Original Research Article (Clinical)

Experiential documentation of Trimad for its anti-obesity potential: A survey of Ayurvedic physicians from Pune city

Megha Salunke a, Manasi Deshpande b, Supriya Bhalerao a, *

a Obesity Research Lab, Interactive Research School for Health Affairs, Bharati Vidyapeeth Deemed University, Dhankawadi, Pune-Satara Road, Maharashtra, Pune 411043, India
b Dept. of Dravyaguna, College of Ayurved, Bharati Vidyapeeth Deemed University, Dhankawadi, Pune-Satara Road, Maharashtra, Pune 411043, India

Article history:
Received 20 December 2016
Received in revised form 1 February 2017
Accepted 27 March 2017
Available online 16 August 2017

Keywords:
Pharmacoepidemiology
Trimad

A R T I C L E   I N F O

Article info

ABSTRACT

Background: Trimad is an Ayurvedic polyherbal formulation consisting of tubers of Mustaka (Cyperus rotundus), fruits of Vidanga (Embelia ribes) and roots of Chitraka (Plumbago zeylanica). It is recommended in Ayurveda for the management of obesity. However, there is no documented evidence about its safety and efficacy. Hence, as a first step, we carried out a survey to find out its usage by Ayurvedic physicians and their personal clinical experiences while using the formulation.

Methodology: A questionnaire was designed which included questions regarding the usage, dosage, formulation, safety and tolerability of Trimad. After obtaining Ethics Committee permission, the questionnaire was administered to 86 physicians. Out of 86, the data obtained from 70 physicians who filled the complete information, was analyzed. The data are presented as percentages.

Results: Sixty seven percentage physicians were found to use Trimad for management of obesity. The commonly used form of Trimad was churna administered along with luke warm water as an adjuvant. The criteria for selection of drug informed by the physicians were Ayurvedic signs & symptoms followed by conventional anthropometry. The average efficacy rating for Trimad on scale of 1−10 was found to be 5.

Conclusion: The survey revealed that Trimad is being used by large number of Ayurvedic physicians for the management of obesity.

© 2017 Transdisciplinary University, Bangalore and World Ayurveda Foundation. Publishing Services by Elsevier B.V. This is an open access article under the CC BY-NC-ND license (http://creativecommons.org/licenses/by-nc-nd/4.0/).

1. Introduction

Mishraka Varga [1] is one of the peculiar concepts of Ayurveda. The literal meaning of the word Mishraka is a specific combination of herbs or mineral drugs. These combinations are made based on common indications, pharmacological properties for achieving synergistic effects in terms of safe and effective use. Ayurvedic texts describe many such combinations viz. Triphala, Trikatu, Panchakola, Chaturbeja. Trimad [2,3] is one such combination, which comprises of, Musta (tubers of C. rotundus), Chitraka (roots of P. zeylanica) and Vidanga (fruits of E. Ribes). However, unlike other combinations, apart from the names of the ingredients, no information is available about ‘Trimad’ as a combination in classical texts. In view of dearth of literature about this combination, it was thought interesting to study its use by Ayurvedic physicians. Since in Ayurvedic texts, all the three ingredients of the combination are recommended in the management of ‘Sthaulya’ (obesity), [4] we selected obesity as a representative clinical condition.

Thus, the present study was planned with an objective to find out usage patterns and experiential information regarding efficacy, tolerability & safety of Trimad especially in obesity. It is anticipated that the outcomes of the study will help to improve the knowledge about the formulation as well as to establish it as an anti-obesity formulation based on the leads which will emerge from the information generated.

2. Materials and methods

After obtaining Institutional Ethics committee permission and informed consent from the physicians, the study was carried out at different Ayurvedic hospitals and private clinics in the Pune city.

http://dx.doi.org/10.1016/j.jaim.2017.03.004
0975-9476/© 2017 Transdisciplinary University, Bangalore and World Ayurveda Foundation. Publishing Services by Elsevier B.V. This is an open access article under the CC BY-NC-ND license (http://creativecommons.org/licenses/by-nc-nd/4.0/).
The study was carried out for a period of 6 months (January 16–June 16). A total of 86 physicians were approached during the period. Being an exploratory study, no prior sample size calculation was done.

A special questionnaire was designed to collect information regarding the clinical experiences about Trimad, which was divided into four parts,

i) Questions related to physicians like age, sex, education, clinical experience (in years).

ii) Usage of Trimad: frequency of usage.

iii) Formulation details: form, dosage, regimen, differentiation of effects.

iv) Efficacy, safety and tolerability, beneficial effects of drug, adverse effects, withdrawal of drug, rebound effect, efficacy rating, compliance.

All the questions were close ended.

The questionnaire was given to the physicians after explaining the study objectives and they were asked to revert with duly filled document.

3. Results

The questionnaire was administered to 86 physicians through personal interactions as well as through emails. Out of these, 16 physicians did not fill the questionnaire completely and hence the data obtained from these physicians were excluded from the analysis.

The mean age of the physicians was 37.62 ± 8.2 years with varying 1–32 years.

3.1. Usage of Trimad

It was observed that 67% physicians were using Trimad for the treatment of obesity.

3.2. Formulation

Six percentage physicians were found to use only Trimad while 83% physicians were using it in combination with other drugs. The rest 11% physicians were found to use it in both combination and individually. The commonly used form of Trimad was found to be powder [churna] as answered by 54% physicians while 13% physicians were using it in decoction [kwatha] form. The remaining 33% physicians were using it in other dosage forms such as capsules, tablets etc.

The dose of Trimad was found varying from patient to patient. As shown in Fig. 1, seventeen percent physicians were found to prescribe it in a dose of 0.5 gm to 1 gm, 27% physicians prescribed it in 2–10 gm and 4% physicians prescribe it in 10–20 gm. Thirteen percent physicians administered it in decoction form in a dose of 3–50 ml per day. Twelve percent physicians prescribed it in capsule form in a varying dose. 27% physicians did not comment on this question (Fig. 1a).

The dose of Trimad was decided by 16% physicians on the basis of anthropometric parameters while on the basis of Ayurvedic signs and symptoms by 37% physicians. Six percent physicians were using one standard dose to all patients. The remaining 41% physicians did not comment on this question.

The common time for administration of Trimad was before food as told by 45% physicians while 14% physicians prescribed it after food. Sixteen percent physicians were found to prescribe Trimad...
irrespective of food timing. Twenty five percent physicians haven’t commented on this question.

It was found that 33% physicians were found to use luke warm water as an adjuvant with Trimad, while 23% physicians were using honey and 19% physicians were found to use combination of both. Eight percent physicians were found to use other adjuvants such as ghee and seventeen percent physicians did not comment on this question (Fig. 1b).

Thirty one percent physicians were advising diet, exercise and concomitant anti-obesity formulations along with Trimad, whereas 29% physicians were found to advice diet and exercise along with Trimad. Eleven percent physicians were found to advice only exercise, 13% used only diet while 2% physicians advised medicine as regimen and 4% physicians advised other regimens. 10% physicians did not comment on this question (Fig. 1c).

Thirty five percent physicians told that Trimad has specific actions on GI symptoms such as improvement in digestion & appetite regulation and thereby reduces weight. Other beneficial effects of Trimad as reported by the physicians are presented in Table 1.

Twenty nine percent physicians reported ‘improvement in digestion’ as the prominent beneficial effect of Trimad other than obesity followed feeling of wellness as reported by 9% physicians. The other beneficial effects reported were etc. Twenty one physicians did not answer this question.

All physicians reported that Trimad is well tolerated by the obese patients. Fifty three percent physicians said that they did not observe any side effect. Thirty four percent observed burning sensation, 8% reported mouth ulcers and 5% noticed excessive thirst in their patients (Table 2). Physicians said that they never discontinued Trimad during course of treatment, while 11% physicians said that they had to stop Trimad during treatment and 3 physicians did not comment on this question.

Overall, the physicians rated efficacy of Trimad as 5 on a scale of 1–10. Twenty eight percent physicians rate Trimad in between 5 and 10 on the scale of 1–10 for the management of obesity as shown in Fig. 2.

### 3.3. Efficacy, safety and tolerability

Only 15% physicians were found to keep record of outcome of Trimad. Seventy five percentage physicians did not keep records of outcome of Trimad. The remaining 10% physicians did not answer this question.

Maximum number of physicians replied that Trimad brings about the improvement in digestion & appetite regulation and thereby reduces weight. Other beneficial effects of Trimad as reported by the physicians are presented in Table 1.

Twenty nine percent physicians reported ‘improvement in digestion’ as the prominent beneficial effect of Trimad other than obesity followed feeling of wellness as reported by 9% physicians. The other beneficial effects reported were etc. Twenty one physicians did not answer this question.

All physicians reported that Trimad is well tolerated by the obese patients. Fifty three percent physicians said that they did not observe any side effect. Thirty four percent observed burning sensation, 8% reported mouth ulcers and 5% noticed excessive thirst in their patients (Table 2). Physicians said that they never discontinued Trimad during course of treatment, while 11% physicians said that they had to stop Trimad during treatment and 3 physicians did not comment on this question.

Overall, the physicians rated efficacy of Trimad as 5 on a scale of 1–10. Twenty eight percent physicians rate Trimad in between 5 and 10 for obesity treatment while 72% physicians rate Trimad in between 5 and 10 on the scale of 1–10 for the management of obesity.

### 4. Discussion

In the present study, Ayurvedic physicians were interviewed and information was collected regarding the usage patterns and experiential information of Trimad. We observed that although the formulation was not found very frequently in Ayurvedic books, 67% physicians were found to use it. This finding indicates that though the formulation is rarely mentioned in texts, it is quite popular in physicians.

The data also revealed that churna (powder) with lukewarm water was common form for use of Trimad. The varying dose range highlights the individualized treatment approach mentioned in Ayurveda and different trends in Ayurvedic practice. In case of the criteria for deciding dose, it is important to note that those who did not answer probably do not go for any dose calculation.

The time of administration followed was mainly before food which supports the Aushadhi sevankala concept in Ayurveda wherein Apanakala is the time when drug should be consumed before having food [5] and Rasayanakala corresponds to administration on empty stomach [6]. Trimad found to improve digestion and appetite regulation in patients as reported by majority of physicians which again is in line with the Ayurvedic pharmacology of the three plant drugs in this formulation.

It was observed that 84% physicians were using diet and/or exercise along with Trimad. This finding shows a clear trend of using anti-obesity medicines with other regimens for better management. However, the physicians did not found interested in differentiating effects of Trimad from other regimens. This also highlights that the physicians were concerned only about overall improvement of the patients but not dissecting it to the components of treatment.

Only 15% physicians were found to keep clinical records of their patients. While Pharmacoepidemiology studies are gaining importance in drug development process, the poor documentation rate can affect badly the process of acquiring experiential knowledge.

The physicians opined that the mechanism of action of Trimad in obesity is by improving digestion and bowel movements. This can

| Symptom                          | Number of physicians (%) |
|----------------------------------|--------------------------|
| Improvement in digestion and appetite regulation | 27                       |
| Reduction in weight              | 23                       |
| Improvement in lipid profile     | 17                       |
| (cholesterol, triglyceride, HDL) |                          |
| Increase in energy levels        | 17                       |
| Decrease in circumference        | 12                       |
| Bowel regulation                 | 4                        |
| Regulation of blood glucose levels| 4                        |
| Frequency of food consumption    | 0                        |

| Adverse effects of Trimad | Number of physicians in % |
|---------------------------|---------------------------|
| Burning sensation         | 34                        |
| Mouth ulcers              | 8                         |
| Thrust                    | 5                         |
| Not observed any          | 53                        |

![Fig. 2. Rate of Trimad for the management of obesity.](image-url)
be considered as an indicator of increase in basal metabolic rate. Trimad is ushna in nature as per Ayurveda [7]. Since it is used for digestion improvement, it might improve cellular level transformation as well.

In case of adverse effects, though 53% physicians did not mention any adverse effect, 47% physicians noticed the adverse effects. While there are many reports about unawareness and apathy of Ayurvedic physicians towards adverse drug monitoring [8], it is interesting to note that around half of the physicians interviewed by us reported adverse effects. There is possibility that Trimad owing to its ushna nature might be having noticeable adverse effects and that is why were obviously reported by the physicians.

Our data also revealed that although 47% physicians observed adverse effects of Trimad, only 11% physicians had to discontinue the treatment. This means that the more pronounced severity of adverse effects was seen only by 11% physicians. In other words, the adverse effects seen by other physicians may be self-limited and lasted for few days only.

The physicians rated Trimad on an efficacy scale of 1–10 as five. The overall concepts of efficacy by physicians take into account safety aspects also. Trimad is reported by physicians to have adverse effects. This might be the reason why it was rated low on the efficacy scale.

The data generated about safety and efficacy is however preliminary and need further confirmation in systematically planned clinical study.

Interestingly, the percentage of physicians who could not respond to questions was considerable. While 27% physicians could not comment on dose, 41% physicians could not comment on criteria for deciding dose. Twenty-five percent physicians could not comment on time of administration of Trimad, 17% and 10% physicians did not mention about adjuvant and regimen respectively. This reflects a need to train physicians in observational therapeutics.

Overall, our study reports the use of formulation ‘Trimad’ by Ayurvedic physicians for the first time. This also highlights the usefulness of pharmacoepidemiology to collect information about uncommon formulations. The data can be further strengthened by employing more detailed questionnaire e. g. rationality behind selecting this formulation in treatment of obesity, variety of symptoms in obesity etc.

5. Conclusion

Through this study, we first time documented experiential data about usage, safety, tolerability and efficacy of Trimad. As further step towards pharmacoepidemiology, the data obtained can be further explored by approaching the Ayurvedic pharmacology experts or in-depth interviews of Ayurvedic physicians.

Conflict of interest

None declared.

References

[1] Narahari Pandit. In: Indradev Tripathi, editor. Raj Nighantu. 3rd ed. Varanasi: Chaukhamba Krishnadas Academy; 2010 (Mishrakadivarga).
[2] Govindadas. In: Ambikadatta Shastri, editor. Bhaishajya Ratnavali. 13th ed. Varanasi: Chaukhambha Sanskrit Bhavan; 1997, p. 35.
[3] Bhavaprakash. In: Pandey GS, editor. Bhavaprakash Nighantu with commentary by Chunjekar KC. Varanasi: Chaukhamba Bharati Academy; 2010. 232, 21, 51.
[4] Acharyashukla V, editor. Charakasamhita. 1st ed. Delhi: Chaukhambha Sanskrit Pratisthan; 1998. p. 323–7, chp 23.
[5] Agnivesha, Charaka, Dridhahala. In: Pandey GS, editor. Charaka Samhita, Chikitsa Sthana, Yonivyapat Chikitsa Adhyaya, 30/299. 8th ed. Varanasi: Chaukambha Sanskrit Samsthan; 2004. p. 790.
[6] Sharangadhara. In: Shastri Pt Parashurama, editor. Sharangadhara Samhita, Pratihama Khanda, 2/2. 1st ed. Varanasi: Chaukambha Surbharati Prakashan; 2006. p. 16.
[7] Kamleshwa P, Brijesh K, Kumar RP, Kumar PA. Conventional taxonomy and treatment etiquette of Kamala w.r.t. to mode of action of Navayas Lauha Churna on Shakkhashrit Kamala (hepato-cellular jaundice). Int J Ayurveda Pharma Res 2015;3(6):17–22.
[8] Kubde S. Adverse drug reactions and pharmacovigilance of herbal medicines in India. Int J Green Pharm 2016;10(1):29–31.