PHARMACOLOGICAL STUDIES ON ANTIPYRETIC ACTION OF CURILL+ A HERBAL COMPOUND

DR. SHRIKANT WAGH M.D.(MED); M.A.Sc.(CHIKISSA), Ph.D.(Scholar)'
Hon.Lecturer, Tilak Ayurveda College, Pune.
Hon.Physician, V.P.Nanal Hospital, Pune.

DR. RAKESH PANDE M.A.Sc. (CHIKISSA), FIIM,
Physician, Charak Clinic, Bombay (INDIA).

ABSTRACT

Fever is a very common symptom encountered in clinical practice. Body temperature is controlled by anterior hyopothalmic-preoptic area by its sensitive neurones. Endogeneous pyrogens (cytokins) which are comparable with Aam, act through PGE_2 on these peurones and raise body temperature.
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CURILL is a balanced combination of 16 different herbs in different proportions. These various herbs individually posses antibacterial, antimalarial, antiviral activity. Some act as immunomodulators. The antipyretic action of some is central whereas that of some is peripheral. These combined together give a good antipyretic action. A clinical study is also discussed.

Fever is a very common symptom encountered in clinical practice. It causes significant morbidity. Many people take drugs over the counter for the same without knowing their adverse effects.

We, therefore, require a safe and effective drug to take care of this common problem. CURILL is one such drug which can be used effectively in symptomatic treatment of fever.

BODY TEMPERATURE REGULATION

Body temperature is controlled by balancing heat production against heat loss. Heat is produced in body as a byproduct of metabolism. Metabolism includes basal and extra metabolism caused by mucle activity, thyroxin and sympathetic stimulation. The subcutaneous fat acts as an insulator against heat loss. Subcutaneous blood vessels controlled by sympathetic nervous system regulate the heat loss which occurs by radiation, Conduction, convection and evaporation (sweating).

Anterior hypothalmic-preoptic area contains heat and cold sensitive neurones which control temperature. Temperature receptors are also dituated in skin and deep tissues of the body. Sensors in posterior hypothalmus combine the signals from anterior hypothalmus and periphery to provide appropriate reaction. Thus, in febrile conditions, body temperature can be reduced by vasodilatation, sweating and decrease in heat production. Depression of temperature regulating mechanisms also leads to fall in temperature.

PATHOGENESIS OF FEVER

Fever is defined as raised central temperature and results from disturbance of temperature rergulating centre (TRC). Fever is produced by many complex and diverse stimuli including bacteria toxins and viruses. These are called exogenous pyrogens, which interact in cells and produce cytokines or endogeneous pyrogens. Cytokines are produced by macrophages, monocytes and other cells in the body. These act on hyothalmic centres there by increasing heat production and decreasing heat loss. Prostaglandin E-2, E-2 (PGE-2) activates heat generating mechanisms and asprin and other anti-inflammatory drugs are antipyretic by inhibiting PGE2. Endogenous pyrogens also induce other protective mechanisms such as release of neutrophills, vasodilatation etc. and trigger specific immune responses.

FEVER IN AYURVEDA

Fever is considered as a 'disease' rather than a 'symptom' in Ayurveda. Various types and subtypes as well as aetiological factors of fever are also considered. The essential culprit described is Aam, which is equivalent of pyrogens. Aam is undigasted matter which is not palatable or acceptable to the body. This circulates

through blood and reaches all organs to produce symptoms. The drugs used in treatment of fever, are therefore, aimed at metabolising Aam into non-toxic substances.

PHARMACOLOGICAL ACTIONS OF CURILL

CURILL is a balanced combination of 16 different herbs in different proportions. Most of these metabolise Aam and hence act as antipyretic, Experimental studies till date have proven most of these to have antibacterial and antipyretic actions.

(1) ANTIPYRETIC

Drugs like Acomitum feorx (1). Fumaria officinalis (2) Ocimum sanctum (3) Bongamia glabra (4), have been shown to be having antipyretic action.

(2) ANTIBACTERIAL

Aconitum heterophyllum (5), has been shown to have potent antibacterial activity. Azadirachta indica (6) has been shown to be effective in healing of infected wounds as also a potent antibacterial against salmonella typhosa (7), and other organisms. Ocimum sanctum (8), Pongamia glabra (7), Swertia chirayata (9) and Tinosporia cordifolia (10), have similarly been shown to be bactericidal. In fact, pretreatment with Tinospora cordifolia has been shown to protect against mixed abdominal infections in rats; the efficacy being equivalent to metronidazole and gentamicin (10).

(3) ANTIMALARIAL

A combination of Alstonia scholaris (11), Picrorrhiza kurrooa and Swertia chirayata has been shown to be 72.5% effective as against chloroquin in clinical trials (12) Azadirachta indica (13) and Pongamia glabra (14) have also been shown to possess antimalarial action.

(4) ANTIVIRAL

Extract of Aconitum heterophyllum and ocimum sanctum inhibit spinach mosac virus (15).

(5) CENTRAL ACTION

Aconitum ferox is a powerful sedative and acts through TRC to reduce temperature (16), Azadarachta indica induces ;iloerection and hypothermia due to depression of central and autonomic nervous system (17), Pongamia glabra (4) and Swertia chiraytia (9) have been shown to have sedative effect on central nervous system of experimental animals.

(6) PERIPHERAL ACTION

Aconitum ferox excites sensory nerve endings thereby increasing cutaneous, heat sensation (16), Azadirachta indica has been shown to increase cutaneous capillary permeability (18).

(7) IMMUNOMODULATION

Ocimum sanctum modulates humoral immune responses by acting at various levels of immune mechanism such as antibody formation, release of mediators of hypersensitivity reactions and tissue responses to these mediators in the target organs (19). This immuno-stimulant action has been confirmed by other studies too (20). Immunomodulation is also observed in studies on Picrorrhiza kurrooa (21) and Tinospora cordifolia (22).

CONCLUSION

From the above discussion, it can be concluded that CURILL is a versatile combination of various nontoxic herbal drugs useful in various aspects of temperature control including central and peripheral. Some of its constituents also act through immune mechanisms. Antibacterial, antiviral and antimalarial properties are also indicated in some of its constituents.

CONTENTS

1.	Pongamia glabra	करंज	2 mg
2.	Andrographis paniculata	कालमेघ	4 mg
3.	Acoitum heterophyllum	अतिविषा	4 mg
4.	Acoitum fero	वत्सनाभ	4 mg
5.	Piper nigrum	मरीच	8 mg
6.	Enicostemma	मामज्जे	30 mg
7.	Picrorrhiza kurrooa	कटुका	30 mg
8.	Azadirachta indica	निम्ब	30 mg
9.	Fumaria officinalis	पर्पट	30 mg
10.	Leucas cephalotes	द्रोणपुष्पी	10 mg
11.	Cassia augustifolia	मार्कण्डी	30 mg
12.	Ocimum sanctum	तुलसी	50 mg
13.	Tinospora cordifolia	गुडूची	100 mg
14.	Swertia chirayita	किरातितिक्त	100 mg

15.	Alstonia scholaris	सप्तपर्ण	100 mg
16.	Cyperus rotundus	मुस्ता	100 mg

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