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Der Pharmacia Lettre, 2013, 5 (6):115-118
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Evaluation of H₁-Antihistamine usage among dermatology inpatients at a teaching hospital in Southern India

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ABSTRACT

The benefits obtained from H₁ antihistamines often vary depending upon their usage pattern. Given the number of choices and wide availability of antihistamines, choosing the right agent that will provide optimum effects with a least risk for adverse events is essential. Hence the present study was undertaken to evaluate the pattern of H₁-antihistamine usage in dermatology, in order to identify any irrationality and to suggest measures for their better and rational use. 112 case files belonging to patients admitted in the department of dermatology over a period of one year were analysed. The data thus collected was expressed in terms of averages, ratios and proportions. On analysis it was found that antihistamines were prescribed to 68.75% (77/112) patients at an average of 1.71 antihistamine preparations per patient. 85% of all medications were prescribed by using brand names. Oral route was preferred in 61% (47/77) of the patients and around 37.66% (29/77) patients received both oral and injectable forms. Hydroxyzine was the most preferred oral antihistamine in 54.54% (42/77) of the patients followed by levocetirizine in 40% (31/77) and pheniramine maleate in 13% of the patients (10/77). Educational interventions among the doctors as well as students should be carried out in order to promote rational use of H₁-antihistamines.

Keywords : Antihistamines, prescription analysis, drug utilization, dermatology, rational drug use.

INTRODUCTION

In the treatment of skin diseases, H₁- antihistamines and antiallergic agents are one of the most frequently and widely used systemic medications. [1,2]

Although the efficacy of the various first and second generation H₁-antihistamines in the treatment of allergic patients is almost similar, these drugs differ in terms of their chemical structure, pharmacology and toxic properties. The older or first generation H₁ antihistamines due to their highly lipophilic nature penetrate well into the central nervous system (CNS) where they induce sedation. They also have poor receptor selectivity and often interact with receptors of other biologically active amines thereby causing atropine like antimuscarinic, antiadrenergic and antiserotonin effects. [3] Tachyphylaxis is also a problem with the use of the older antihistamines. The newer, or second generation antihistamines have a lesser propensity to cause CNS side effects, they have few or no anticholinergic effects. Some second-generation drugs are also said to have anti-allergic and anti-inflammatory effects which may contribute to their therapeutic benefit. [4]

The benefits obtained from H1 antihistamines often vary depending upon their use. Antihistamines are most effective under a specific set of circumstances. Given the number of choices and wide availability of antihistamines, choosing the agent that will provide the optimum effects with a least risk for adverse events is essential. [5]

Keeping this in view, the present study was undertaken in order to study the prescription pattern of antihistamines among the dermatological inpatients. Intermittent monitoring of drug usage patterns has been frequently suggested in order to analyze the rationality, to identify problem areas requiring intervention and to offer feedback to drug prescribers. [6]

Various parameters like patient demography were assessed. The prescribing information related to antihistamine use such as number of drugs per prescription, use of generic/brand names, commonly preferred antihistamines, average number of formulations per prescription, route of administration including frequency of use of topical antipruritics was also studied.

MATERIALS AND METHODS

A retrospective analysis of case files of 112 patients admitted in the department of dermatology over a period of one year between was carried out in a tertiary care teaching hospital in Kerala. Details regarding the patient demography and information related to the use of antihistamines such as number of drugs per prescription, use of generic name, commonly preferred medications, average number of formulations per prescription, route of administration and frequency of use of topical antipruritics was collected.

The data was analysed using descriptive statistics. Ratios, proportions and percentages were used to describe the data.

RESULTS

Among the 112 patients whose case files were analysed, the average age of the patients was 47.07 years. Papillosquamous diseases including psoriasis were found to be the most common cause for hospital admission (29.5%) followed by eczematous diseases like contact, seborrheic and atopic dermatitis(17.9%).

The total number of formulations prescribed for the 112 inpatients admitted in the dermatology ward were 929, i.e. a mean of 8.29 per patient. Out of which 132 preparations consisted of antihistamines which were prescribed to 68.75% (77/112) patients at an average of 1.71 antihistamine preparations per patient. 85% of all medications were prescribed by using brand names.

Among the 77 patients who were receiving antihistamines, about 52% (40/77) of them were prescribed two or more antihistamines, the remaining 37 received a single antihistamine agent.

First-generation antihistamines were used in 40% (31/77) cases and 24.67% (19/77) received second-generation antihistamines while 35% (27/77) of the patients received both first and second generation antihistamines. Oral route was preferred in 61% (47/77) of the patients and around 37.66% (29/77) patients received both oral and injectable forms. Injection pheniramine maleate was used intravenously or intramuscularly in all such cases.

Hydroxyzine was the most preferred oral antihistamine in 54.54% (42/77) of the patients followed by levocetirizine in 40% (31/77) and pheniramine maleate in 13% of the patients (10/77). Other antihistamines used were cetirizine, rupatadine and desloratadine.

Emollients were prescribed along with antihistamines in 64% (50/77) of the patients.

DISCUSSION

Antihistamine drugs are the most commonly prescribed medications in dermatologic practice. [7] One of the important indication for their use is itching (pruritus) which though considered benign can adversely affect a patient's wellbeing and can be incapacitating when severe [8]

In our audit 1st generation sedative antihistamines were prescribed more commonly in 40% (31/77) cases. Although effective in reducing the itch, the actual role of 1st generation antihistamines may be due to their sedative effect. 2nd generation nonsedating antihistamines were used in 63.63% (49/77) of the cases even though nonsedating antihistamines seemingly do not have any effect on itching in the absence of erythema and wheal formation. [8] 35% (27/77) of the patients in our study received both 1st and 2nd generation antihistamines.

Combining of 1st and 2nd generation antihistamines might provide a new and effective option in the treatment of dermatological conditions especially when severe. [9] Sedative antihistamines, such as hydroxyzine, may be particularly valuable with pruritus during the night while second-generation, non-sedating antihistamines such as loratadine, desloratadine, and levocetirizine may be suitable in the daytime for relief of pruritus. . [10]

Most of the medications were prescribed by brand names which was also common in earlier studies. [11] Use of generic names usually provides flexibility to the dispensing pharmacist and generic drugs are less expensive than brand-name drugs. [12]

First-generation H1-antihistamines, all of which are sedating can reduce rapid eye movement (REM)-sleep, impair learning and reduce work efficiency. They are implicated in vehicular accidents. Some exhibit cardiotoxicity in overdose. [3] They may cause tachycardia, supraventricular arrhythmia, and prolongation of the QT interval in a dose-dependent manner. [4] Hydroxyzine, the most commonly used oral antihistaminic in our study does not induce ventricular arrhythmias, although changes in T waves have been reported when it is administered in high doses. [7]

2nd generation antihistamines like desloratadine, fexofenadine, levocetirizine, and rupatadine have cardiotoxic effects when their cytoplasmic levels increase because of interactions with other drugs or with fruit juice. [7]

Most of the patients included in our study, about 52% were above the age of 51 years. Elderly patients who have reduced liver function exhibit longer duration of action. There is a possibility of precipitating serious unwanted cardiac or CNS effects in these patients. Such adverse effects are more likely to occur with first-generation rather than second-generation antihistamines. [4] Second generation antihistamines like fexofenadine has previously been shown to have a low occupancy of H1 antihistamine receptors in the brain thereby reducing the likelihood of sedation. [13] Desloratadine was also found to have a low incidence of adverse events and an overall tolerability profile similar to placebo. [14]

Emollients were prescribed along with antihistamines in 64% (50/77) of our patients. Since dry skin has been documented to worsen pruritus hence the use of bland emollients, such as petrolatum jelly, several times a day to keep the skin hydrated has been suggested as one the measures to reduce the incidence of pruritus. [8] Undertaking these simple measures can significantly reduce the overall requirement of antihistamines. These measures can also prevent the occurrence of dry skin which can occur with some 1st generation antihistamines due to their additional anticholinergic action. Hence a continuous supervision & monitoring in the form of prescription based survey helps to overcome the irrational prescribing practices by providing feedback to the prescribers. [15]

CONCLUSION

The findings of our study show a tendency of the prescribers towards polypharmacy and prescribing by brand names. Interventions in the form of hospital formulary, development of standard treatment guidelines and essential drugs list may help. Educational interventions among the doctors as well as students may be planned in order to promote rational drug use.

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