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## Comparison of thyroid stimulating hormone level and PR interval in hypothyroid patients being treated with levothyroxine

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**Background :** Thyroid disease is quite common, and since thyroid hormone has both inotropic and chronotropic effects on the heart, variations in thyroid hormone among the general public has demonstrated EKG changes. Hypothyroidism has been shown to be associated with AV blocks, QTc interval prolongation, and heart rate variability as well. The goal of this study is to observe PR interval changes on EKGs and investigate their correlation with TSH in hypothyroid patients being treated with levothyroxine.

**Methods and results :** This is a retrospective study looked at 504 admissions of hypothyroid patients who had an EKG and a TSH within three months of each other. Exclusion criteria were patients with atrial fibrillation, atrial flutter, and patients not on levothyroxine, which left the study with 455 admissions. Each admission was stratified based on TSH with low TSH (<0.4) had 85 admissions, normal TSH (0.5-5.0) had 269 admissions, and high TSH (>5.0) had 101 admissions. The mean PR intervals were 152.2, 163.0 and 158.8 for the low TSH, normal TSH, and high TSH groups, respectively. Our data demonstrated that the low TSH group compared to normal TSH group had a lower mean of PR intervals (P value <0.05); however this analysis is not practical, as risks of over treating hypothyroid patients in order to treat or prevent 1st degree AV block would likely outweigh the benefits, while comparing the low TSH group with the high TSH group and normal TSH group compared to high TSH group did not show statistical significance (P value >0.05). This potentially shows that as long as a patient is getting thyroid hormone replacement in these subgroups, they will not have a higher chance of increasing PR intervals and subsequent blocks regardless of their TSH level.

**Conclusion :** In conclusion, as long as patients with normal or high TSH level are getting thyroid hormone replacement, they will not have a higher chance of increasing PR intervals and subsequent atrioventricular blocks, giving that benefits of over treating hypothyroid patients in order to treat or prevent first degree AV block would likely outweigh the risks of developing thyrotoxicosis.

### Biography

Zaid Altheeb is currently a Cardiology fellow at New York Medical College. He graduated from Jordan University of Science and Technology (J.U.S.T) in 2009. He has a Medical degree in medicine and surgery. He is in the American board of internal medicine from New York Medical College at St. Joseph's, Paterson-New Jersey USA. He is a Member in American college of physicians ACP and American College of Cardiology ACC. He has publications in the field of cardiovascular medicine.

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