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Research Article

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Evaluation of analgesic activity of Pattai Chooranam by using Eddy's hot plate method in mice.

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Abstract

The Pattai chooranam (PC) is traditionally used in siddha system for various skin diseases and pain management as referred as soolai. The present study was evaluated the analgesic activity of Pattai chooranam by using Eddy's hot plate method in animal model.. The PC was used 200mg/kg and 400 mg/kg given orally to the animals. The Pentazocine (5mg/kg, p.o.) was given as standard drug. Here used a behavioral model of nociception where behaviors such as jumping and hind paw-licking are elicited following a noxious thermal stimulus. The end of the study result shows that the pattai chooranam have analgesic activity.

Keywords: Pattai chooranam, Analgesic, Pentazocine, Eddy's hot plate.

Introduction

The Pattai chooranam (PC) is traditionally used in siddha system for various skin diseases and pain management as reffered as soolai[1]. . In this *Chooranam* many ingredients such as *Kodiveli* (*Plumbago indica*), *Sadamanjil* (*Nardostachys grandiflora*), *Amukkura* (*Withania somnifera*), *Gandhagam* (*Sulphur*), *Saathikkai* (*Myristica fragrans*) having analgesic and sedative activity which is scientifically proved. So this combination may have good effect[2]. Painful reactions can be produced in experimental animals by applying noxious stimuli such as thermal – using radiant heat as a source of pain, chemical – using irritants such as acetic acid and bradykinin and physical pressure – using tail compression.. The hot plate test was a test of the pain response in animals[3]. It was used in basic pain research and in testing the effectiveness of analgesics by observing the reaction to pain caused by heat. Here used a behavioral model of nociception where behaviors such as jumping and hind paw-licking are elicited following a noxious thermal stimulus[4]. Licking was a rapid response to painful thermal stimuli that was a direct indicator of nociceptive threshold. Jumping represents a more elaborated response, with a latency and encompasses an emotional component of escaping.

Methodology

Selection of animals:

Healthy Wistar albino mice (25-30g) of both sex were used for this study with the approval of the Institutional Animal Ethics Committee and obtained from the animal laboratory. IAEC approved no: IAEC/XLIX/15/CLBMCP/2016.

The animals kept in plastic cages and maintained at 24-28°C. All the rats were housed individually with free access to food, water and libitum. They were feed with standard diet and kept in well ventilated animal house they also maintained with alternative dark-light cycle of 12hrs throughout the studies. Rats were allowed an acclimatization period of 14 days before actual experiments. The rats were closely observed for any infection and if they show signs of infection they were excluded from the study. The animal experiment was performed with accordance legislation on welfare.

Animals

Mice 20-25 g were grouped in four groups, six animals in each group.

Grouping:

Group I : Control - distilled water (10ml/kg, p.o.),
Group II : Standard drug **-** Pentazocine (5mg/kg, p.o.)
Group III : *Pattai chooranam* (200mg/kg)
Group IV : *Pattai chooranam* (400mg/kg)

Equipment:

Eddy's Hot plate

Procedure:

Animals were weighed and placed on the hot plate. Temperature of the hot plate was maintained at 55±1º C. Jumping response was seen. The time period (latency period), from when the animals were placed and until the responses occurred, were recorded using a stopwatch. To avoid tissue damage of the animals 10 seconds was kept as a cut off time. The time obtained was considered the basal / normal reaction time in all the untreated groups of animals. Increase in the basal reaction time was the index of analgesia[5].

All the animals were screened initially at least three times in this way and the animals showing a large range of variation in the basal reaction time were excluded from the study. A final reading of the basal reaction time was recorded for the included animals. After selecting the animals, the drugs were administered to all the groups at the stipulated doses. The reaction times of the animals were then noted at 0, 30 , 60 ,90 ,120 and 150 mins interval after drug administration[56].

Statistical analysis

Results were expressed as mean ± SEM and analyzed using Graph Pad Prism software. One way analysis of variance (ANOVA) test was applied.

P value less than 0.05 (P<0.05) was considered as statistically significant.

Results and Discussion

Analgesic activity was carried out by Eddy's Hot plate method Pattai chooranam at the two doses 200 mg/kg showed significant (p<0.05)analgesic activity at reaction time 90 min (4.80±1.11*) and 400 mg/kg showed significant (p<0.01)analgesic activity at 120 min (8.22±0.24**) was slightly lower than the standard drug Pentazocine 11.63±0.39**.

Table 1 Analgesic activity of Pattai chooranam in Swiss albino mice

Groups	Treatment	Reaction time in sec					
		0min	30min	60min	90min	120min	150min
I	Control	2.32±0.11	2.52±0.03	2.42±0.04	2.30±0.01	2.29±0.01	2.28±0.04
II	Pentazocine (5mg/kg)	2.04±0.18	4.01±0.81	8.41±0.36	10.52±0.37**	10.63±0.39**	10.87±0.63**
III	Low dose(200mg/ kg)	2.18±0.46	3.43±0.36	4.40±1.11	4.60±1.11*	5.12±0.24	5.55±0.42
IV	High dose 400mg/kg).	2.14±0.21	3.40±0.77	5.22±0.85	6.01±1.13**	8.22±0.24**	7.60±0.26

N= 6, values are expressed as mean± SEM P<0.05 ,P<0.01 when compared with control. The results were analyzed by ANOVA followed by Dunnet's test (P value less than 0.01was considered as statistically significant

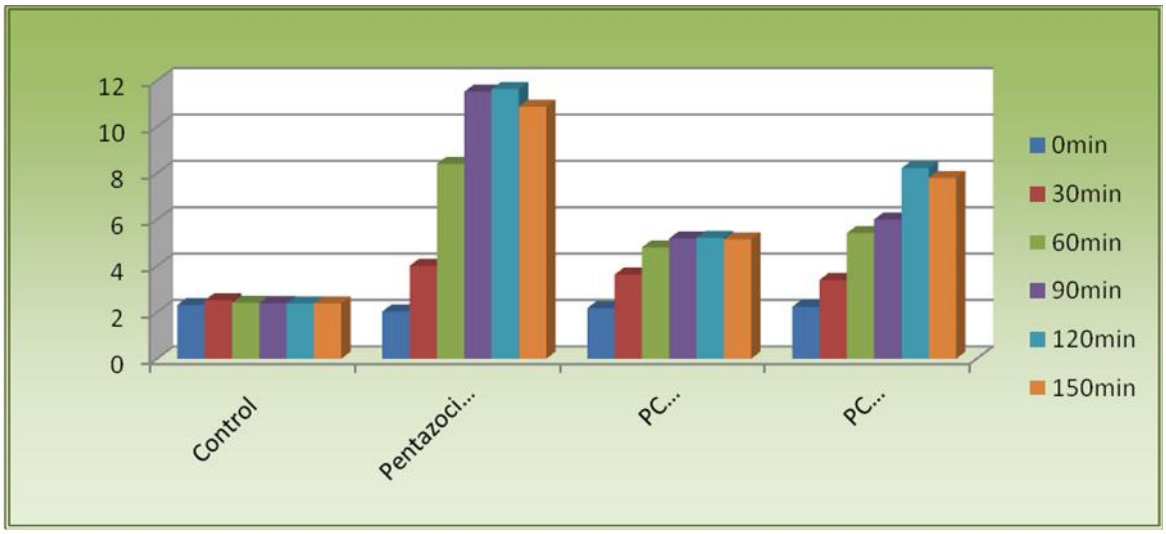

Figure 1 Analgesic activity of *Pattai chooranam* by Eddy's hot plate method

Conclusion

From these results it was obvious that *Pattai chooranam* has significant analgesic activity.

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