

Anti-Histaminic Activity of Kaphaketu Rasa on Histamin Induced Bronhospasm in Guinea Pigs

Dr.B B Joshi, Dr.Pradeep Agnihotri, Dr.Anitha Joshi, Dr.A R Kulkarni

Abstract— Kaphaketu rasa is a classical organomineral preparation used for Prateeshaya, Kasa, Shwasa and other respiratory disorders. It is a Khalveeya Rasayana Judicially containing shodhita Vatsanabha(Aconitum ferox), Shodhita Tankana(Borax), Pippali(Piper Longum), Shanka Bhasma(Calyx of Conch) & Ardraka Swarasa Bhavana (Juice of Ginger) for 3 times According to modern science Rhinitis, Bronchitis, Bronchial asthma, are the similar conditions, where in Kaphaketu Rasa is very effective clinically. Pathophysiologically histamine secretion and activity will be more in majority of the allergic disorders. Hematological examination reveals raised Absolute Eosinophilic count. The formula is in clinical practice very effectively in aforesaid disorders. The claims of Ayurveda ought to be validated by suitable animal models with scientific parameters. Hence to get more documentary evidences updating of the knowledge and to get more scientifically confidence in Ayurvedic science the present study was carried out. The Kaphaketu Rasa showed statistically significant at $P < 0.001$. Guinea pige were fed with Kaphaketu rasa by oral route once a day for 5 days. Kaphaketu Rasa significantly extended the latent period of pre-convulsive Dyspnoea (PCD) as compared with control group.

Index Terms— Antihistaminic activity, Bronchospasm, Kaphaketu Rasa.

I. INTRODUCTION

Ayurveda the science of life has been contributing significantly to the medical science in India and worldwide along with modern medicine. By integrating the knowledge of ethno pharmacology, Phyto-chemistry various herbs, minerals have been identified and are used to treat different allergic disorders including Asthma, Urticaria, Eczema, etc., they are found to be safe effective and cheap. Because of wide spread use of alternative system of medicine, efforts to enhance understanding about these forms of treatment have to be made. These allergic disorders are the most common conditions, affecting mankind. High prevalence rate of allergic disorders ranging between 25 to 50% during the life time of persons and their ever increasing incidence of severity worldwide are a matter of concern. Kaphaketu Rasa may be the answer for all afore said

concern. Hence it is felt that research with certain parameters is needed in this regard. The present study is designed to establish its effects more scientifically by evaluating Anti histaminic property of Kaphaketu Rasa experimentally in particular respiratory allergic disorder. Thus keeping this in view, the present study has been planned to work on “Anti-Hisaminic Activity of Kaphaketu Rasa on Histamin Induced Bronhospasm in Guinea Pigs”. Using animal models we quantified the dose adjustment of Kaphaketu Rasa so as to minimize the drug utilization.

II. MATERIALS & METHODS

A. Preparation of Kaphaketu Rasa

Kaphaketu Rasa is a Khalveeya Rasayana Judicially containing shodhita Vatsanabha(Aconitum ferox), Shodhita Tankana(Borax), Pippali(Piper Longum), Shanka Bhasma(Calyx of Conch) & Ardraka Swarasa Bhavana (Juice of Ginger) for 3 times.

B. Preparation of 1% histamine:

For the preparation of 1% histamine aerosol, 250mg of histamine was dissolved in 25ml saline. This solution was readily prepared to avoid the degradation of the histamine in solution form.

C. Preparation of KaphaKetu Rasa solution

50 mg formulation dissolved in 10 ml distilled water (1% acacia powder) as suspending agent. The suspending agent was used to disperse the drug uniformly.

D. Animals:

Dunken Hartley strain guinea pigs (350-550 g) of either sex, housed in standard conditions of temperature ($22 \pm 2^\circ\text{C}$), relative humidity ($55 \pm 5\%$) and light (12 h light/dark cycles), were used and fed with green vegetables. The Institutional Animal Ethics Committee approved the experimental protocol.

E. Histamine-induced bronchospasm in guinea pigs

Bronchospasm was induced in guinea pigs by exposing them to 1% histamine aerosol under constant pressure (1 kg/cm²) in an aerosol chamber (24 × 14 × 24 cm) made of perplex glass. Of the two groups of five animals each, Group I served as control and Group II received test drug KaphaKetu Ras 16mg/1kg, p.o., once a day for 5 days. The animals were exposed to 1% histamine aerosol under constant pressure (1 kg/cm²) in an aerosol chamber on day 0 without any treatment. The end point, preconvulsive dyspnoea (PCD) was determined from the time of aerosol exposure to the onset of

Dr.B B Joshi, HoD Dept of Rasashastra, Ayurveda Mahavidyalaya, Hubli.
Dr.Pradeep Agnihotri, Asst. Professor Dept of Rasashastra, Ayurveda Mahavidyalaya, Hubli.
Dr.Anitha Joshi, Asst. Professor, Dept of Rasashastra, Ayurveda Mahavidyalaya, Hubli.
Dr.A R Kulkarni, HoD Dept of Pharmacology, SET College of Pharmacy, Dharwad.

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dyspnea leading to the appearance of convulsion. As soon as PCD commenced, the animals were removed from the chamber and exposed to fresh air. This PCD was taken as day 0 value. On days 1,2,3,4 and 5, 2 hr after the administration of the drug, the time for the onset of PCD was recorded as on day 0.

III. STATISTICAL ANALYSIS.

The results of various studies were expressed as mean±SEM and analysed statistically using unpaired 't' -test to find out the level of significance. Data were considered statistically significant at $p < 0.0001$.

IV. RESULTS AND DISCUSSION

The KaphaKetu Ras at two different doses i.e., 20 and 25mg/1.5kg, p.o., were administered in guinea pigs by oral route of drug administration. The apparatus used for induction of Pre-convulsion dyspnea by using histamine and administration of dose was done by custom made cage as shown in Figure 1. After spraying of the histamine, animals were observed closely to see the Pre-convulsion dyspnea. Results of PCD of control as well as treated groups are shown in Table 1. It was observed that the significantly extended the latent period of PCD as compared with the control in both the cases, following exposure to histamine aerosols on day 3, 4 and 5 respectively

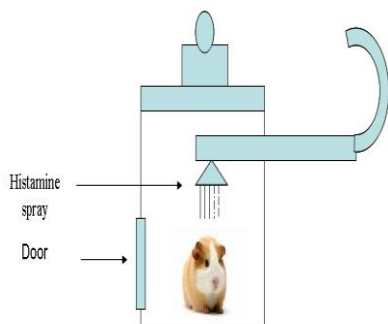


Figure 1. Custom made histamine chamber.

Table No: 1. Protection against histamine induced broncospasm in guinea pigs by KaphaKetu Ras.

Groups	<i>Pre-convulsion dyspnoea</i> + (sec)			
	Day 0	Day 3	Day 4	Day 5
Control	158	147	138	145
<i>KaphaKetu Ras</i> 20mg/1.5kg, p.o.,	155	223*	306**	340**
<i>KaphaKetu Ras</i> 25mg/1.5kg,	152	230*	347**	401**

+Values are mean ± S.E.M, n=5 in each group as compared to control on each day (unpaired Students 't' Test * $p > 0.01$ ** $p > 0.001$). Phyto chemical constituents of Kaphaketu Rasa shows presence of steroids: which is actively blocks the histamine receptors as well as presence of alkaloids, Triterpenoids, Saponines indicative of Anti Histamine activity of Kaphaketu Rasa. The effect of the drug showed steadily increased action from 3rd day more on 4th and 5th day.

V. CONCLUSION

Histamine is a central mediator in the pathogenesis of allergic and inflammatory disorders. In the present study, The KaphaKetu Rasa prolonged the latent period of PCD in guinea pigs following histamine aerosol. This may be suggestive of an antihistaminic activity following treatment with KaphaKetu Ras.

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