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(*Short Communication*)

Antiasthmatic Effect of *Glycrrhiza glabra* against Histamine Induced Bronchospasm in Guinea Pigs

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ABSTRACT

Bronchial asthma is a common disease that leads to significant degree of morbidity and mortality. Herbal drug can be used to either replace or an add on therapy with less cost and less toxic anti-asthmatic regimen. In the present investigation Antiasthmatic effect of Glycrrhiza glabra was evaluated against Histamine Induced Bronchospasm in guinea pigs. The effect of Glycyrrhiza glabra was comparable to the standard anti-histamine Chlorpheniramine maleate (CPM) offered complete protection against histamine challenge at an interval of 90 mins.

Key words: *Glycyrrhiza glabra*, Histamine, Bronchial asthma, Bronchodilators.

INTRODUCTION

Bronchial asthma is a common disease that leads to significant degree of morbidity and mortality. The treatment of bronchial asthma is neither complete nor satisfactory[1-3]. The pathophysiology was revealed to be inflammatory in addition to the hypersensitivity nature of the disease[4-6]. Bronchodilators, anti-inflammatory and anti-allergic drugs are the mainstay of the treatment at present[7-9]. *Glycyrrhiza glabra* has anti-inflammatory, anti-microbial and expectorant properties[10-12]. So the herbal drug may be used to either replace or an add on therapy with less cost and less toxic anti-asthmatic regimen[13].

MATERIALS AND METHODS

For this study 50 apparent healthy guinea pig of either sex weighing between 400-500 gm inbreed in departmental animal house, divided 10 in each. The study was approved by IEC. Initial exsposition time were recorded by exposing animals to histamine acid phosphate 0.25 % under a constant pressure 40 mm of Hg from the inbuilt nebulizer of the histamine chamber[14,15].

Study Protocol Design

Group	Drugs	Dose	Route of administration
1	Distilled Water(DW)	0.5 ml	p/o (per oral)
2	Aqueous extract of *Glycyrrhiza glabra* (AEGG)	10 mg/kg	p/o (per oral)
3	Aqueous extract of *Glycyrrhiza glabra* (AEGG)	20 mg/kg	p/o (per oral)
4	Aqueous extract of *Glycyrrhiza glabra* (AEGG)	40 mg/kg	p/o (per oral)
5	CPM	2 mg/kg	p/o (per oral)

All the drugs were given at 0 min and exposition time were recorded at 30, 60, 90 and 120 min.

OBSERVATION AND RESULTS

Table No.1 represents effect of *Glycyrrhiza glabra* on exposition time of guinea pig. Maximum protection were observed and mean exposition time at 90 min of different drugs.

Table-1: Effect of *Glycyrrhiza glabra* on exposition time of guinea pig.

Drug	Dose	Mean exposition time in seconds
Distilled Water(DW)	0.5 ml	10.62 ± 1.20
Aqueous extract of *Glycyrrhiza glabra* (AEGG)	10 mg/kg	14.86 ± 1.23 $^{++}$
Aqueous extract of *Glycyrrhiza glabra* (AEGG)	20 mg/kg	20.69 ± 4.33 $^{++}$
Aqueous extract of *Glycyrrhiza glabra* (AEGG)	40 mg/kg	22.13 ± 4.15 $^{+++}$
CPM	2 mg/kg	CP

CP = Complete protection

Table No.2 represents % of protection of *Glycyrrhiza glabra* at different time interval.

Table 2: Percentage of protection of *Glycyrrhiza glabra* at different time interval.

Group	Drug	Dose	Time interval in min.			
			30	60	90	120
1	DW	0.5 ml	0	0	0	0
2	AEGG	10 mg/kg	2.8	5.65	39.36	36.18
3	AEGG	20 mg/kg	34.66	39.33	34.90	52.4
4	AEGG	40 mg/kg	48.25	51.67	57.79	42.8
5	CPM	2 mg/kg	60	80	100	90

DISCUSSION

The mean exposition time against histamine challenge significantly increased with increasing dose of AEGG. Even in the lowest dose 10 mg/kg showed excellent protection in guinea pig. Maximum protective effect was observed at an interval of 90 mins and effect decreased thereafter.

The effect of *Glycyrrhiza glabra* was comparable to the standard anti-histamine CPM offered complete protection against histamine challenge at an interval of 90 minutes[16,17].

CONCLUSION

AEGG definite has significant anti-asthmatic effect against histamine induced bronchospasm in guinea pig. Further study in this context is necessary to establish its clinical use.

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