ROLE OF TRIPHALA IN THE MANAGEMENT OF PERIODONTAL DISEASE

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ABSTRACT: *Ayurvedic literature contains a wealth of information on the diagnosis and treatment of periodontal diseases. This article discusses the use of triphala in the treatment of such diseases.*

INTRODUCTION

Ayurveda aims at ensuring a healthy mind and healthy body by not only providing cure of illness. But also elaborating the method for maintenance of health, Ayurveda attempts to correct the in balances and derangements of bodily humours and to restore equilibrium conditions by the application of all spiritual and material resources available to man. Inspite of vast development of modern medical science, satisfactory treatment of "oral diseases" by newer drugs is into achieved, rater the chemical compounds has exposed the patients to it's different ill effects, therefore, there is interest to find out effective remedy of any disease by harmless herbal drugs. This study is an attempt in that regard.

Chronic inflammation is the most common disease process to effect the periodontium and is major factor responsible for tooth loss in adults, persistence of infection at the gingival margins leads to progressive inflammation and usually to destruction of the supporting tissues[1].

In ancient literature dental care was included in the normal work of physicians and surgeons and was practiced at three levels, namely (i) prophylactic measures as a part of daily routine (ii) Alleviation of some minor conditions by drugs (iii) Application of surgical measures for relief of serious dental diseases.

In Ayurvedic text (Sushruta Samhita) "Periodontium" is described as "Dantamula" and their disorders are as "Dantamulagata rogas", ". "Dantamulagata rogas" are simulated with the "Periodontal diseases. We can correlate them according to their clinical features2.

Shitada, Dantapupputaka, Danavestaka, Shaushira, Mahashaushira paridara, Upakusha, Dantavaidarbha vardhana, Adhimansa, Dantanadi (5)- Vatika, Paitrika, Kaphaja Sannipathka, shalayaj. Out of 15 Dantamulagata rogas only first 8 are seems to like similar with periodontal diseases (Chronic gingivitis and chronic periodontitis) on the basis of different clinical features.

Triphala

It is the combination of ripe, healthy and dried fruits in equal quantities of

1. –Amalaki (Emblica officinalis)
2. –Haritaki (Terminalia Chebula)
3. –Vibhitaki (Terminalia Belerica)

Material and Methods

In this clinical study 60 cases of either sex and different age with different stages of inflammatory periodontal diseases were selected on the basis of clinical presentation and diagnostic criteria. These patients were divided into 3 equal groups.

1. Group I: Treated Group (T.G) – 20 patients were treated with triphala decoction used as mouthwash twice daily and triphala powder orally taken 3 gms twice daily for1 month.

2. Group II: Control Group (C.G) – 20 patients were treated with pure modern medicine – Metronidazole 400 mg thrice daily orally for 7 days along with triphala decoction used as mouthwash twice daily for one month.

3. Group III: Control Group (C.G) – 20 patients were treated with pure modern medicine – Metronidazole 400 mg thrice daily orally for 7 days along with chlorhexidine 0.2% mouthwash twicxe daily for one month.

All the 60 patients suffering from inflammatory periodontal disease were subjected to a detailed history and clinical examination.

History was taken with special reference to complaints of oral cavity –(1) Bad breath (Halitosis) (2) Bleeding gums on brushing (3) swelling of gums (4) mobility of tooth and (5) sensitivity of teeth alongwith duration of diseases.

Local Examination procedures

Recording of 1- Periodontal status 2- Bacterial dental plaque 3- Bleeding gums 4- swelling of gums 5-Tooth mobility 6- Hot and Cold sensitivity to tooth.

The periodontal condition of each subject was examined by using a plane mouth mirror and specially designed light weight probe called CPITN probe (prime) with a black band (Colour coding) between 3.5 to 5.5 mm from the ball tip. This probe was used as a sensing instrument to determine – periodontal pocket depth, to detect the subgingival calculus and bleeding response8.

The treatment given in all these 3 groups for 4 weeks (1 month) and the patients were again called for subsequent follow up after one month.

In vitro antibacterial effect of triphala decoction

Lawn culture of Bacteria on Muller –Hinton agar plate was done and one loopful of triphala decoction was put on the plate. The plates were incubated overnight at 37°C and reading was taken as-

1. Sensitive: No growth of bacteria at the drop site (16 out of 22) –Escherichia coli NCTC 10418, Pseudomonas aeruginosa NCTC 10662, *Serratia marscescense, Vibrio parahaem-olyticus, V. Cholerae, citrobacter freundii, enterobacter spp, S. Paratyphi B, Plesiomonas shigelloides,*

aeromonas hydrophila, shigellasonnei, Sh. Dysenteriae -1 proteus vulagaris, P. mirabilis, S. Paratyphi-A, streptococcus fecalis.

2. Resistant: Positive growth of the bacteria at the drop site – (6 out of 22) – *Klebsiella pneumoniae edwardisellia tarda, salmonella typhi, S, Typhumurium, Sh, boydii, providencia retgerii.*

Results

Sixty subjects were entered into the study for 4 weeks (1 month) treatment and one month followup. The effect of the triphala presented in table, in such a way as to show the comparative results of the three different treated groups. After the complete assessment of clinical parmeters patients were given particular treatment according to their categorization and they were asked to attend our O.P.D. regularly after every 7 days for 4 times and followed by one month check up.

All the registered cases of periodontal diseases (chronic Gingivitis and chronic periodontitis) were detected in our O.P.D. with the calculus. The calculus (Bacterial dental plaque) were removed mechanically before staring of our trial drug in all 60 cases (Table 2).

Observation
Table 1: Distribution of the patients according to different clinical features.

Clinical features	TG/Group –I (N=20) N (%)	CTG/Group –II (N=20) N (%)	CG/Group –III (N=20) N (%)	Total (N=60) N (%)
Tooth mobility				
-Not mobile	4(20)	5(25)	5(25)	14(23.33)
-Grade I	13(65)	13(65)	11(55)	37(61.66)
-Grade II	3(15)	2(10)	4(20)	9(15.00)
Caculus				
-Supraginigival	5(25)	5(25)	4(20)	14 (23.33)
-Subgingival	6(30)	7(35)	5(25)	18 (30.00)
-Both (Mixed)	9(45)	8(40)	11(55)	28 (46.66)
Depth of Periodontal pocket				
-Grade I	16(60)	9(45)	11(55)	32(53.33)
-Grade II	5(25)	7(35)	4(20)	16(26.66)
-Grade III	3(15)	4(20)	5(25)	12(20.00)
Bleeding gum	20(100)	20(100)	20(100)	60(100)
Hot & Cold sensitivity	12(60)	10(50)	9(45)	31(51.66)
Halitosis (Bad breath)	18(90)	16(80)	20(100)	54(90.00)
Swelling gum	16(80)	14(70)	15(75)	45(75.00)

N.B: Grade I Tooth mobility = Just discernible
Grade II = Less than I mm labbiolingual movement

Table 2: Effect of drug on different group at the end of 4 week treatment

Clinical features		TG/Group –I		CTG/Group –II		CG/Group –III	
		Impd. N(%)	Not Impd N(%)	Impd. N(%)	Not Impd N(%)	Impd. N(%)	Not Impd N(%)
mobility -Grade I	B.T.	-	13(100)	-	13(100)	-	11(100)
	A.T.	6(46.15)	7(53.85)	13(100)	-	9(81.82)	2(18.18)
-Grade II	B.T.	-	3(100)	-	2(100)	-	4(100)
	A.T	1(33.33)	2(66.67)	2(100)	-	(25.00)	3(75.00)
Depth of Periodontal pocket -Grade I	B.T.	-	12(100)	-	9(100)	-	11(100)
	A.T	4(33.30)	8(66.67)	7(77.78)	2(22.22)	3(27.27)	8(72.73)
-Grade II	B.T.	-	5(100)	-	7(100)	-	4(100)
	A.T	1(20.00)	4(80.00)	3(42.86)	4(57.14)	1(25.00)	3(75.00)
-Grade III	B.T.	-	3(100)	-	4(100)	-	5(100)
	A.T	-	3(100)	1(25.00)	3(75.00)	1(20.00)	4(80.00)
Bleeding gum	B.T.	-	20(100)	-	20(100)	-	20(100)
	A.T	10(50.00)	10(50.00)	18(90.00)	2(10.00)	12(60.00)	8(40.00)
Hot & Cold sensitivity	B.T.	-	12(100)	-	10(100)	-	9(100)
	A.T	7(58.33)	5(41.67)	10(100)	-	4(44.44)	5(55.56)
Halitosis	B.T.	-	18(100)	-	16(100)	-	20(100)
	A.T	9(50.00)	9(50.00)	14(87.50)	2(12.50)	12(60.00)	8(40.00)
Swelling gum	B.T.	-	16(100)	-	14(100)	-	15(100)
	A.T	8(50.00)	8(50.00)	12(85.71)	2(14.29)	9(60.00)	6(40.00)

N.B: B.T = Before Treatment. Impd = Improved
A.T = After treatment T.G = Treated Group
C.T.G = Combined treated Group C.G = Control group

Table 3: The rate of recurrences of different clinical features after the follow up of one month.

Clinical features	TG/Group –I		CTG/Group –II		CG/Group –III	
	Cases Impd.	Recurrence N (%)	Cases Impd.	Recurrence N (%)	Cases Impd.	Recurrence N (%)
Tooth Mobility -Grade I	6	2(33.33)	13	2(15.38)	9	3(33.33)
-Grade II	1	1(100)	2	1(50.00)	1	1(100)
Calculus	20	7(35.00)	20	3(15.00)	20	6(300.00)
Periodontal pocket -Grade I	4	1(25.00)	7	1(14.28)	3	2(66.67)
-Grade II	1	1(100)	3	1(33.33)	1	1(100)
-Grade III	-	-	1	1(100)	1	1(100)
Bleeding gum	10	4(40.00)	18	2(11.11)	12	5(41.67)

Hot & Cold sensitivity	7	3(42.86)	10	-	4	2(50.00)
Halitosis	9	4(44.44)	14	2(14.28)	12	4(33.33)
Swelling gum	8	3(37.50)	12	2(16.67)	9	3(33.33)

Discussion

Observation shows that when there are gingival inflammation and periodontal pockets, the number of organism increases. Despite a great deal of research no specific organism or group of organisms has yet been identified as causals. It is assumed that the toxic products of bacterial origin, produce periodontal disease, However, there is some evidence that specific microorganisms may be involved[9].

Bacterial plaque is known to have an etiologic role in inflammatory periodontal disease, and bacterial invasion may be an important aspect of chronic periodontal disease.

The history of knowledge about Dantamulagata rogas in Ayurveda is traced back to the period of syshruta, Regarding these diseases we may consider eight Dantamulagata roga which have close relation to the chronic gingivitis and chronic periodontitis.

For many regions the satisfactory treatment of the periodontal disease has not been achieved by the practioners till now. It is chiefly contributed to by – (1) Paucity of knowledge concerning the details of the definitive mechanism that plays role in the creation of such disease, (2) Difficulty to maintain proper oral hygiene, (3) Side effects of the modern drugs which limit their prolonged use for the permanent cure of disease. Under these circumstances this study is a trial to explore unique herbal drug which has efficacy to help the patients of periodontal disease without unwanted side effects.

Sushruta has described that triphala pacifies that kapha and pitta dosha, which are the main causative factors of the periodontal diseases. He has also emphasize that the triphala has hemostatic, anti-inflammatory, analgesic and wound healing properties. Haritaki is most efficacious for bleeing gums and gingival ulcers and carious teeth. On the other hand Amalaki contains enormous vitamin 'C' which is most essential to prevent the bleeding from gums.

The CPITN probe is an index system recommended by FDI and W.H.O was used for the evaluation of periodontal status.

In this clinical study it has been observed that the signs and symptoms of the periodontal disease subsided quickly in the control group (CG), in comparison to other treated group. But the recurrence of previous signs and symptoms were observed during follow up period after stopping the treatment (Table 3).

The efficacy of the drug, triphala in relieving the signs and symptoms in patients of periodontal disease was proved as identical to comparison the modern drug.

The drug is effective against many signs and symptoms of the periodontal disease.

A bacteriological study was done with the triphala decoction. The study has demonstrated that triphala has a good

antibacterial property and it is sensitive to 16 (72.7%) bacteria out of 22.

Although triphala cured periodontal disease without any side effects or toxicity. Yet a detailed scientific enquiry is required into various aspect of its pharmacological and clinical effects. In before this drug could be recommended for the treatment of periodontal disease. It is also to be mention here that a broad antibacteriogical study can be made upon various bacteria. Thus we can listed this drug as a broad spectrum antibiotic for treating the infection diseases (local and systemic use).

Therefore considering all the above observations it can be concluded the drug triphala or metronidazole, alone is capable to provide partial relief but when both are used combinedly, more effective for the treatment of periodontal disease.

However, it is further suggested that triphala and metronidazole as a combined treatment regimen should be used for local (like gargling and mouthwash) and systemic administration.

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