Original Article

Acute Urticaria

Comparative Efficacy of H_1blocker, H_2blocker, and Corticosteroid Individually and in Combination in Resolution of Sign and Symptoms of Acute Urticaria

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ABSTRACT

Objective: To compare the efficacy of H_1 blocker, H_2 blocker, corticosteroid in combination or individually in resolution of the sign and symptoms of acute urticaria.

Study Design: Randomized control trial

Place and Duration of Study: This study was carried out at Medical Department, Naseer Teaching Hospital, Peshawar, Khyber Pakhtunkhwa (KPK) for the period of six months (July 2012 through December 2012).

Materials and Methods: In this study 140 adult patients of both gender with acute urticaria were treated with either H_1 blocker (group A), H_2 blocker (group B) or in combinations of H_1 blocker + H_2 blocker (group C), H_1blocker + H_2 blocker + dexamethasone (group D), H_1 blocker + dexamethasone (Group E), H_2 blocker + dexamethasone (Group F) or Dexamethasone (group G) alone. The end points were resolution of sign and symptoms in each group of patients (minimum 3 hours after treatment). Pregnant females, anemic and Patients with cardiac disease were excluded.

Results: H_1+ H_2blockers + dexamethasone found to be most effective therapeutic combination (95% of patients) in resolution of sign and symptoms of acute urticaria, followed by H_1 blocker + dexamethasone (90%) and H_1+ H_2 blockers (85%).

Conclusion: This study concludes that the combination of H_1+H_2 blockers + dexamethasone is more effective in relieving the patient from the sign and symptom of acute urticaria as compared to H_1blocker or H_2 blocker or dexamethasone given alone or in combination of any two.

Key Words: Urticaria, H_1 blocker, H_2 blocker, dexamethasone

INTRODUCTION

Urticaria is commonly referred to as hives, is the most frequent dermatologic disorder seen in the Emergency Department (ED). It appears as raised, well-circumscribed areas of erythema and edema involving the dermis and epidermis that are very pruritic[1-2]. It is characterized by typical lesion or wheal formation which is often erythematous, usually pruritic papule or plaque that appears and disappears over relatively short periods of time[3]. They are caused by vasoactive mediators, predominantly histamine, released from mast cells. In the vast majority of cases the wheal is transient, lasting for only a few hours in any one place, but with new wheal appearing in other places[4].

Urticaria is one of the most common dermatologic problems and 20-30% of individuals have at least one attack of urticaria in their lifetime[5-6]. Both children and adults may develop urticaria with the peak age of onset in adults being between 20 and 40 years of age[4]. Urticaria may be acute when the duration is less than 6 weeks[7] or chronic when it lasts for more than 6 weeks[5,8]. Acute urticaria usually develops more severe clinical and life-threatening symptoms compared with chronic urticaria[9-10]. Common causes of urticaria are drugs, infections, parasites, food and food colours, systemic disease, psychogenic factors, autoimmune disease, endocrine disease and malignancy[3]. Acute urticaria is more common and is characterized with more severe symptoms at onset, which may be life threatening. Clinical symptoms of chronic urticaria are often less severe but much more troublesome than those of acute urticaria, chronic urticaria may have highly variable etiological factors and duration[11]. Large variety of urticaria variants exist, including acute immunoglobulin-E (IgE) mediated urticaria, chemical-induced urticaria, autoimmune urticaria, delayed pressure urticaria, cholinergic urticaria, cold urticaria, solar urticaria, aquagenicurticaria, physical urticaria and many others[1-2].

Urticaria may be often confused with a variety of other dermatologic diseases that are similar in appearance and are pruritic including maculopapular drug eruption, atopic dermatitis (eczema), contact dermatitis, erythema multiform, insect bites, pityriasisrosea and others.

Usually, the experienced clinician is able to distinguish these from urticaria because of its distinctive appearance, the fact that it is intensely pruritic, and because it blanches completely with pressure[12].

A number of studies showed the effectiveness of antihistamines treatment either with H_1 blocker[13-15] or with H_2 blocker[16] or their combination in treatment of acute urticaria[17] but these remained ineffective in the treatment or prevention of most forms of urticaria. In addition corticosteroid therapy involving a multitude of formulation is widely used in nearly all fields of medicine[18]. Although the combination of H_1 blocker and H_2 blocker has been reported to improve certain cutaneous outcomes in patients with acute allergic syndromes[16], data is scanty on combination therapy of acute urticaria. However to the best of our knowledge the data on combination of H_1 blocker + H_2 blocker with dexamethasone is lacking.

MATERIALS AND METHODS

A total of 140 patients with urticaria were treated with mentioned drugs alone or in combination who presented at out-patient department of Medical Department, Naseer Teaching Hospital, Peshawar during six months (from July 2012- December 2012). Patients between ages 20-60 years of both gender were included in this study who visited the hospital with urticaria developed due to any reason e.g. history of drug intake, history of disease, history of food intake and any allergic reaction which induced uriticaria. Approval of hospital ethical committee and informed written consent were taken from the subject. Pregnant ladies and patients with anemia, heart diseases or any other illness were excluded.

Proper history was taken from all the patients. Diagnosis was made on basis of clinical presentation, physical examination and pathological findings. Patients were divided in seven equal groups; A (treated with 22.7mg H_1 blocker), B (treated with 50mg H_2 blocker), C (treated with 22.7mg H_1 blocker + 50mg H_2 blocker), D (treated with 22.7mg H_1 blocker + 50mg H_2 blocker + 4mg Dexamethasone),E (treated with 22.7mg H_1 blocker + 4mg Dexamethasone), F (treated with 50mg H_2 blocker + 4mg Dexamethasone) and G (treated with 4mg dexamethasone). Each group comprises of 20 patients. Patients were observed for minimum of three hours after treatment to evaluate and compare the efficacy of drugs in each group. Duration of the effectiveness was also measured to see the interval of effective drug. All the data collected in pre designed proforma and recorded on SPSS 10.

RESULTS

As depicted in table-1 males were 78 (56%) with 62 (44%) female. Known etiological findings of acute urticaria in clinical history taking revealed six patients (4%) with positive history of either respiratory tract infection, gastrointestinal infection, whereas fifteen patients (11%) had positive history of drug intake i.e. ciprofloxacin, metronidazole, non-steroidal anti-inflammatory drugs. Four patients (3%) had positive history of food induced acute urticaria i.e. fish, nuts and mushroom as shown in table 2.

Table No.1: Frequency and percentage with relation to different ages.

	Frequency (s)	Percentage
Age		
20-30 years	51	36%
30-40 years	53	38%
40-50 years	27	20%
50-60 years	09	06%
Male	78	56%
Female	62	44%
Total	140	

Table No.2: History of finding of subjects.

History findings	Response	Frequency (s)	Percentage
History of Disease	Yes No	6 134	4% 96%
History of drug intake	Yes No	15 125	11% 89%
History of food intake	Yes No	4 136	3% 97%
Total		140	

Table No.3: Efficacy of drugs in different groups of subjects.

Groups	**Effectiveness**	**Efficacy Frequency (n)**	**Percen-tage**	**Total**
H_1 Blocker	Effective Not Effective	14 6	70% 30%	20 cases
H_2 Blocker	Effective Not Effective	5 15	25% 75%	20 cases
H_1+H_2	Effective Not Effective	17 3		
H_1+H_2+ dexamata-sone	Effective Not Effective	19 1	85% 15%	20 cases
H_1+ dexamata-sone	Effective Not Effective	18 2	90% 10%	20 cases
H_2+ dexamata-sone	Effective Not Effective	11 9	55% 45%	20 cases
dexamata-sone	Effective Not Effective	8 12	40% 60%	20 cases

Table-3 depicted the most effective treatment in the resolution of sign and symptoms. H_1 blocker + H_2 blocker with dexamethasone were effective in 95% whereas rest of the combination of treatment or individual treatment showed less therapeutic efficacy.

Table-4 showed effectiveness of the treatment i.e. how quickly drug resolves the symptoms of urticaria after

drug treatment (minimum 3 hours). Fastest resolution of symptoms occurs in group of patients treated with H_1 blocker + H_2 blocker with dexamethasone (between 15-40 minutes). Whereas longest duration was observed in patients treated with H_2 blocker (3-6 hours).

Table No.4: Duration of effectiveness of drugs in subjects

Groups	Duration of Effectiveness
H_1 Blocker	2-4 hours
H_2 Blocker	3-6 hours
H_1+H_2	1-2 hours
H_1+H_2+ dexamatasone	15-40 minutes
H_1+ dexamatasone	1 hour
H_2+ dexamatasone	2 hours
dexamatasone	2 ½ hours

DISCUSSION

Antihistamines are widely used group of drugs for the treatment of acute urticaria. A number of studies showed the effectiveness of antihistamines treatment either with H_1 blocker[13-15] or with H_2 blocker[16] or their combination in treatment of acute urticaria[17]. Lin*et al* showed pretreatment effect for H_2 blocker in allergic reaction. Their study demonstrates the benefit of adding H_2 blocker to H_1 blocker antihistamine in treatment of ongoing allergic reactions[16]. Although few studies described the effects of both H_1 and H_2 blockers in treatment of acute urticaria[16], our study has the value of evaluating different combinations of H_1blocker, H_2blocker and corticosteroid. The maximum efficacy in our study was observed in patients received the combination of H_1 blocker + H_2 blocker with dexamethasone (95%) followed by the combination of H_1 blocker + dexamethasone which was effective in 90% cases and the combination of H_1 blocker + H_2 blocker was effective in 85% cases. On the other hand effectiveness of H_1 blocker was found in 70%, H_2 blocker was found in 25% while dexamethasone was found in 40% cases as shown in table-3. Similar observation has been reported by Zuberbier*et al* had mentioned that combination therapy with H_1 and H_2 histamine blockers can benefit patients with acute allergic syndromes[19]. Similar observations were also recorded by Lin *et al* that most cases of simple acute urticaria can be treated with H_1 antihistamine agents. In cases of severe or persistent urticaria, H_2 antihistamines may be added and are probably additive to the effect of H_1 antihistamines if simultaneously given intravenously[16].

Some patients with urticaria had only cutaneous symptoms whereas some patients had systemic symptoms such as headache, joint pain and gastrointestinal complaints as well[9-10]. Results of the present study showed that the number of patients was more with the history of drug induced urticaria 11% as compared to the history of food intake induced urticaria patients which were 3% and history of disease induced urticaria patients which were 4%. In this study, most commonly reported drugs which induced urticaria were ciprofloxacin, metronidazole, aspirin, and non-steroidal anti-inflammatory drugs. Urticaria induced by food was due to intake of fish, nuts and mushroom. Diseases which cause urticaria include respiratory tract infections[20]. Similarly, it was observed that 4% urticaria patients in this study had a history of these diseases.

Another merit of our study is the assessment of degree of effectiveness of the drug in all groups in terms of duration of time in which drug showed its effect to clearly resolve the symptoms of urticaria. The patients were observed for a minimum of 3 hour in the current study. Results of the present study showed that combination of H_1 + H_2blockers and dexamethasone took lesser time in effectiveness as compared to H_1 or H_2blockers and dexamethasone alone. The results also revealed that the duration of effectiveness of H_1 blocker + H_2 blocker + dexamethasone was observed between 15-40 minutes followed by H_1 blocker + H_2 blocker in which the duration of effectiveness was 1-2 hours and duration of effectiveness of H_1 + dexamethasone was only one hour. On the other hand duration of effectiveness of H_1 blocker was 2-4 hours, H_2 blocker was 3-6 hours and dexamethasone effectiveness was found to be 2 ½ hours as shown in table-4. An improved outcome over the course of one or two hours was seen with combined H_1 blocker and H_2 blocker in patients who were presented with urticaria and angioedema[16]. However, in this study no such significant difference of H_1 blocker, H_2 blocker and dexamethasone was found in different age group and in gender distribution.

No patients developed any severity to intubate or resuscitate them. Parenteral route of administration was used for the patients in all age groups of the present study. No trials of treating the patients orally were done in this study, the medication and treatment resulted in rapid improvement in signs and symptoms of urticaria. However, further studies and trials are needed to ascertain whether similar results are observed if the drugs are administered orally in different age groups of patients suffering from urticaria.The small number of sample size in each group may be the limitation of this study.

CONCLUSION

Patients presented with acute urticaria in all groups did not have any specific difference regarding gender and age. The statistical difference is noted in improvement of urticaria with different drugs treatment and duration of resolution of signs and symptoms. The presentation of patients was almost same but was treated with different drugs and different strategies. The poorest response was noted with H_2 blocker alone and while

treatment with H_1blocker + H_2blocker + dexamethasone gave excellent response in acute urticaria as compared to H_1blocker alone, H_1 + H_2blockers and dexamethasone alone.

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