

Adverse drug reactions in geriatric patient with chronic asthma

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Abstract

A 70 year old male with chronic asthma was presented to the hospital pharmacy in a primary health center in Kannur, India. The patient was unable to walk without help was tired and was experiencing wheezing with his breathing. He had severe itching, bruises, thinned skin, and gastrointestinal bleeding as observed by the pharmacist. He was diagnosed by his physician as having uncontrolled asthma, gastrointestinal bleeding and Stevens-Johnson syndrome. The patient had taken Salbutamol, Diclofenac and Betamethasone for three years without valid prescription. It was a case of problem due to self medication by the patient and community pharmacist dispensing the medication without a prescription.

Keywords: Self Medication, asthma, salbutamol, pharmacist

INTRODUCTION

A 70 year old male with chronic asthma was presented to the hospital pharmacy in a primary health center in Kannur, India. The patient was unable to walk without help, was tired and was experiencing wheezing with his breathing. He had severe itching, bruises, thinned skin, and gastrointestinal bleeding as observed by the pharmacist. He was diagnosed by his physician as having uncontrolled asthma, gastrointestinal bleeding and Stevens-Johnson syndrome. The patient had taken Albuterol, Diclofenac and Betamethasone for three years without valid prescription. It was a case of serious medication error by the patient and the community pharmacist gave medicines without a prescription.

The patient was referred to an intensive care unit of tertiary care hospital by the physician. The patient scored 40% on Australia-modified Karnofsky Performance Status Scale (AKPS).¹

The patient had started some of the standard treatment of asthma years prior with inhalers for routine use. As the patient became older and unemployed, he had to restrict his treatment for asthma to inexpensive medicines such as tablets. The patient had no health insurance either.

The patient lives in a rural village from where it is a two hour journey to the tertiary care hospital where he was originally prescribed by his physician for the following medications for his shoulder pain and asthmatic symptoms.

Tab. Asthalin (Salbutamol) 4mg three times a day

Tab. Voveran (Diclofenac) 50mg two times a day
Tab. Betnesol (Betamethasone) 0.5 mg three times a day²
It is a lengthy process in the hospital so the patient is hesitant to go to the hospital even though it is necessary. The patient reported the hospital pharmacist that he was not cared properly by his children at home. He added that once he lost the prescription mentioned above, his local community pharmacist who used to dispense medicines for few refills of the prescription wrote a duplicate copy of the prescription on his notebook and given it to the patient.

No staff from the local community pharmacy referred the patient to any physician even after the prescription was lost.

Patient purchased those medications whenever possible and consumed them for his satisfaction. It is not clear as to whether the patient was taking any other medications for the protection of gastrointestinal mucosa. Each time when patient produce his note book contains the above mentioned medications, pharmacist used to give the medication for one month and this continued for three years. At times, the rural pharmacy was staffed with an unqualified pharmacist. This is not uncommon in India where the system of pharmacy health care is very much malfunctioning especially in rural parts.

The practice of local community pharmacy showed no respect to valid prescriptions, drug interaction checking or adverse drug reaction monitoring.

ASTHMA AND ITS MANAGEMENT

National asthma education and prevention program (NAEPP) reports define asthma as a lung disease with the following characteristics:

1. Airway obstruction that is reversible (but not completely so in some patients) either spontaneously or with treatment.
2. airway inflammation; and
3. Increased airway responsiveness to a variety of stimuli.³

The goals of chronic asthma treatment are;

1. Prevent or minimize symptoms
2. Maintain normal or near normal pulmonary function
3. Maintain normal activity (including exercise)
4. Prevent exacerbations; minimize need for emergency visits or hospitalizations
5. Provide optimal pharmacotherapy with minimal or no adverse effects
6. Meet patients' and families' expectations of and satisfaction with asthma care.⁴

The pharmacotherapy of asthma employs drugs aimed at reducing airway inflammation (i.e., anti-inflammatory agents) and drugs aimed more directly at decreasing bronchospasm (i.e., bronchodilators).⁵

DRUG INTERACTION

Interactions between betamethasone and diclofenac (Moderate Drug-Drug Interaction)

The combined use of oral corticosteroids and nonsteroidal anti-inflammatory drugs (NSAIDs) may increase the potential for serious gastrointestinal (GI) toxicity, including inflammation, bleeding, ulceration, and perforation. In a large, case-control study of elderly patients, those who used corticosteroids and NSAIDs concurrently had an estimated relative risk (RR) for peptic ulcer disease and GI hemorrhage of 14.6 compared to those who used neither. Oral corticosteroid use was associated with a doubling of the risk (estimated $RR \geq 2.0$), but the risk was confined to those who also used NSAIDs. It is possible that both categories of agents are ulcerogenic and have additive effects on the GI mucosa during co administration. Some investigators have also suggested that the primary effect of corticosteroids in this interaction is to delay healing of erosions caused by NSAIDs rather than cause de novo ulcerations.

Caution is advised if oral corticosteroids and NSAIDs are used together, especially in patients with a prior history of peptic ulcer disease or GI bleeding and in elderly and debilitated patients. During concomitant therapy, patients should be advised to take the medications with food and to immediately report signs and symptoms of GI ulceration and bleeding such as severe abdominal pain, dizziness, lightheadedness, and the appearance of black, tarry stools. The selective use of prophylactic anti-ulcer

therapy (e.g., antacids, H₂-antagonists) may be considered.⁶

DICLOFENAC

Diclofenac is a prototypical Non-Steroidal Anti-Inflammatory Agent (NSAIA) that also exhibits analgesic and antipyretic activity.

Dermatologic and sensitivity reactions of diclofenac include rash or pruritus occurs in up to 10% of patients receiving diclofenac. Other adverse dermatologic reactions including alopecia, photosensitivity, and excessive perspiration have occurred occasionally. Bullous eruption, Stevens-Johnson syndrome, erythema multiform, exfoliation dermatitis, toxic epidermal necrolysis, urticaria and angioedema have occurred rarely. Sensitivity reaction, asthma, bronchospasm, chest tightness, wheezing and anaphylactoid reactions are also reported. Potentially severe hypotension may also be produced. Fever, infection and sepsis have occurred in patients receiving diclofenac.

Usual doses of diclofenac sodium reportedly produce fewer adverse gastro intestinal (GI) effects than usual anti-inflammatory dosages of aspirin and naproxen. GI bleeding was determined by fecal blood loss. There is no consistent evidence that use of low dose aspirin mitigates the increases risk of serious cardiovascular events associated with NSAIA's.

Many of the spontaneous reports of fatal adverse GI effects in patients receiving NSAIA's involve geriatric individuals. NSAIA's including diclofenac should be used with caution in geriatric patients 65 years of age or older.

SALBUTAMOL

The most frequently reported adverse GI effect of Salbutamol is nausea. Nausea was reported in 9 or 10 % of patients receiving Salbutamol of Salbutamol sulfate oral inhalation aerosol respectively. Salbutamol sulfate may be associated with clinically important cardiovascular effects, including tachycardia, increased or decreased blood pressure and related symptoms. Bronchospasm has been reported in 8 %, and wheezing in 1%, of patients receiving Albuterol sulfate inhalation. Extensive or prolonged use of some sympathomimetic amine aerosols can lead to tolerance. Failure to respond to a previously effective dosage of Salbutamol may indicate seriously worsening asthma. Fatalities may result from severe, acute asthmatic crisis and hypoxia followed by cardiac arrest.

Geriatric precautions; Data on the use of Salbutamol inhalation aerosol in geriatric patients 65 years of age or older are limited and are insufficient to determine

whether the efficacy and safety of Salbutamol are different in geriatric patients versus young patients.⁷

DISCUSSION

There is an important moderate drug interaction happening between betamethasone and diclofenac increasing the GI risk of the patient. Serious adverse drug reactions such as GI bleeding and Stevens-Johnson syndrome were observed on the patient. GI bleeding was caused by the combined effect of betamethasone and diclofenac. It was unclear that which drug cause Stevens-Johnson syndrome as both diclofenac and albuterol have the potential to cause Stevens-Johnson syndrome. There was no gastrointestinal protective agent included in the list of medications for the patient. The patient remained medically illiterate on asthma management even after getting treated for many years. It shows the lack of crucial patient counseling essential for the management of asthma. It was a case of serious medication error by the private pharmacist or pharmacy in charge of the patient for the past three years. Medications were dispensed without valid prescription and the pharmacy was concentrating only on the sale of the medications. The medically illiterate patient was uncared by the pharmacy as well as family setup. Patient was very sick with asthmatic conditions as the combination of medications are no more working for the patient, but only to harm.

CONCLUSION

Poverty, lack of quality health care facilities and noncompliance lead patient more in to self medication which causes adverse drug reactions. In this case patient suffered from Stevens-Johnson syndrome, GI bleeding and uncontrolled asthma due to irrational use of medications.

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