potter, 2002).
- Drug response can be improved through drug selection adjustment and dosing based on information from genetic testing results (Mills & Haga, 2014).
- The cytochrome P450 or CYP2D6 enzymes metabolize about 70-80% of all phase-I-dependent metabolism and 40-45% of all marketed drugs (Laika, Leucht, Heres, & Steimer, 2009).
- The use of pharmacogenomics testing delivers an innovative strategy to improve the selection of psychotropic medication vs. the traditional method of trail-and-error, which will have increased side effects (Mrazek, 2010).

PURPOSE

- Increase providers' awareness of the health implications associated with genetic mutations
- Increase providers' knowledge of the potential benefits of genetic testing on patient outcomes
- Improve patient outcomes when initiating psychotropic medications
- Reduce the timeframe for therapeutic effects of psychotropic medications

PICO

- PICO: In Military treatment facilities will educational awareness of genetic testing to credentialed hospital providers improve provider knowledge compared to no education improve patient outcomes over a three month period?

OBJECTIVES

- Compare the changes in outcomes measures after medication changes (PHQ-9 and BASIS-24) between Genetic testing (GT) and non-testing (NT) groups over the 12-week study period.
- Patients will have a 10% reduction in diagnostic symptoms by 4 weeks, 25% reduction by 8 weeks and symptom remission by 12 weeks.

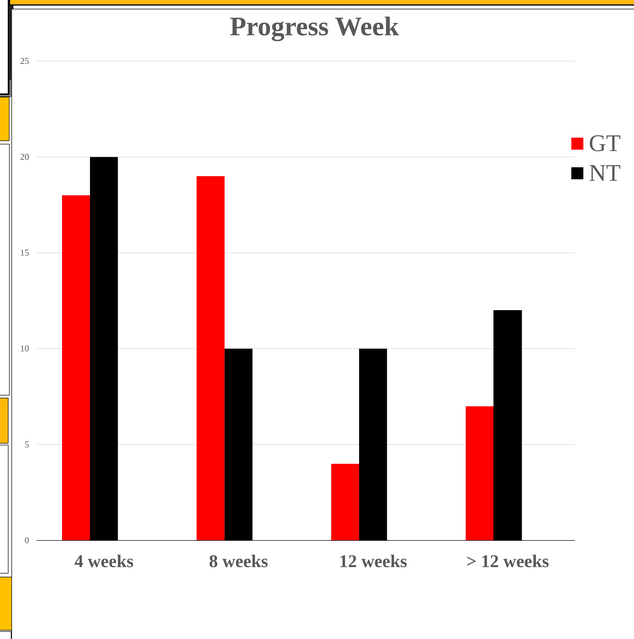
Methods

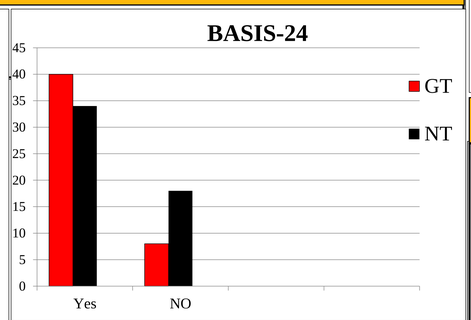
- Setting: A quality improvement chart review was implemented in a Military treatment facility.
- Population: Sample of those from 18-55 who were treated for 12 weeks who had the GT and NT. For the purpose of the project, the inclusion criteria is age 18-75, with one diagnosis from DSM-5. Exclusion criteria: Failure to follow up with provider during 12 week period and substance abuse as primary diagnosis.

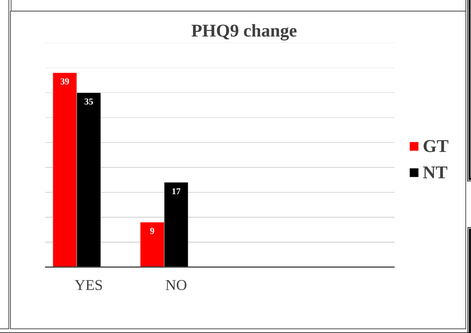
METHODS

- Using the Behavioral Health Data Portal (BHDP) to monitor the PHQ-9 and Basis-24 to monitor patient before and after treatment.
- Primary variables: change in BASIS-24 noted, Change in PHQ-9 Noted
- Secondary variables: The week medication efficacy was identified noticed in patient responses
- Descriptive statistics were used to characterize and summarize demographic data obtained as well as determined the change in BASIS-24 and PHQ-9 in GT and NT group.
- Nominal level data was analyzed with the Chi-square of Independence and the phi coefficient (ϕ) was used as an index to describe the magnitude of the effect from the intervention with values .10, .30, and .50 corresponding to small, medium, and large respectively.
- The genetic testing (GT) and non-testers (NT) were assessed over a three month period at 4, 8, and 12 weeks after medication initiation.

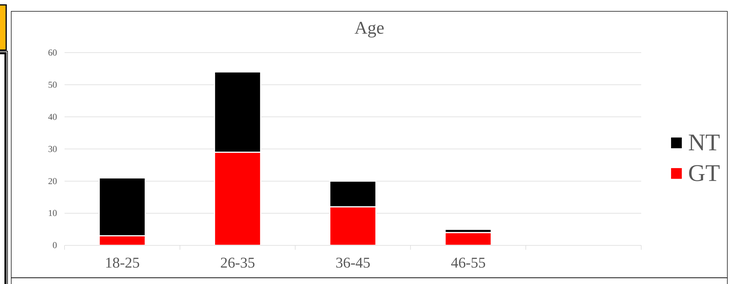
RESULTS

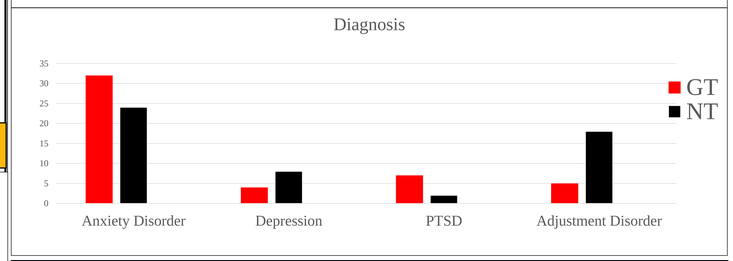






- The progress the patient made after starting a medication was determined by a follow up schedule of 4, 8, and 12 weeks.
- The BASIS-24 change was reflected on BHDP and 74% (GT= 40%, NT = 34%) had a change in their BASIS level after starting treatment.
- The PHQ9 was reflected on BHDP questionnaire and showed 74% (GT= 39%, NT = 35%) had a change in their PHQ9 after starting medication determined by GT.
- The sample's (n = 100) age distribution consisted of 18-25 at 21% with GT = 3, NT = 18, 26-35 at 54% with GT= 29, NT = 25, 36-45 at 20% with GT = 12, NT = 8 and 46-55 at 5% with GT = 4 and NT = 1.
- The GT population was 48% total with 31% male and 17 % female.
- The primary diagnosis was anxiety disorder at 56% (GT = 32), (NT= 24).
- The medication changes were categorized by change in medication at 56% increase in dosage at 24%, addition of another medication at 16% and no changes at 4%.
- Those diagnosed with PTSD did not achieve efficacy before 12 weeks.
- The NT showed 20% at achieving efficacy within four weeks.





CONCLUSION

- Although, the project objectives were not met, improvements of clinical significance were achieved.
- The BASIS showed that 40% of those with GT and 34% NT demonstrated a decrease in their baseline basis after treatment.
- The PHQ9 also showed a change between the GT at 39% and those NT at 35%.
- There was also clinical significance in the week's progress seen in, with Φ .30 which is a moderate clinical improvement.
- PTSD patients have difficulty achieving efficacy.

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