The Acute Effect of Thyroid Function after Amiodarone Infusion: Prospective Descriptive Study

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**Background:** Knowledge on acute effects to thyroid function after intravenous amiodarone infusion is rare. Although many practical guidelines, mostly from endocrinologists, state that thyroid function should be obtained before amiodarone administration, the test is not always available.

**Objective:** In this study, we aimed to collect information about acute changes of thyroid function within 24-96 hours after intravenous amiodarone infusion to assure that the value of thyroid function test could be measured and interpreted properly.

**Methods:** All patients with indication for intravenous amiodarone who met inclusion without any exclusion criteria (such as prior thyroid disease, severe illness such as sepsis, MICU admission, history of prior amiodarone use within 6 months) would be tested for thyroid function (FT3, FT4, TSH) before amiodarone infusion. If the results were normal (euthyroid), they would be informed and asked for consent to join the study (N = 39). Then, patients would be tested for thyroid function at 24 hours, 72 hours, and 96 hours afterwards, depending on the length of hospital stay. The thyroid function test would be analyzed to find the relationship between value changes, time, and doses.

**Results:** Most of the patients in this study were given amiodarone due to atrial fibrillation. We attempted to minimize the effect of non-thyroidal illness by using APACHE II score. The median APACHE II score in our study was 11, which had approximately 15% mortality. After the analysis using mixed-effects linear regression comparing mean hormone level at each specific time to baseline (hour=0), we found that FT3 significantly decreased at 24 hour (P value < 0.001) after intravenous amiodarone infusion, while FT4 and TSH did not change at 24 hours (P = 0.12, 0.785, respectively). However, TSH expressively changed after 72 hours (P = 0.006). The correlation to dosage was also identified using the cut point of 900 mg of intravenous amiodarone at the first 24 hours with no pointedly changes of FT3, FT4 and TSH.

**Conclusion:** Amiodarone appears to cause the decreasing of FT3 significantly 24 hours after intravenous amiodarone infusion. However, this can be affected by non-thyroidal illness. TSH is affected by amiodarone within 72 hours and FT4 is not changed significantly throughout the entire study (96 hours).

**Keywords:** Thyroid, Amiodarone, Acute