An Evaluation of Direct Oral Anticoagulant (DOAC) Drug-Drug Interactions (DDI) Alerts and Near Miss-Actual Adverse Events

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Problem

- According to the Joint Commission, anticoagulants are ranked number two in the top 10 drug classes involved in errors leading to serious harm or death.[1]
- A five-year retrospective study reported medication errors as the most common cause of anticoagulation-associated adverse events.[2]
- Potential and unresolved drug interactions may lead to an increased risk of bleeding.[3]
- A study of over 200,000 alerts produced by CPOE revealed providers rejected most alerts, including alerts of “high-severity” drug interactions.[4]

Goal

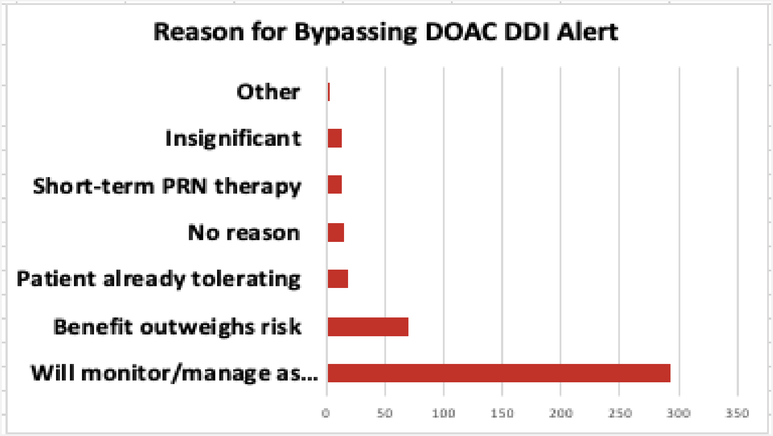
- This study aims to evaluate near miss and actual adverse events as a result of bypassing DOAC drug interaction alerts on an electronic medical record from September 2019-November 2019.

Methods

- A drug-drug Interaction (DDI) warning alerts report for the time period between September 1st, 2019 to November 30th, 2019 was generated.
- Adult patient over the age of 18 with an DOAC (dabigatran, rivaroxaban and apixban) DDI warning alert were identified.
- For those alerts with a documented override a patient chart review was conducted for any near miss events identified by review of documented pharmacist interventions and/or actual bleeding events evidenced by a documented bleeding event DRG code.
- Data collection will exclude patient identifiers. Data will be analyzed using descriptive statistics.

Results

- A total number of 573 Drug-Drug Interaction (DDI) alerts were evaluated.
- Of the 573 alerts, (73%, n= 420) were bypassed by pharmacists.
- “Will monitor/manage as recommended.” was the most common reason for bypassing alerts.
- Pharmacist interventions were made on 62 drug interaction alerts (10.8%) or near misses. The most common intervention was to “discontinue or decrease dose of interacting drug.”
- Related bleeding events occurred in 8% (n=34) of bypassed DDI alerts.
- The most common type of bleeding event was acute post-hemorrhagic anemia.
- No deaths were reported as a result of these bleeding events.



Reason for Bypassing DOAC Drug-Drug Interaction Alert	Quantity
Will monitor/manage as recommended	292
Benefit outweighs risk	69
Patient already tolerating	17
No reason	15
Short-term PRN therapy	13
Insignificant	12
Other	2

Results

Related Bleeding Events Reported	Quantity
Acute post hemorrhagic anemia	13
Gross hematuria	2
Pancreatic disorders	2
Gastroduodenal ulcer(except hemorrhage)	1
Gastrostomy hemorrhage	1
Gastro-esophageal laceration-hemorrhage syndrome	1
Gastrointestinal hemorrhage (melena)	3
Angiodysplasia of stomach and duodenum with bleeding	1
Hemorrhage from other sites in respiratory passages	2
Hypovolemia	4
Essential (hemorrhagic) thrombocythemia	1
Coagulation and hemorrhagic disorders	1
Epistaxis	2
Total	**34**

Conclusions

- Our results show that bleeding events occurred in patients where a pharmacist bypassed DOAC DDI alerts.
- Pharmacists bypass most DOAC-DDI alerts and interventions are low in number.
- Further studies are needed to confirm association of events with action of bypassing alerts and any clinical significance.
- Study highlights the issues around alert fatigue and potential lost opportunities of pharmacist to address DDI alert to prevent or mitigate harm.

References

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