Adherence to Guideline-Directed Management of Drug-Induced Long QT Syndrome

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BACKGROUND:

- QTc prolongation is a consequence of many medications.
- QTc prolongation is denoted as a QTc of greater than 470 milliseconds (ms) in males and greater than 480 ms in females.
- Torsades de Pointes (TdP) can be a fatal complication of QTc prolongation and is treated with rapid administration of IV magnesium sulfate to prevent progression into ventricular fibrillation.
- 2010 AHA and the 2017 AHA/ACC/HRS guidelines state that in cases of severe QTc prolongation, QTc prolonging drugs should be promptly discontinued.

Objective of our study:
To assess if QTc prolongation is being recognized and monitored by clinicians at University Hospital in Newark, NJ.

RESULTS:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean Age</td>
<td>57.87</td>
</tr>
<tr>
<td>Mean QTc</td>
<td>503</td>
</tr>
<tr>
<td>Documented in chart</td>
<td>16% (8/50)</td>
</tr>
<tr>
<td>Not documented in chart</td>
<td>84% (42/50)</td>
</tr>
<tr>
<td>On known QTc prolonging medications</td>
<td>24% (12/50)</td>
</tr>
<tr>
<td>On medications + undocumented</td>
<td>66% (8/12)</td>
</tr>
<tr>
<td>On medications + no held</td>
<td>91.6% (11/12)</td>
</tr>
<tr>
<td>Started on new QTc prolonging medications</td>
<td>20% (10/50)</td>
</tr>
</tbody>
</table>

METHODS:

- Searched through EMR under inpatient medicine teams for total of 50 patients at random who have ECG documented QTc prolongation.
- Record age, sex, and QTc interval.
- Using search function: looked for any documentation of "QT prolongation" and/or "torsades".
- Any QTc prolonging medications? (Cross-referenced with list of proven QTc prolonging medications)
- Document whether medications were "held", "initiated" or "maintained".

CONCLUSIONS:

- Most patients with recorded QTc prolongation on ECG had no official documentation of this in their notes.
- QTc prolonging medications were not held for many of these cases.
- A subset of patients were started on medications that could further prolong QTc.
- We need to improve our recognition and documentation of QTc prolongation to avoid potentially catastrophic outcomes.

FUTURE DIRECTIONS:

- Conduct a demographic analysis: quantifying QTc differences based on race, sex, age.
- Conduct a subgroup analysis: quantifying different severities of QTc prolongation (mild, moderate, severe).
- Expand the study to include more patients to increase power and sample size.

REFERENCES: