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ROLE OF *TRIPHALA RASAYANA* IN THE PREVENTION OF RECURRENT RHINITIS- AN OPEN CLINICAL TRIAL

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ABSTRACT

Changing lifestyle, increased pollution, urban sprawl and increase resistance to the antibiotics are responsible for increased prevalence of many diseases. Nose being exposed to the external environment, is more prone to all these causes and recurrent infections. Upper respiratory tract infection is a common problem among all age groups. As India is a developing country, the incidence of upper respiratory tract infection is very high here. The most common problem related with upper respiratory tract is Rhinitis which in the later stage converts into recurrent rhinitis. The body demands a more holistic approach in treatment, hence indigenous system of medicine especially *Triphala rasayana* can play major role in finding a safe, simple and cost effective solution for the prevention of recurrent rhinitis. The clinical study was conducted on 30 patients and the drug, ***Triphala Rasayana*** was given in the form of *churna*, in a dose of 10gm twice daily in adults and as per Young's formula in children along with *Madhu & Gritha* for 60 days. Assessment based on clinical Symptoms and haematological values was done before, after and during follow up. The study shows that all symptoms of recurrent rhinitis were reduced, compared to before therapy and up to fourth follow up and is seen statistically highly significant. All haematological mean values were also seen statistically significant but IgE mean value is insignificant. So Triphala Rasayana is an ideal choice in preventing Recurrent Rhinitis for long time.

Key words: Recurrent Rhinitis, *Triphala Rasayana* and Prevention of recurrent rhinitis.

INTRODUCTION

In the present scientific era, people are fed up with the side effects and after effects of the most effective and fast acting modern drugs, which are lowering the human immunity at the same time when they are suppressing disease. The use of naturally available substances to relieve the ailment by men as well as animals is as old as beginning of life.

Ayurveda is an age-old science of health, which emphasizes on the maintenance of health rather than to cure the disease. So, now a days people are coming back to the nature from synthetics, hence, *Ayurveda* will be the future medicinal science not only of India, but of the world. In *Ayurveda*, Life is defined as conjunction of body, soul, mind and senses. Each has been given due importance in the maintenance of health, prevention and cure of disease.

In today's world there are some diseases which are rampant and need to be given special attention. Changing lifestyle, increased pollution, urban sprawl and increase resistance to the antibiotics are responsible for increased prevalence of many diseases. Nose being exposed to the external environment, is more

prone to all these causes and recurrent infections. Upper respiratory tract infection is a common problem among all age groups. As India is a developing country, the incidence of upper respiratory tract infection is very high here. The most common problem related with upper respiratory tract is *Pratishyaya* or Rhinitis which in the later stage converts into recurrent rhinitis. The acute stage leads the disease to chronic phase. Paralysis of cilia and blockage of the sinus ostia will lead to the retention of discharge and sinus remain as closed cavity with purulent discharge in chronic phase. Complications like tonsillitis, pharyngitis, laryngitis, otitis media etc. are also common in this stage.

There are no standardized criteria laid in any authentic textbook of medicine or pathology regarding the number of episodes that are essential to coin the term recurrent rhinitis. In this condition include the recurrent infectious rhinitis, chronic rhinitis, vasomotar rhinitis, allergic rhinitis etc. Recurrent infectious rhinitis is usually defined as more than five episodes per year. (Bellanti, 1997; Graham, 1990; Teele et al., 1989). In the present study recurrence of at least one episode of rhinitis for last three months or 4 episodes for last every year had taken as the criteria.

According to *Ayurvedic classics* **recurrent** means, ***bhutwa bhutwa*** and **rhinitis** means ***pratishyaya***. So, **recurrent rhinitis** may be correlated with **sannipataja pratishyaya**. The cardinal symptoms are ***"Bhutwa bhutwa pratishyayo yo akasmatvinivartate"*** means symptoms of *pratishyaya* appear and disappear without any cause, this is recurrent episodes of rhinitis, entitled recurrent rhinitis

Ayurvedic physicians have formulated single as well as compound drugs for the cure and prevention of various ailments. As many systemic and local therapeutic applications have been mentioned in *Ayurvedic classics* for the treatment of rhinitis but to overcome the limitations of single drug therapy, the practice of compound drugs came into existence owing to slow acting nature of herbal drugs.

The compound drug ***"TRIPHALA RASAYANA"*** has no direct reference in the curative and preventive aspect of rhinitis in Ayurvedic Samhitas, but customarily ingredient of this Rasayana having deepan, pachan, nourishment of dhatu, Rasayana properties and modern aspect properties are Antibacterial, Antimicrobial, Antiviral, Antioxidant, Anti-inflammatory, Anti-allergic and Immunomodulatory, intended to improve the body defense system as well as general nutrition of the patient. There are drugs that cure the disease temporarily but there may be recurrence. There for, a *Rasayana* is selected here which will help the patient to relieve the symptoms and prevent the recurrence for long time.

OBJECTIVE:

1. To study etiopathogenesis of recurrent rhinitis.
2. To assess the efficacy of *"Triphala Rasayana"* in preventing Recurrent Rhinitis.

MATERIALS AND METHODS:

- **REVIEW OF RELATED LITERATURE:**

An authentic and detailed review of the subject will be collected from *Ayurvedic classics*, medical books, journals and internet. Relevant research data will also be included.

- **DRUG PREPARATION:**

Triphala Rasayana (ch.chi.1-3/45)

1. *Triphala (Haritaki, Bhibhitaki, Amalaki)*
2. *Madhuka*
3. *Tugaksheeri*
4. *Pippali*
5. *Sita*
6. *Madhu*
7. *Ghrita*

- ***M*ETHOD OF STUDY:**

a. Selection of subjects:

The Patients was selected according to the inclusion and exclusion criteria in out-patient unit of Govt. Ayurveda College hospital, Tripunithura.

b. Inclusion criteria :

- Patient with recurrent rhinitis.
- Age groups – 5 to 50 year
- Individuals irrespective of Gender.
- Patient with written informed consent.

c. Exclusion Criteria:

- Patient suffering from chronic illness like Tuberculosis, Diabetes mellitus etc.
- Diagnosed HIV Positive cases
- Diseases of upper respiratory tract in which surgical management are indicated like nasal polyp, tumor of nose, deviated nasal septum cleft palate etc.

SUMMARY OF STUDY DESIGN:

- Period of Therapy – 2 months
- Dose – Child dose - will be calculated by Young's formula
- Adult dose - 10 gm twice daily.
- Total subjects – 30
- Selection of subjects as per inclusion and exclusion criteria.
- Study Setting – Out-patient unit of Govt. Ayurveda college and Hospital, Tripunithura

ASSESSMENT CRITERIA:

- Frequency of Rhinitis.
- Rhinorrhoea
- Sneezing
- Nasal obstruction:-
- Head ache
- Loss of smell (Anosmia)
- Itching of nose
- Watering of eyes
- these all sign and symptoms of recurrent rhinitis was graded with grade 0, grade 1, grade 2, and grade 3

Investigations:-

- Blood Routine Examination.
- Absolute Eosinophil count.
- Hb%
- IgE test

RECURRENT RHINITIS:

There are no standardized criteria laid in any authentic textbook of medicine or pathology regarding the number of episodes that are essential to coin the term recurrent rhinitis. In this condition include the recurrent infectious rhinitis, chronic rhinitis, vasomotar rhinitis, allergic rhinitis etc. Recurrent infectious rhinitis is usually defined as more than five episodes per year. (Bellanti, 1997; Graham, 1990; Teele et al., 1989). In the present study recurrence of at least one episode of rhinitis for last three months or 4 episodes for last every years was taken as the criteria.

In *Ayurvedic* classics recurrent rhinitis means, recurrent means *bhutwa bhutwa* and rhinitis means *pratishyaya*, so mays be correlated with *sannipataja pratishyaya*. In this *pratisyaya* having cardinal symptoms are ***"Bhutwa Bhutwa Pratishyayo Yo aksmatvinivartate"*** [1] means symptoms of pratishyaya appear and disappear without any cause, this is recurrent episodes of rhinitis, entitled recurrent rhinitis.

NIDANA:

The term *Nidana* is designated to the cause of the disease as well as the diagnosis of the disease. Etiological factors are the first modalities among the main 5 diagnostic methods (Pancha Nidana Lakshana) described in *Ayurvedic* texts. [2]

Knowledge of *Nidana* is very essential for the perfect diagnosis of the disease as well as in treatment. Primary treatment principle postulated by *Acharya Sushruta* is "*Samkshepatah kriyayogo nidanparivarjana*"[3]

So it is very essential to know the *Nidana* in detail before starting the treatment. The *Nidana* of any diseases can be multifa-

rious in nature. The same seems to be true in case of the disease *Pratishyaya*.

Acharya Sushruta has divided Nidanas of *Pratishyaya* in to two categeries i.e. *Sadhyojanaka* and *Kalantarajanaka.*

Sadyojanaka Nidana; [4]

Naariprasanga (indulgence in women), *Shirshobhitapa* (injury to the head), *Dhumasevana* (assault by smoke), *Raja* (assault by dust), *Shitam* (exposure to mist, fog, rain etc.), *Atipratapa* (exposure to sunlight), *Sandharnam mutrapurish* (suppression of urges of urine and faeces) are the immediate cause of *Pratishyaya.*

Kalantarajanaka Nidana; [5]

Vata and other *doshas* either individually or in combination and also with *rakta*, getting aggravated by exciting causes accumulate in the head and produce *Pratishyaya.*

In Yogaratnakara and Bhavaprakasha also two types *Sadhyojanaka* and *Kalantarajanaka* of *Nidanas* are accepted[6]

SAMPRAPTI:

The way in which the *Dosha* gets vitiated and the course it follows for the manifestation of disease is called *Samprapti*. A proper understanding of *Samprapti* is vital for the treatment since *Chikitsa* is illustrated in the *Ayurvedic* text is nothing but '*Samprapti Vighatana*'.[7]

Acharya Sushruta:

According to *Acharya Sushruta* when *Vata, Pitta, Kapha and Rakta* singly or together accumulate in *Shirah* and afterwards get vitiated by different aggravating factors then it give rise to disease *Pratishyaya.* [8]

Acharya Charaka:

According to *Acharya Charaka*, when *Kaphadi Doshas* get lodged in excess quantity in *Shirah* and then due to indulgence in causative factors of *Pratishyaya, Vata Dosha* increases in *Shirah* (head) and produces *Pratishyaya.* [9]

Acharya Vagbhata:

Due to indulgence in *Vata* aggravating factors *Vata Dosha* gets vitiated and localised in the nasal cavities and give rise to *Pratishyaya*.[10]

***Acharya Kashyapa*:**

Due to indulgence in causative factors of *Pratishyaya* (mentioned earlier), *Vata Dosha* gets vitiated and goes towards the different Srotas by vitiating *Urdhva Kaphashaya* or *Murdha* (head and neck). If the *Khavaigunya* is present in the *Nasa*, the *Vata Dosha* gets lodged here, and vitiates the *Kapha, Pitta* or *Rakta* which are already lodged in *Nasikamula*, causing secretions and other symptoms. Such a condition is called *Pratishyaya*.[11]

- *Acharya Madhava, Yogaratnakara* and *Bhavaprakasha* have followed *Acharya Sushruta's opinion,*[12]

Indulgence in *Sadhyojanaka Nidanas* (Immediate causes or precipitating causative factors) causes immediate vitiation of *Doshas* (*Achaya Prakopa*) and causes *Pratishyaya.* Hence, they can also be considered as *Sannikrishta Hetus* (Immediate causative factors).[13]

In *Nidanas (Pratishyaya* due to distant causes), the continuous exposure to *Kalantara janaka Nidanas* (Distant causative factors) causes *Agnimandya, Prakopa* of *Pranavayu, Pachaka Pitta, Tarpaka Kapha,* vitiation of *Rasa and Rakta Dhatus, Rasavaha, Raktavaha* and *Pranavaha SrotoDushti* which all causes the *Sthanasamshraya* of *Doshas* in *Shirah*. The vitiated *Doshas* pass through all six *Kriyakalas* to produce the disease *Pratishyaya*.

In the development of the disease *Pratishayaya* above *Nidanas* (Causative factors) play major role.

SAMPRAPTI CHART

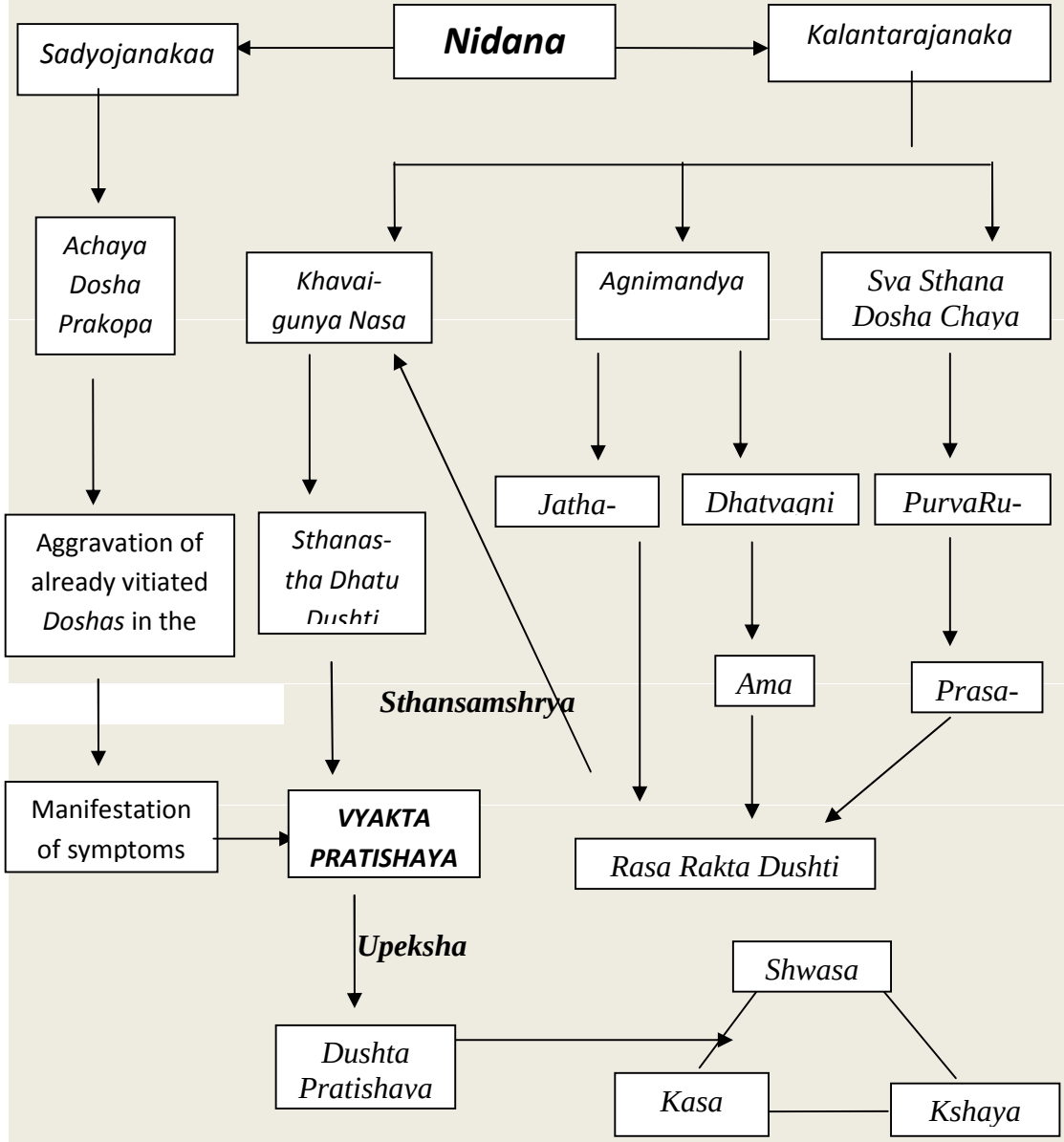

Figure No. - 1 *Samprapti chart* 1

The *Pratishyaya* can occur either by insidious onset or by acute onset. *Samprapti* of both of these are different from one another.

In certain individuals (mild allergic patients) a mild *Srotovaigunya* temporarily or permanently exists. In such a condition due to simple *Nidanas* like change of reasons (*Prakrita chaya* of *Doshas*), with a simple soft drinks, riding on motor cycle on an industrial area and intercourse will produce *Pratishyaya* to the person. In these, simple causes acts as *Sannikrishta Nidana*. Due to the frequent exposure to foretold environment as well as due to the vitiation of *Doshas* according to circadian rhythm, the subject will be always in a status with mild *Srotovaigunya*. Such persons are very susceptible to be affected with this disease.

Pratishyaya of insidious onset is permanent and recurrent. This is resulting from a severe *Srotodushti*. This *Srotodushti* can happen mainly by three ways.

- Conversion of mild *Srotodushti* of acute *Pratishyaya* in to chronic form.

- Local Doshas undergone *Sanchaya* and latter subjected to persistent

Prakopyamana hetu (*Prakopyaman hetu-Madhukosha*) like *Divaswapna* can produce this type of *Srotodushti*.

- *Doshas* vitiated in whole body due to the *Nidanas* like *Virudhasana* or secondary to certain disease like *Rajayakshma* after its dislodgement making

Sthanasamshraya at *Pranavaha srotas* can produce *Pratishyaya*.

All above mechanisms can represented diagrammatically as

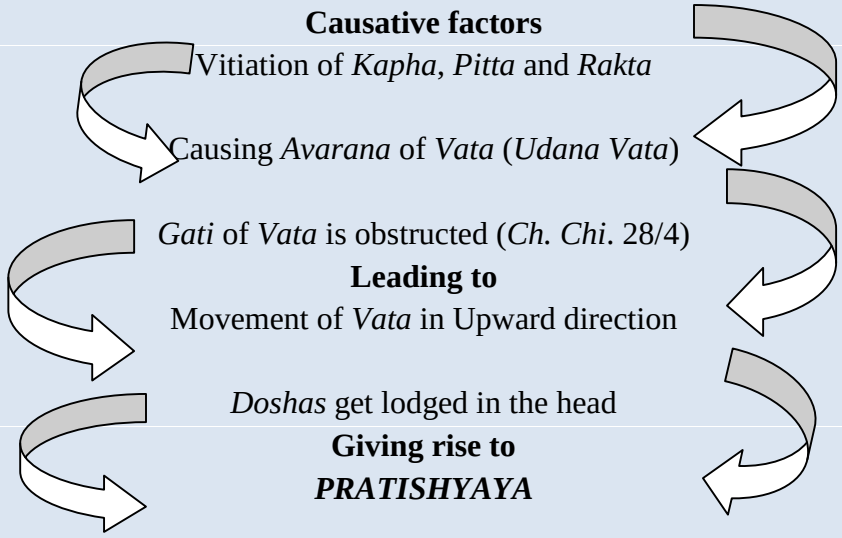

Figure No. - 2 *Samprapti chart* 2

Here due to *Nidana Sevana* there is Vitiation of *Kapha*, *Pitta* and *Rakta*, while *Vata* is in *Sam Avastha*. These vitiated *Doshas* are obstructing the normal *Gati* of *Vata*, due to which there is *Urdhwa gamana* (movement in upward direction) of *Vayu*. *Doshas* get lodged in the head, giving rise to the disease *Pratishyaya*.

This *Sampratpti* takes place when causative factors are mainly *Vata* vitiating. Such causative factors vitiate *Vata*, leading to its *Vriddhi*. Here *Kapha*, *Pitta* and *Rakta* are in *Sam Avastha*. But they'll obstruct the *Gati* of this *Vata* causing *Avarana* of *Vayu*. *Doshas* get lodged in *Shirah Pradesh*. This *Vriddha Vata* expels out *Kapha*, *Pitta* and *Rakta* through Nasal route, giving rise to symptoms of *Pratishyaya*.

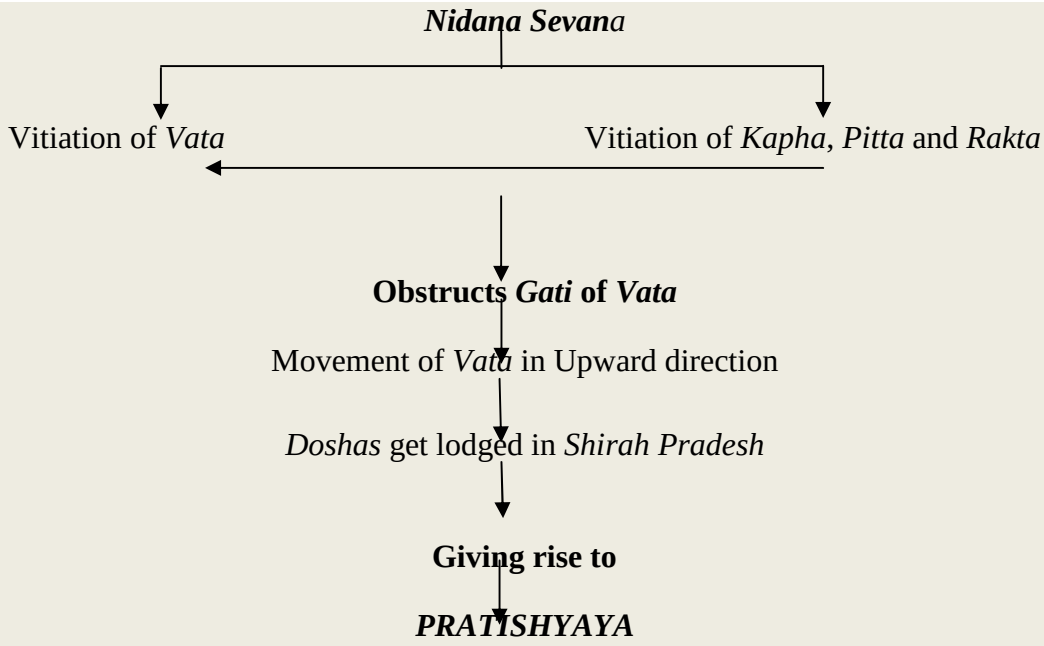

Figure No. - 3 *Samprapti chart* 3

Here *Vata* gets vitiated with its own etiological factors and *Kapha, Pitta* and *Rakta* gets vitiated with their etiological factors. Both are individually vitiated. This vitiated *Kapha, Pitta* and *Rakta* will obstruct the *Gati* of *Vata* causing its '*Avarana'* which leads to the *Urdhwagamana* of *Vata*, *Sthana-Sanshraya* in *Shirah Pradesh*, and giving rise to the disease *Pratishyaya***.**

TRIPHALA RASAYANA:

Triphala mix with *Madhuka, Tugaksheeri, Pippalil*, and *Sita* along with *Madhu* and *Ghrita*, entitled T*riphala Rasayana*[14], is mentioned by *Acharya Charaka* in the *tritiya pada of Rasayana chapter in Chikitsa sthana* i.e. considered in *Vatatapika Rasayana* and *Naimittika Rasayana*.

Rasa Panchaka* of *Triphala Rasayana:

Cumulative *Rasa Panchaka* of all ingredients of *Triphala Rasayana*:

***Rasa*:** Customarily *Madhura*, followed by *kashaya, katu, Tikta* and *Amla Rasa*

***Guna*:** Customarily *Laghu - Ruksha* followed by *Guru – Snigdh, Sheeta, Teekshna, Sara* and *Yogavahi Guna*.

Veerya: Customarily *Sheeta veerya* followed by *Ushna veerya*.

***Vipaka*:** *Madhura vipaka*.

***Doshaghnata*:** Customarily *Vatashamaka* followed by *Pittashamaka* and *Kaphashamak* that's by *Triphala Rasayana* is *Tridoshashamaka.*

Anupana* of *Triphala Rasayana: Madhu and Ghrita are having *Madhura rasa* and *vipaka, Sheeta veerya* and *Guru, Ruksha, Snigdha, yogavahi Guna*, it is also having *Tridoshashamaka*. *Madhu and Ghrita* are to be used in unequal quantities.

***Karma*:** *Deepana – Pachana, Rochaka, Chakshushya* etc.

Pharmacological Activities:

Pharmacologicaly *Triphala* is having Immunomodulatory[15], Antimicrobial[16] Antibacterial[17], Antioxidant[18], Antiviral, Anti-inflammatory[19] etc. properties and other ingredient *Madhuka, Tugakssheeri, Pippali* etc. also having same activities, that's by this *Rasayana* having Immunomodulatory, Antimicrobial, Antibacterial, Antioxidant, Antiviral and Anti-inflammatory properties.

PROBABLE MODE OF ACTION OF *TRIPHALA RASAYANA* IN RECURRENT RHINITIS:

The causative factors for the production of complete aetiopathogenesis of the disease, *Pratishyaya* are: the *Agni*, the *Dhatus*, the *Doshas*, *Vyadhikshamatva Shakti* etc. So the ultimate aim of the treatment should be correcting in all these involved factors.

The concept of *Agni* is of paramount interest in *Ayurveda*. Disturbances of *Agni* result in *Ama* formation which by itself may culminate in various ailments. The role of *ama* in generating the disease *pratishyaya* is undebatable. So the first aim should be the correction of *agni*. In *ttriphala rasayana* most of drugs having *deepana*, *pachana* action through their *laghu* and *ruksha guna*.

Another important concept forwarded by the *Ayurvedic* system of medicine is that of *Vyadhikshamatva* Shakti. In other words it can be compared with Immunity of body. All ingredients of *triphala rasayana* is having a direct immunomodulatory, antimicrobial and antioxidant activity. The main ingredient of the *rasayana* i.e the *triphala* is proved for its immunomodulatory action. We can explain the immunomodulatory action of *triphala* as it is a rare combination of three drugs, *amalaki*, *hareetaki* & *vibhitaki* of which the first two are bestowed with the *agrya guna* of *rasayana*. Since the process of *Rasayana* invariably involves regeneration of the *dhatus*, *Triphala rasayana* may undoubtedly augment the process of tissue resistance or repair.

Triphala, as a combination possess *tridoshasamana* especially *vata kapha samana* along with *raktadosha prasamana* properties (AH), so it makes sense then that it can be used as a *samana* therapy in recurrent rhinitis where a possibility of *rakthadushti* is also there.

Next, in *pratishyaya* the main *dosha* vitiated is *vata*. So a combination which is used to cure *pratishyaya* should be more *vata-samaka* with *tridosha samana* properties. On analyzing the *dosha samakatwa* of *triphala rasayana* as a whole, there is more *vata samaka* property. Next is *pitta samaka*, which is ideal as in recurrent rhinitis chronicity is an important factor which is pointing towards the involvement of *pitta* dosha. Which goes in hand with *acharya susrutas* view of *sannipata pratisyya*, where *dosha* is *pitta pradhana*. So an ideal combination which is more *vata pitta samaka* can be used in recurrent rhinitis and *triphala rasayana* satisfies that criteria.

The *rasa panchaka* of *triphala rasayana* reveals that it is *madhura rasa pradhana* and *madhura vipaka* which can attribute to the *balya*, *jeevaneeya* line of treatment in recurrent rhinitis. In recurrent rhinitis the immunity of the body is in a totally depleted condition. *Madhura rasa* and *madhura vipaka* is *balya* and *jeevaneeya*. So it can be used in an immunocompromised state as in recurrent rhinitis. Eventhough *rasa* and *vipaka* is *madhura*, as *a combination* of drugs *triphala* rasayana possess more of *laghu ruksha guna*.

In recurrent rhinitis state, the channels are blocked due to the *ama* nature of *dhatus* especially the *rasa dhatu*.so *srotosodhana* should be the first aim followed with the use of *balya*, *jeevaneeya* and *rasayana* drugs. *Triphala rasayana* satisfies all these criteria as *guna* predominant is *laghu* and *ruksha*, which can help in eliminating the *ama dosha* from the obstructed channels. It also helps in reducing the increased *kapha dosha* and thereby alleviating *kapha dosha* predominant symptoms like heaviness of head, watering of eyes, rhinorhhoea etc. *Madura rasa* and *madhura vipaka* helps in adding a *balya* and *jeevaneeya* property.

Madura rasa is *Snigdha*, *Guru* and also elevates *Vata*. Among the functions which are ascribed to *Madhura Rasa* are *brimhana*, *Jeevana* and *Balya*. These properties are very much in favour of building up tissues and may increase the *Vyadhikshamatva* and alleviate *Kshavathu*, *Shirahsholla* etc.

Goghrita, *Sita* are *Madhura* in *Rasa*, *Guru*, *Snigdha* in *Guna*, *Sheeta* in *Virya* and *madhura* in *Vipaka*. They also have *rasayana*, *Ojovardhaka*, *Balya*, *Brimhana* etc. properties that may increase *Vyadhikshamatva* and decrease the chance of recurrence.

At modern side, most of ingredients of *Triphala rasayana* are proved as Immunostimulator, Antiinfammatory, Antimicrobial, Antibacterial, Antiviral, , Analgesic, Antipyretic, Antioxident, , Anti allergic, Anti histaminic pharmacologically. These properties, intended to improve the body defense system as well as general nutrition of the patient to relieve the symptoms and prevent the recurrence for long time.

RESULT:

A. Related with presenting complaints

On Frequency of rhinitis:

In this study, mean score of frequency of rhinitis before therapy was 2.53. After therapy mean score was reduced to 0.33, then from first follow up to fourth follow up mean score was gradually augmented i.e. 0.53, 0.86, 1.03, and 1.13 in first, second, third and fourth follow up respectively. But they were all less compared to the before therapy mean score. So this therapy prevents the frequency of rhinitis up to fourth follow up but more effective after therapy, then gradually decreases.

In the prevention of frequency of rhinitis, it was found that, percentage of relief after therapy was 86.9 % and on the first follow up 79 %, second follows up 66 %, third follow up 59.2 % and fourth follows up 55.3 %. So after therapy and first follow up the frequency of rhinitis was markedly prevented and then gradually decreasing and moderately prevented up to fourth follow up.

When assessed with Wilcoxon signed-rank test, compared to before therapy, the reduced severity of frequency of rhinitis up to fourth follow up is seen to be highly significant statistically (P<0.001).

On Rhinorrhoea:

In this study mean score of rhinorrhoea before therapy was 2.4. After therapy mean score was reduced to 0.36, then from first to fourth follow up mean score was gradually augmented i.e. 0.50, 0.73, 0.93, and 0.96 in first, second, third and fourth follow up respectively. But they were all less compared to before therapy mean score was reduced. So, this therapy prevents the rhinorrhoea up to fourth follow up but more effective after therapy then gradually decreases.

In the prevention of rhinorrhoea, it was found that, percentage of relief after therapy was 85 % and on the first follow up 79.1 %, second follows up 69.5 %, third follow up 61.2 % and fourth follows up 60 %. So after therapy and first follow up the rhinorrhoea was markedly prevented and then gradually decreasing and moderately prevented up to fourth follow up.

When the assessed with Wilcoxon signed-rank test, compared to before therapy, the reduced severity of rhinorrhoea up to fourth follow up is seen to be highly significant statistically (P<0.001).

On Sneezing:

In this study mean score of sneezing before therapy was 2.13. After therapy mean score was reduced to 0.40, then from first to fourth follow up mean score was gradually augmented i.e. 0.50, 0.80, 1.03 and1.13 in first, second, third and fourth follow up respectively. But they were all less compared to before therapy mean score was reduced. So,

this therapy prevents the sneezing up to fourth follow up but more effective after therapy then gradually decreases.

In the prevention of sneezing, it was found that, percentage of relief after therapy was 81.2 % and on the first follow up 76.5 %, second follows up 62.4 %, third follow up 51.6 % and fourth follows up 46.9 %. So after therapy and first follow up the sneezing was markedly prevented and then gradually decreasing and moderately prevented up to fourth follow up.

When the assessed with Wilcoxon signed-rank test, compared to before therapy, the reduced severity of sneezing up to fourth follow up is seen to be highly significant statistically (P<0.001).

On Nasal obstruction:

In this study mean score of nasal obstruction before therapy was 1.33. After therapy mean score was reduced to 0.16, then from first to fourth follow up mean score was gradually augmented i.e. 0.36, 0.60, 0.73 and 0.83 in first, second, third, and fourth follow up respectively. But they were all less compared to before therapy mean score was reduced. So, this therapy prevents the nasal obstruction up to fourth follow up but more effective after therapy than gradually decreases.

In the prevention of nasal obstruction, it was found that, percentage of relief after therapy was 87.9 % and on the first follow up 72.9 %, second follows up 54.8 %, third follow up 45.1 % and fourth follows up 37.5 %. So after therapy the nasal obstruction was markedly prevented. On first and second follow up it was moderately prevented then gradually decreasing and the prevention was mild up to fourth follow up.

When the assessed with Wilcoxon signed-rank test, compared to before therapy, the reduced severity of nasal obstruction up to fourth follow up is seen to be highly significant statistically (P<0.001).

On Headache:

In this study, mean score of headache before therapy was 1.43. After therapy mean score was reduced to 0.13, then from second to fourth follow up mean score was gradually augmented i.e. 0.23, 0.040, 0.60, and 0.83 in second, third, fourth, fifth and six month after therapy. But they were all less compared to before therapy mean score was reduced. So, this therapy prevents the headache up to fourth follow up but more effective after therapy then gradually decreases.

In the prevention of headache, it was found that, percentage of relief after therapy was 90 % and on the first follow up 83.9 %, second follows up 72 %, third follow up 58 % and fourth follows up 41.9 % respectively. So after therapy and first follow up the headache was markedly prevented and then gradually decreasing and moderately prevented up to fourth follow up.

When the assessed with Wilcoxon signed-rank test, compared to before therapy, the reduced severity of headache up to fourth follow up is seen to be highly significant statistically (P<0.001).

On Loss of smell:

In this study, mean score of loss of smell before therapy was 0.70. After therapy mean score was reduced to 0.06, then from first to fourth follow up mean score was gradually augmented up to fourth follow up i.e. 0.10, 0.10, 0.16, and 0.20 in first, second, third and fourth follow up respectively. But they were all less compared to before therapy mean score was reduced. So this therapy prevent the loss of smell up to fourth follow up but more effective after therapy then gradually decreases.

In the prevention of loss of smell, it was found that, percentage of relief after ther-

apy was 91.4 % and on the first follow up 85.7 %, second follows up 85.7 %, third follow up 77.1 % and fourth follows up 71.4 %. So up to third follow up the loss of smell was markedly prevented and on fourth follow up it was moderately prevented.

When the assessed with Wilcoxon signed-rank test, compared to before therapy, the reduced severity of loss of smell up to fourth follow up is seen to be highly significant statistically (P<0.001).

On Itching of nose:

In this study, mean score of itching of nose before therapy was 0.76. After therapy mean score was reduced to 0.06, then from first to fourth follow up mean score was gradually augmented i.e. 0.26, 0.33, 0.43 and 0.50 in first, second, third and fourth follow up respectively. But they were all less compared to before therapy mean score was reduced. So this therapy prevent the itching of nose up to fourth follow up but more effective after one month then gradually decreases.

In the prevention of itching of nose, it was found that, percentage of relief after therapy was 92.1 % and on the first follow up 65.7 %, second follows up 56.5 %, third follow up 43.4 % and fourth follows up 34.2 %. So after therapy the itching of nose was markedly prevented. On first and second follow up it was moderately prevented then gradually decreasing and the prevention was mild up to fourth follow up.

When the assessed with Wilcoxon signed-rank test, compared to before therapy, the reduced severity of itching of nose up to fourth follow up is seen to be highly significant statistically (P<0.001) up to third months then high significant statistically (P<0.01)

On Watering of eyes:

In this study mean score of watering of eyes before therapy was 0.96. After therapy mean score was reduced to 0.26, then from second to fourth follow up mean score perceived gradually augmented i.e. 0.33, 0.43, 0.57 and 0.70 in second, third and fourth follow up respectively. But they were all less compared to before therapy mean score was reduced. So this therapy prevent the watering of eyes up to fourth follow up but more effective after therapy then gradually decreases.

In the prevention of watering of eyes, it was found that, percentage of relief after therapy was 72.9 % and on the first follow up 65.6 %, second follows up 55.2 %, third follow up 41.6 % and fourth follows up 27 %. So up to second follow up the watering of eyes was moderately prevented and then gradually decreasing and prevention was mild up to fourth follow up.

When the assessed with Wilcoxon signed-rank test, compared to before therapy, the reduced severity of watering of eyes up to fourth follow up is seen to be highly significant statistically (P<0.001) up to fourth month then high significant statistically (P<0.01).

On Overall effect of therapy in prevention of recurrent rhinitis:

In this study, among all the signs and symptoms of recurrent rhinitis, overall effect of therapy in the prevention of recurrent rhinitis, it was found that, percentage of relief after therapy was 85.6 % and on the first follow up 77.1 %, second follow up 65.3 %, third follow up 55.5 % and fourth follow up 49 % respectively. So after therapy and first follow up the recurrent rhinitis was markedly prevented and then gradually decreasing and moderately prevented up to fourth follow up.

B. Related with Haematological values:

On Haemoglobin%:

In this study, mean value of Hb% before therapy was 11.88. After therapy mean value was augmented to 12.88, then on the first, second, third and fourth follow mean value was also augmented comparative to be-

fore therapy i.e. 12.76, 12.03, 13.13 and 12.89 perceived respectively. So, this therapy effective up to fourth follows up after therapy for augmentation of Hb%.

When the assessed with paired 't' test, compared to before therapy, augmented Hb% values, up to fourth follow up is seen to be high significant statistically (P<0.01) on after therapy then significant statistically (P<0.05).

On absolute eosinophils count:

In this study, mean value of absolute eosinophils count before therapy was 85.13. After therapy mean value was reduced to 75.06, then on the first, second, third and fourth follow up mean value was also reduced comparative to before therapy i.e. 70.26, 66.50, 64.67 and 64.33 perceived respectively. So, this therapy effective up to fourth follows up for reduction of absolute eosinophils count.

When the assessed with paired 't' test, compared to before therapy, reduced absolute eosinophils count values, up to fourth follow up is seen to be high significant statistically (P<0.01) on after therapy then significant statistically (P<0.05).

On ESR:

In this study, mean value of ESR before therapy was 29.86. After therapy mean value was reduced to 14, then on the first, second, third and fourth mean value was also reduced comparative to before therapy i.e. 12.96, 11.60, 10.50 and 10.83 perceived respectively. So, this therapy effective up to fourth follows up for reduction of ESR.

When the assessed with paired 't' test, compared to before therapy, reduced ESR values, up to fourth follow up is seen to be high significant statistically (P<0.01) on after therapy then significant statistically (P<0.05).

On total leucocytes count:

In this study, mean value of TLC before therapy was 12237 After therapy mean value was reduced to 10277, then on the first, second, third and fourth follow up mean value was also reduced comparative to before therapy, i.e. 8903, 8573, 8637 and 8637 perceived respectively. So, this therapy effective up to fourth follows up for reduction of TLC.

When the assessed with paired 't' test, compared to before therapy, reduced TLC values, up to fourth follow up is seen to be highly significant statistically (P<0.001) on after therapy then significant statistically (P<0.05).

On Neutrophils %:

In this study, mean value of neutrophils % before therapy was 46.13. After therapy mean value was augmented to 54.37, then on the first, second, third and fourth follow up mean value was also augmented comparative to before therapy i.e. 60.50, 62.82, 61.70 and 61.70 perceived respectively. So, this therapy effective up to fourth follows up for augmentation of neutrophils %.

When the assessed with paired 't' test, compared to before therapy, augmented neutrophils % values, up to fourth follow up is seen to be high significant statistically (P<0.01) on after therapy then significant statistically (P<0.05).

On Lymphocytes %:

In this study, mean value of lymphocytes % before therapy was 46.67. After therapy mean value was reduced to 39.73, then on the first, second, third and fourth follow up mean value was also reduced comparative to before therapy i.e. 32.27, 29.20, 29.06 and 29.63 perceived respectively. So this therapy effective up to fourth follows up for reduction of lymphocytes %.

When the assessed with paired 't' test, compared to before therapy, reduced lymphocytes % values, up to fourth follow up is seen to be significant statistically (P<0.05).

On Eosinophils %:

In this study, mean value of eosinophils % before therapy was 6.23. After therapy

mean value was reduced to 4.60, then on the first, second, third and fourth follow up mean value was also reduced comparative to before therapy i.e. 12.76, 12.03, 13.13 and 12.89 perceived respectively. So this therapy effective up to fourth follows up for reduction of eosinophils %.

When the assessed with paired 't' test, compared to before therapy, reduced eosinophils % values, up to fourth follow up is seen to be highly significant statistically ($P<0.001$) on after therapy then significant statistically ($P<0.05$).

On IgE:

In this study, mean value of Ig E before therapy was 132.67. On the fourth follow up mean score was reduced to 131.87. So, this therapy effective up to fourth follows up for reduction of Ig E value.

When the assessed with paired 't' test, compared to before therapy, reduced Ig E values, on the fourth follow up is seen but statistically Insignificant ($P>0.05$).

CONCLUSION

- Recurrent Rhinitis is most common worldwide disorder affecting any age group of both sexes. Lack of immunity is the factor behind recurrent infections.
- Triphala Rasayana improves the body defense mechanism as well as general nutrition of the patient.
- It helps cure symptoms like frequency of rhinitis, rhinorrhea, sneezing, nasal obstruction, and headache, loss of smell, itching of nose, and watering of eyes.
- Triphala Rasayana is an ideal choice in preventing Recurrent Rhinitis for long time.

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