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Research Article

EVALUATION OF ANTIPIRETTIC ACTIVITY OF BRUHAT HINGULESHWARA RASA

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ABSTRACT

Abnormal food habits (mithyaahara), abnormal style of living (mithyavihara), and other factors disturbs Jatharagni, which leads to jwara (fever) & vedana (pain). Bruhat Hinguleshwara Rasa is mentioned in Bhaishajya Ratnavali, having a multidimensional therapeutic indication i.e. Jwarahara and Vedananashak & this activity have encouraged to evaluate the antipyretic activity. Albino rats were divided into three groups and distributed 06 in each group. Test drug (Group-I), Standard drug (Group-II) and Group-III (Propylene glycol). Anti-pyretic study was done by Yeast induced method. Significant antipyretic activity was observed in Test Drug (GI), and Standard Drug (GII). But in Test Drug (GI) it was highly significant than Control Drug (GIII). In test drug antipyretic activity was observed from 1st hr to 6th hr, while in standard it was from 1st hr to 5th hr. Bruhat Hinguleshwara Rasa has shown significant and sustained Anti-pyretic Activity. This study has provided evidence & given scope for clinical research.

Keywords: Bruhat Hinguleshwara, Rasa, Propylene glycol, Paracetamol, Antipyretic activity

INTRODUCTION

In Ayurvedic classics, it is said that Jwara is king of all the diseases¹. In Jwara human beings not only suffer physically but also mentally causing stress, worry and anxiety. No other disease is so severe, so complicated and so difficult to treat as jwara². According to modern science, Pyrexia is defined as body temperature above the normal range due to an increase in the temperature regulatory set-point³. Pyrexia is either a symptom of a disease or disease itself.

Mithyaaharavihar leads to aggravation of vatadidoshas which afflicts Amashaya and gets mixed up with agni. It follows the course of rasa and obstructs the channels of rasa and sweda. Suppress the activity of pachakagni and expels the heat from the site of digestion spreading it all over the body, thus causing Jwara⁴.

Though many Modern medicines such as Paracetamol, Aspirin, Nimesulide, etc. have been used to treat fever but various side effects like dyspepsia, ulceration and hemorrhage in gastro intestinal tract, rashes, epigastric distress, heart burn, pruritus, etc. made the physicians to think for a natural, safe and effective antipyretic medicine⁵.

Many anti-pyretic formulations have been explained Ayurvedic classical texts. Bruhat Hinguleshwara rasa is one among the Herbomineral formulation mentioned in Bhaishajya Ratnavali indicated in Jwara. In addition to Jwaraghna property

(Antipyretic), it is also considered as Vedananashak (Analgesic). Research works on Bruhat Hinguleshwara rasa to evaluate its Antipyretic and Analgesic activities have not been carried out and expected to be potent.

Some of the formulation mentioned as Antipyretic and having Analgesic property subjected for animal experimental study have shown significant and sustained Antipyretic and Analgesic Activity which has encouraged, Hence undertaken this study on "Evaluation of antipyretic activity of Bruhat Hinguleshwara rasa in albino rats".

MATERIALS AND METHODS

Bruhat Hinguleshwara Rasa (test drug), Paracetamol (standard drug), Propylene glycol (control/vehicle), Wister Strain Albinorats, Baker's yeast (to induce pyrexia), Normal saline 0.9% (to prepare yeast solution)^{6,7,8,9}

Methods

1. Bruhat Hinguleshwara Rasa was prepared according to Bhaishajya Ratnavali Chapter 5 Shloka 484.
2. Yeast induced pyrexia method was followed¹⁰.

The animals were starved for 24 hrs and water ad libitum. The digital Tele thermometer cord was lubricated with glycerin and initial temperature of the chosen animals were recorded.

Preparation of 15% yeast solution: For 15gm of freeze dried

baker's yeast (Prestige yeast manufactured by SAF yeast Co, Ltd. Mumbai). 100ml of 0.9% normal saline was added and triturated thoroughly to make Homogeneous solution Every time fresh yeast solution was prepared and used.

Induction of pyrexia: Pyrexia was induced by the parental administration of 2 ml of yeast solution at the nape region. The medicines (test drug, standard drug and control vehicle) were administered, after 18 hrs of administration of the pyrogen. Before inducing yeast temperature was recorded and after 18 hrs of yeast inducing temperature was recorded. Rats shown more than 100.4°F (38°C) were used to experimental study. 18 hr later inducing pyrogen test, standard, and control drugs were administered. After administration of drug rectal temperature was recorded consecutively at 30 min, 1hr, 3 hr, 5 hr, 7 hr, 12 hr and 24 hr.

Animals

Healthy adult male albino rats (Wister strain) of 90-120 days old, weighing from 150-200gms was taken for the experimental study. The animals were maintained under strict laboratory condition with controlled environment of temperature, humidity, light and dark cycles. Rats were fed with balanced pellet diet as prescribed by CFTRI, Mysore (Central Food Technological Research Institute), and water ad libitum. Maximum number 03 animals per cage were maintained. Animals under different groups of experiments were caged separately. The animals were selected from central animal house of B.L.D.E.A.'s AVS Ayurveda Mahavidyalaya, Bijapur, considering inclusive and exclusive criteria.

For the study IAEC clearance was obtained wide reference letter BLDE/DPC/640/2015-16 dated 24/02/2016 from BLDEA's College of pharmacy.

DISCUSSION

In the present study Bruhat Hinguleshwra Rasa was prepared according to Bhaishajya Ratnavali. Antipyretic activity was carried out in Wister strain albino rats by following yeast induced hyperpyrexia method.

Animals were divided in to three groups and each group rats were fed with test, standard & control drug i.e. Bruhat

Hinguleshwra Rasa, Paracetamol, propylene glycol orally in suspension form. Before injecting yeast to induce pyrexia mean temperature in test drug was noted & it was 98.87 ± 0.504 . Similarly Standard drug group mean temperature was 98.24 ± 0.569 & in Control drug group it was 98.25 ± 0.549 . After 18 hours of inducing temperature in test group mean temperature was 103.80 ± 2.013 , Standard drug group 103.58 ± 0.661 & Control drug group 101.08 ± 0.0141 . Test, Standard and control drugs were administered orally in the form of suspension. Then rectal temperature was recorded on 30 min, 60 min, 90min, 120 min, 180 min, 4 hr, 5 hr, 6 hr, 7 hr, 12 hrs and 24 hrs.

In test drug Group gradual reduction in temperature was noted 30th minutes from administration of drug till 6th hour & temperature was reduced from 103.80 ± 0.213 to 98.10 ± 0.441 . Later on gradual increase in temperature was noted from 7th hour till 24th hour. Significant antipyretic activity was observed till 6th hour of drug administration.

In standard drug Group gradual reduction in temperature was noted 30th minutes from administration of drug till 5th hour & temperature was reduced from 103.01 ± 0.147 to 98.55 ± 0.585 . Later on gradual increase in temperature was noted from 6th hour till 24th hour. Significant antipyretic activity was observed till 5th hour of drug administration.

In control drug Group gradual does not shown reduction in temperature after administration of drug. After 30th minutes from administration of drug till 5th hour temperature was 101.08 ± 0.0141 to 102.38 ± 0.0214 . Indicating propyleneglycol does not possess any anti pyretic activity.

In test group significant antipyretic activity was observed from oral administration of drug till 6th hour in test drug group, where as in standard group it was up to 5th hour and control drug did not showed any antipyretic activity.

CONCLUSION

Significant Antipyretic activity was observed with Bruhat Hinguleshwara Rasa in comparison with standard & control drug. Thus the test drug demonstrated its antipyretic activity mentioned in Bhaishajya Ratnavali.

OBSERVATION

Table 1: Group, number of animals, Drug, quantity, and route of administration of medicine

Sl no	Group	No of Animals	Drug	Dose per 200gm rats	Route
I	Test	6	Bruhat Hinguleshwra Rasa with propylene glycol	4.5 mg/0.5ml	Oral
II	Standard	6	Paracetamol with propylene glycol	9mg /0.5ml	Oral
III	Control	6	Propylene glycol	0.5 ml	Oral

Table 2: Comparative Antipyretic Activity and statistical analysis of Test Drug, Standard Drug and Control Drug (n =6)

Groups	Before inducing Pyrexia (Temp 0F)	After inducing Pyrexia (Temp 0F)	After Drug Administration (Rectal Temperature in 0F)										
			30 min	60 min	90 min	120 min	180 min	4th hr	5th hr	6 th hr	7th hr	12 th hr	24th hr
Test Drug	98.87 ± 0.504	103.80 ± 0.213	103.11 ± 0.411	102.16 ± 0.160	100.86 ± 0.413	100 ± 0.075	99.51 ± 0.416	98.79 ± 0.389	98.25 ± 0.441	98.10 ± 0.441	99.69 ± 0.248	100.69 ± 0.248	101.11 ± 0.411
Standard	98.24 ± 0.569	103.58 ± 0.661	103.01 ± 0.944	101.66 ± 0.569	100.88 ± 0.708	100.4 ± 0.602	99.83 ± 0.617	99.17 ± 0.523	98.55 ± 0.574	98.90 ± 0.585	99.90 ± 0.585	100.90 ± 0.389	101.37 ± 0.461
Control	98.25 ± 0.549	101.08 ± 0.0141	101.08 ± 0.006	101.08 ± 0.019	101.12 ± 0.0141	101.12 ± 0.0148	101.17 ± 0.016	101.17 ± 0.006	101.17 ± 0.008	101.17 ± 0.008	102.03 ± 0.019	102.03 ± 0.019	101.08 ± 0.006

REFERENCES

1. Acharya Vidyadhar Shukla and Ravi Dutt Tripathi, Charaka Samhita Chikitsasthana Chapter 3, Jwarachikitsadhyaya Shloka 345 Page: 118, Reprint 2005 Edn, Chaukambha Surbharti Prakashan, Varanasi.
2. Acharya Vidyadhar Shukla and Ravi Dutt Tripathi, Charaka Samhita Nidanasthana Chapter, Jwaranidanam Shloka 35 Page: 118, Reprint 2005 Edn, Chaukambha Surbharti Prakashan, Varanasi
3. Axelrod YK, Diringner MN; Diringner: Temperature management in acute neurologic disorders. NeurolClin 26 (2): 585–603, (May 2008)
4. Brhmananda Tripathi : Charaka Samhita, Chapter 1st, Page: 590, Reprint 2002 Edn, Chaukambha Surbharti Prakashan, Varanasi
5. KD Tripathi : Essential of Medical Pharmacology, 13th chapter, Page: 172-173, 5rd Edn: 2004, Jaypee Brother Medical Publishers (P) LTD New Delhi.
6. R. S. Sarashetti & Jeevesh K Standardisation and comparative antipyretic and analgesic activity of Tribhuvankeerthi rasa with standard drug Dissertation submitted to RGUHS (2002).
7. Dr. R.S. Sarashetti & Dr. Reema, Physico-chemical analysis and evaluation of Antipyretic Activity of Amrita Manjiri Rasa Dissertation submitted to RGUHS 2012
8. Dr. R.S. Sarashetti & Dr. S.S. Bagewadi Physio-chemical analysis and antipyretic activity of Hinguleswara rasa in albino rats Dissertation submitted to RGUHS (2007).
9. Dr. R.S. Sarashetti ,& Dr. C.M. Belagavi, Standardisation of different pharmaceutical forms of Amritha and assessment of the antipyretic effect on albino rats Dissertation submitted to RGUHS (2003).
10. Gerhard VH, Wolfgang VH. Drug Discovery and Evaluation. Springer: Pharmacological Assays; 2002. Chapter H-4 Antipyretic Activity; pp. 418–20.

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