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Ipratropium Bromide and Acute Urinary Retention: A Case Report Highlighting an Uncommon Side Effect

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ABSTRACT

Urinary retention is a condition in which impaired emptying of the bladder results in postvoidal residual urine. It is commonly categorized as either "acute" or "chronic". Many medications can interact with the micturition pathway through various mechanisms of action due to the intricate mechanism of micturition process. Although there are sufficient observational studies and randomized controlled trials regarding the incidence of urinary retention, there is scarce information available regarding the incidence of drug-induced urinary retention. A 68-year-old male patient presented with urinary retention, fever, and lower abdominal pain. He had a medical history of co-morbid conditions and was on regular treatment. During medication reconciliation, it was identified that he had poor adherence to usage of Ipratropium Bromide inhaler, which contributed to acute urinary retention. With appropriate medical care, the patient recovered within three days. This case report emphasis the importance of detailed analysis of the Medication reconciliation and also highlight the role of Clinical Pharmacist in alerting the physicians regarding such rare side effects and also provide effective counseling on the correct usage and importance of proper adherence to inhalers.

KEYWORDS: Acute Urinary Retention (AUR), Anticholinergics, Ipratropium Bromide, Medication Reconciliation, Clinical Pharmacist.

INTRODUCTION

Acute urinary retention (AUR) is defined as a sudden inability to urinate, which is usually painful and requires catheterization. Elderly patients are more at risk due to increased prevalence of benign prostatic hypertrophy (BPH) and poly pharmacy.[2]

Acute urinary retention is typically related to the presence of prostatic disease. Data from the observational studies suggest that up to 10% of the episodes are attributable to the use of concomitant medication [4] including antipsychotics, tricyclic antidepressants, and calcium channel antagonists and anti cholinergic drugs.[1]

One specific medication called Ipratropium bromide falls under the category of short-acting anticholinergics which is commonly used to manage bronchospasm symptoms associated with pulmonary COPD and asthma. Though this medication is generally safe, one rare side effect considered is acute urinary retention which occurs because Ipratropium hinders the activation of detrusor muscarinic receptors and in turn inhibits contraction, leading to urinary retention.[3]

Acute urinary retention is a medical emergency which can be associated with serious complications. With only a few case studies of Ipratropium- induced AUR found and hereby reporting a case report of Inhaled Ipratropium induced acute urinary retention in a clinical setting.

CASE PRESENTATION

A 68 yr old male patient was presented with complaints of urine retention, fever and lower abdominal pain for 10 days. Patient had earlier visited a local hospital where bladder cauterization done with 12- Foley Catheter and nearly one liter of urine was voided with a hope that he would eventually pass a voiding trial. Patient was admitted provisionally for Acute Prostatitis.

Patient is a K/C/O of Hypertension, Diabetes, Coronary Artery Disease, COPD and BPH and on regular treatment for all the co-morbid condition.

Lab investigation showed creatinine value 1.4 mg/dl, Hb 10.5 ,PSA – 0.451 ng/ml, HbA1C 10.9%,Uric acid 9.7 mg/Dl, RBS 299 mg/Dl , HB 10.5 mg/dl. USG of abdomen showed Bilateral Renal Parenchymal disease, Mild fatty liver & Gall stones.

During medication reconciliation, it was discovered that the patient had been using Ipratropium Bromide inhalers regularly for the past three years, often in excessive doses. Consultation with a Pulmonologist revealed that this excessive use of Ipratropium Bromide was due to poor adherence to the prescribed dosing regimen. Patient's habitual overuse of the inhaler was the underlying issue.

Patient was symptomatically managed with IV fluids, IV antibiotics, Diuretics, Hypoglycemic agents, Laxatives, Cholinergic agents like Bethanechol.

Discharge counseling was given by Clinical Pharmacist emphasizing on the proper usage of Inhalers and regular follow up. Patient was symptomatically better in 3 days with good urine output and the Foley's catheter was removed thus was discharged with regular follow up and review. This case of acute urinary retention was triggered by the anticholinergic effects of high doses of Ipratropium Bromide.

DISCUSSION:

Although all of the links in the causal chain have not been clearly elucidated, converging lines of evidence from a variety of data sources including clinical trials and observational studies suggest a significantly increased risk of acute urinary retention associated with inhaled anticholinergics in patients with COPD. While the precise magnitude of the effect is uncertain, the risk appears to be most prominent in men with benign prostatic hyperplasia.[1]

In the current case, an elderly patient with multiple co morbid conditions, including COPD and BPH, experienced acute urinary retention as a result of habitual inhaler use. A related case-control study involving a cohort of COPD patients using inhaled anticholinergics as a first-line treatment. Study revealed that anti-cholinergic drugs increased the risk of acute urinary retention by 40% compared to non-users. Furthermore, the study revealed that the risk was highest among men with benign prostatic hyperplasia (BPH) when using nebulizers as a mode of administration.[8]

Another case report documented a 5-year-old who developed voiding difficulties after receiving Ipratropium and Salbutamol for Asthma. The symptoms improved after discontinuing the therapy but reappeared when both bronchodilators were rechallenged[6]. In the current case, the patient's symptoms were resolved by discontinuing the inhaled anticholinergics medication and managed by urine catherization along with a combination of other drugs. Clinical pharmacists are crucial in assessing the case and recommending alternative treatment regimens, such as long-acting or short-acting beta-agonists, instead of anticholinergics.

Subsequently in 2010, 15 cases of urinary retention as serious adverse events among Tiotropium-treated patients compared with eight cases among placebo-treated controls were reported in UPLIFT (0.5% versus 0.27% for Tiotropium versus Placebo).[3] Studies identified that the risk of long-acting anticholinergic drug tiotropium was not substantially different from that of the short-acting anticholinergic ipratropium.[8]

CONCLUSION:

The occurrence of urinary retention in association with the use of various drugs is well accepted in various literatures. Although acute urinary retention as a potential side effect of inhaled anti-cholinergic is rare in practical scenarios but cannot be overlooked. This case report underscores the significance of clinical vigilance and proper counseling to the patient on usage of Inhalers. As reported in this case the systemic risks of inhaled anticholinergics are particularly concerning in vulnerable subgroups at the highest risk of anticholinergic effects, such as older men with benign prostatic hyperplasia.

Current case reports underscore the vital role of Clinical Pharmacists who are essential in analyzing cases and alerting physicians the potential side effects .Additionally, playing a pivotal part in medication reconciliation so as to identify the causative agents offering expert guidance on proper inhaler usage to prevent overdoses.

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