Effects of an APN-led Amiodarone Clinic on Adherence to Recommended Monitoring Guidelines

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Significance of the Problem
- More than 2 million prescriptions are written for amiodarone each year (LiverTox, 2014)
- Patients receiving amiodarone therapy have not adhered to monitoring guidelines
- As many as 93% of patients on amiodarone develop some form of adverse reaction to amiodarone
- Provider uncertainty with responsibility for amiodarone monitoring

PICOT Question
Does enrollment in an amiodarone clinic compared with “usual care” change adherence to monitoring as recommended by best practice guidelines and allow for earlier recognition of adverse effects of amiodarone to decrease negative patient outcomes over a four month time period?

Review of Literature
Terms: amiodarone, monitoring, toxicity
Search Engines: CINAHL, Medline, ProQuest, JBI, Cochrane Library, Academic Search Premier, Virginia Henderson International Nursing Library, and GoogleScholar
Inclusion Criteria: peer reviewed publication after 1995, adult participants, English language, utilized HRS guidelines
Exclusion Criteria: participants under the age of 18, did not use HRS guidelines, written in a foreign language.


Hierarchy of Evidence (Polit & Beck, 2012) Articles included in project
Level I: 0
a. Systematic review of randomized controlled trials (RCTs)
b. Systematic review of non-randomized trials
Level II: 1(a)
a. Single RCT
b. Single nonrandomized trial
Level III: 0
a. Systematic review of correlation/observational studies
Level IV: 5
a. Single correlational/observational study
Level V: 0
a. Systematic review of descriptive/qualitative/physiologic studies
Level VI: 1
a. Single descriptive/qualitative/physiologic study
Level VII: 1
a. Opinions of authorities, expert committees

Decision to Change Practice
- The reviewed evidence supports the implementation of dedicated amiodarone clinics to increase adherence to monitoring guidelines
- No APN-led amiodarone clinics found in the literature; other APN-led clinics reviewed for application
- Monitoring protocol based on Heart Rhythm Society (HRS) recommended guidelines for amiodarone monitoring
  - Liver function test (LFT) at baseline and every 6 months
  - Thyroid function test (TFT) at baseline and every 6 months
  - Electrocardiogram (EKG) at baseline and as needed
  - Chest x-ray (CXR) at baseline, yearly, and as needed
  - Pulmonary function testing (PFT) with diffusion capacity at baseline and as needed
  - Eye exam at baseline and as needed
  - Monitoring of high risk drug interactions (warfarin and digoxin)

Implementation
- Initiation of an APN-led amiodarone clinic utilizing HRS guidelines at a northwest Indiana cardiology practice
- Amiodarone teaching sheet developed for education
- Protocol developed for assessment of amiodarone adverse effects
- Chart review of participants on amiodarone seen in the office in 2012 compared with chart review of participants newly initiated on amiodarone during EBP project

Frameworks Used
- King’s Theory of Goal Attainment
- ACE Star Model

Participants
- 10 participants in the usual care cohort
  - Chart review of patients on amiodarone in 2012
- 9 participants in the amiodarone clinic
  - Chart review of patients newly prescribed amiodarone during EBP project

Data Collection
- Participant age, height, weight, gender, race, use of warfarin, and use of digoxin
- Chart review of labs for completion of baseline diagnostics after initiation of amiodarone
  - EKG, TFT, LFT, CXR, PFT, Eye Exam

Evaluation
- Chi-square tests were used to compare adherence to guidelines, gender, race, and concurrent use of warfarin
- Rate of adverse outcomes were measured

Results
- Significant difference was found in the post-amiodarone group for baseline EKG ($X^2 (1) = 4.56, p = .05$)
- Non-significant differences for baseline TFT ($X^2 (1) = 1.35, p = .25$), baseline LFT, ($X^2 (1) = 2.55, p = .11$), CXR ($X^2 (1) = 3.32, p = .07$), and PFT ($X^2 (1) = 1.55, p = .21$)
- Completion of baseline eye exams did not differ between pre and post amiodarone groups (0% for both)
- Those participants in the post-amiodarone clinic group were more likely to complete the recommended diagnostics
- Only 2 participants (22%) with adverse effects required amiodarone discontinuation

Conclusions
- Increased adherence to baseline amiodarone monitoring in EKGs, TFTs, CXRs, and PFTs, but no improvement in eye exams
- Use of an APN-led amiodarone clinic resulted in an increased adherence and few adverse events

Recommendations
- Further research is needed regarding APN-led amiodarone clinics
- Expansion of other APN-led monitoring clinics
- Urge primary care/cardiology nurses to evaluate current amiodarone monitoring protocols for adherence rates

Adherence to Baseline Monitoring Pre and Post Amiodarone Clinic

Evaluation of Quality:
- Rapid Critical Appraisal Checklists by Melnyk and Fineout-Overholt (2011)

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