Are nebulised bronchodilators being prescribed with the correct driving gas for patients at the Sunderland Royal Hospital?

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Background

Nebulised bronchodilators are used for a variety of conditions in the inpatient setting, such as chronic obstructive pulmonary disease (COPD), asthma, bronchiectasis and hyperkalaemia [1]. The British Thoracic Society (BTS) guideline for the use of oxygen in emergency and healthcare settings outlines the correct driving gas which should be used to drive nebulised bronchodilators, depending on whether the patient has asthma, type 2 respiratory failure or other specific conditions. Choosing the incorrect driving gas may result in hypercapnic respiratory failure, inadequate control of symptoms and ultimately, deterioration of the patient [1,2]. To comply with this, MediTech V6 is built to make the prescriber specify the driving gas. This audit is designed to assess how well prescribing practice meets current recommendations.

Objectives

100% of patients are prescribed the correct driving gas for their condition/history.

100% of patients requiring nebulised bronchodilators for asthma have them prescribed them via the INHOXY route.

100% of patients with current hypercapnic respiratory failure (T2RF) or risk factors for it are prescribed nebulised bronchodilators via the INHAIR route unless their current oxygen requirements are >6L nasal cannulae or >35% venturi mask.

Method

Patients admitted to Sunderland Royal Hospital requiring nebulised bronchodilators between 01/08/2020 and 30/11/2020 were identified using our electronic prescribing system (MediTech). Each patient's medical record was checked, and prescription data recorded in an excel spreadsheet. More than one drug was usually prescribed, and these were considered separate prescriptions. If >2 nebules were prescribed, then we chose 2 as a random sample. Correctness of the prescriptions was determined using pre-defined criteria taken from the BTS guideline.

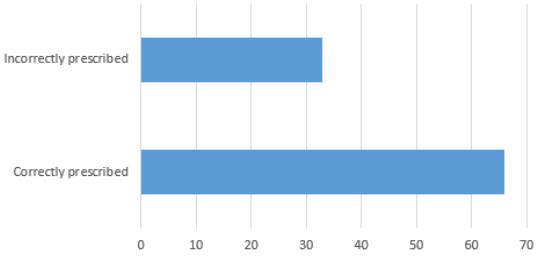
Results

266 patients were identified, with 411 prescriptions in total. Of these, 90/411 (22%) were incorrect. 4/90 of these (4.4%) incorrect prescriptions were queried by a pharmacist.

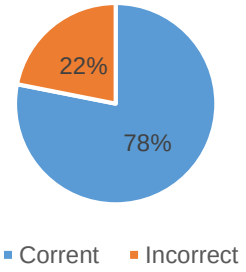
62/411 of the prescriptions were for patients that had asthma with target saturations of 94-98%. 66% of these prescriptions were prescribed using the correct driving gas, and there was no pharmacist intervention for incorrect prescriptions.

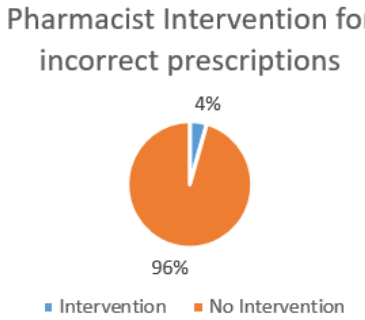
178/411 of the prescriptions were for patients with target saturations of 88-92% and of those prescriptions, 22% were incorrect. 5% (4) of the prescriptions for patients with target saturations of 88-92% were queried by a pharmacist and changes were made, e.g. a prescribing pharmacist prescribed the correct driving gas.

A graph showing how many patients with asthma were prescribed nebulised bronchodilators in air.



Pie chart to show if the correct driving gas was prescribed for patients depending on their condition





Conclusion

Based on the results, prescribing practice did not fully comply with BTS recommendations regarding prescribing nebulised bronchodilators in emergency and healthcare settings. This may lead to educating the doctors and various healthcare staff on BTS guidance. Pharmacists will also be educated, as some incorrect prescriptions were not queried by pharmacists. In the future, once education is implemented, this can be re-audited and assessed to determine if prescribing practice has improved amongst prescribing healthcare professionals.

References:
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