Current progress of Ayurveda treatments on uterine fibroids: a comprehensive review

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Abstract

This study aimed to provide comprehensive review on current progress of treating uterine fibroids with Ayurveda treatments. Present review adhered to PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analysis) guidelines. Literature was searched in PubMed®, MEDLINE, and Web of Science® up to October 2019 with specific key words. Articles published in peer-reviewed journals written in English were included. Total 16 articles were included for present review after following the search strategies, 56.25% were case reports with zero randomized control trials. Common features identified by the trials; most of the trials based on Ayurveda treatment regimens, changes of the fibroid size was measured by ultra sonography but details on research methodology of the trials were limited. The current reviewed research works do not strongly support the effectiveness of Ayurveda treatment as a management option for uterine fibroids in scientific background, even some positive findings were observed. Therefore, there is a need of a well-designed randomized controlled trials to prove the effect of Ayurveda interventions to control uterine fibroids and related clinical features in the future.

Keywords: Uterine fibroids, Ayurveda treatments, Comprehensive review

Introduction

Uterine fibroids, the most common genital tract tumor of reproductive age women, are being treated with herbal medicine in many traditions and countries [1] mainly because options on current medical therapy for uterine fibroids in other medicine systems are presenting its own advantages and disadvantages[2,3,4.] Further, women prefer to preserve their fertility by avoiding surgical procedures including hysterectomy[5]. The ideal treatment option would be minimally invasive, cost effective, efficacious, and tolerable with minimal side effects and have low incidence of fibroid recurrence[6]. At this point study the utility of Ayurveda treatment on uterine fibroids seems to be an important area.

Ayurveda is the science or a time-tested traditional system of medicine that originated in India around 6000 years ago. This system has been practiced for many centuries in the island nation. Treatment on uterine fibroids with Ayurveda drugs have shown encouraging results by previous studies. Before coming to the idea of efficacy and safety of Ayurveda treatment on uterine fibroids, it is important to carry out a methodological review on studies done up to date. Consulting a review removes the need to try and understand difference between results from various items of research. A systematic review provide evidence from a number of studies are gathered together in one report and the available data is analyzed to assess the strength of evidence than single studies as it attempts to bring the same level of precision to review research evidence as should be used in producing that research evidence in the first place[7].

To fulfill the above need it was decided to conduct a comprehensive review on the current progress of treating uterine fibroids with Ayurveda treatments.

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Methodology

This comprehensive review adhered to PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analysis) guidelines, including search strategy, selection criteria, data extraction, and data analysis[8]. PRISMA is an evidence-based minimum set of items for reporting in systematic reviews and meta-analyses, focuses on the reporting of reviews evaluating randomized trials[9]. A comprehensive search of the literature was conducted in the following databases; PubMed® (U.S. National Library of Medicine, USA), Web of Science® (Thomson Reuters, USA), MEDLINE, Google scholar through October 2019, with the use of following search terms; 'Uterine fibroids and Ayurveda clinical trial', 'Uterine fibroids and Ayurveda treatments,' 'Leomyoma and Ayurveda clinical trial', 'Leomyoma and Ayurveda treatments'. Search was limited to studies in English. Reference list of retrieved articles was searched to identify additional records.

Study selection - We included all the Ayurveda clinical trials carried out on uterine fibroids. Eligible articles were published in peer-reviewed journals written in English, small reports and single cases were also included due to a limited number of studies. Background and review articles were excluded. Duplicates, articles in language other than English and articles in which title and abstract not report on uterine fibroids were excluded (Figure 1- PRISMA Flow chart).

Assess the quality - Randomized trials were assessed in the method of randomization, sample size calculation, blinding process and quality of outcome assessment. Case studies were valued with regards to valuation of exposure, selection of valid and reliable assessment procedures and justification on the method of drug selection.

Results

After following the search strategy (Figure 1) total 16 articles were included for present review.

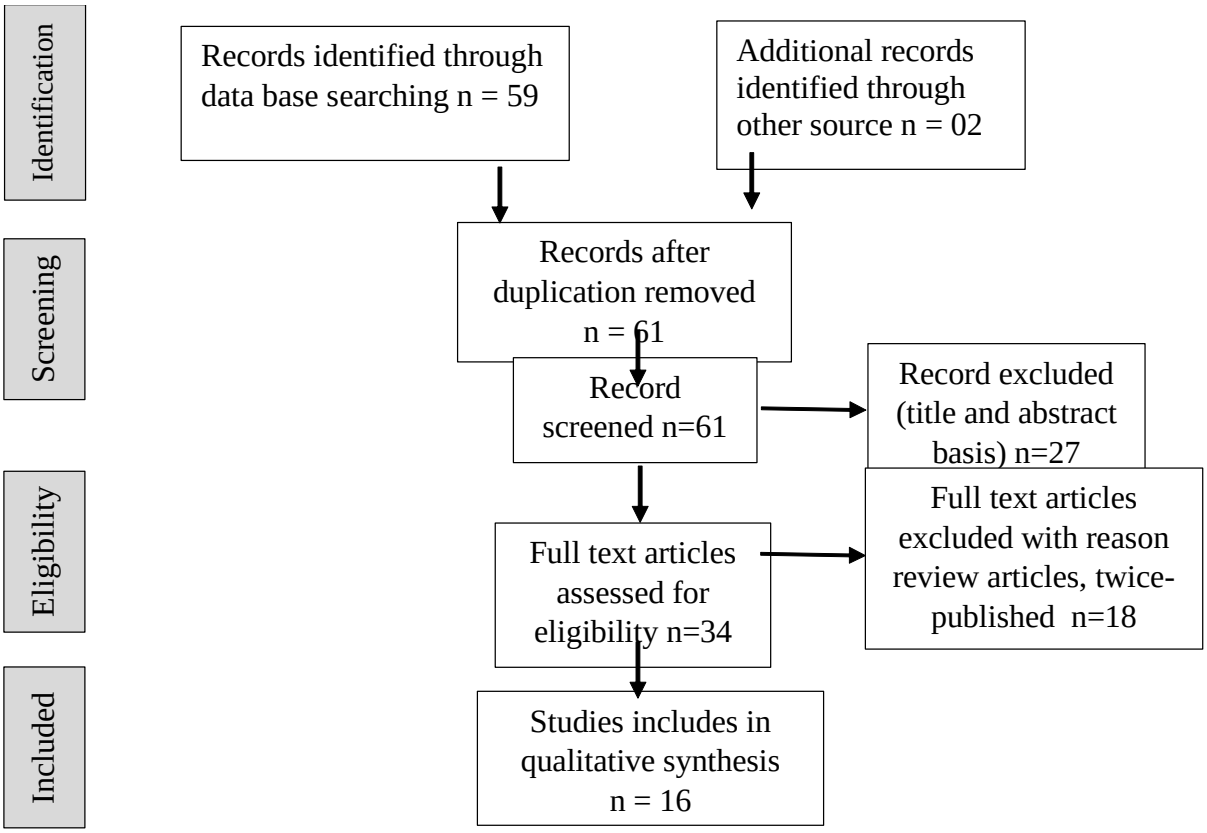

Figure 1 – A PRISMA flow chart of the 16 included studies

Table 1: Design of studies reported in the papers

Study design	n (%)
Randomized controlled trial	00 (0.0)
Comparative studies without concurrent controls	03 (18.75)
Case series	04 (25.0)
Case reports	09 (56.25)

Table 2: Details of studies

Description	n= 16
Sample size	01-30 cases (mean 01)
Duration of intervention	15 – 270 days (mean 90 days)
Mode of intervention. n (%)	10 (62.5) orally 05 (31.25) orally + other 01 (6.25) other
Assessment of fibroid size	11 (68.75) transverse and vertical diameters

Table 3: Study interventions

No	Authors	Study designed	No of partic ipant	Durati on of treatm ent	Drugs used	Mode of drug adminis tration	Fibroid reduction after the treatment	Improvement of fibroid related symptoms
1	Dhiman, (2014)[10]	Case series	05 cases	7-12 weeks	*Shigru Guggulu* 250mg 2 tablets *Kanchanara gugulu* 250mg 2 tablets *Haridra khanda* 3g BD	Oral drugs	normal USS at 7th wks- 4 cases, at 12 wks- 1 case	Menstrual abnormalities were corrected
2	Bharathi & Jain (2014)[11]	Case series	30 cases	03 months	*Ashokarishtam* 10ml and *Lodhrasavam* 10ml BD	Oral drugs	No significant change	Menorrhagia, dysmenorrhea reduced
3	Manjusha (2014)[12]	Comparati ve studies without concurrent controls	30 cases	15 days	Group A – *Palasha kshara* 500mg with ghee bd Group B- *Palasha kharodaka* 30ml bd	Oral drugs	Both groups show significant reduction (p>0.1)	Dysmenorrhea, no cyclic pelvic pain reduced by 20 %

4	Murthy, Arawatti, PankajRai, Biswal & N ibedita (2015)[13]	Comparative studies without concurrent controls	30 cases	02 months	Group A- *Jalakumbhi* powder 6g bd Group B- *Nagakeshara* powder 6g bd	Oral drugs	Significant reduction of fibroid size (p<.001)	Menorrhagia, non-cyclic pelvic pain reduced significantly
5	Yogesh, Manani, Dei, Donga, Hetal and Baraiya (2015)[14]	Case series	17 cases	03 months	*Gomuthra Haritaki* 3 grs bd with honey and *Yogavasti* 08 days *Phalasha basti* and T*ila taila anuvasana vasti*	Oral drug and rectal enema	Significant reduction of fibroid size (p<.001)	Menorrhagia, dysmenorrhea, non cyclic pelvic pain, pressure symptoms reduced significantly
6	Padavi & Mestry (2015)[15]	Case study	01 case	09 months	*Varunadi kwata* 15ml bd	Oral drugs	Complete remission of 13mm fibroid	Not mentioned
7	Bharathi & Jadev (2016)[16]	Case series	05 cases	3- 6 months	*Punarnava kwata* 15ml bd *Kanchanara gugulu* 2 bd	Oral drugs	4 cases - Complete remission after 3 months, 1 case – complete remission at 6th month	Not mentioned
8	Kowsalya, Swetha Naik, Padmasaritha, & Ramesh (2017)[17]	Case study	01 case	01 month	*Sukumara Kwata* 2tsp+4tsp water, *Trayodashanga gugulu* 2 tab, *Chariyamadhusnuhi Rasayana* 1tsp with milk bd	Oral drugs	Complete remission of 15mm x 12 mm fibroid	Menorrhagia, non-cyclic pelvic pain reduced
9	Yogesh, Manani & Dei (2017)[18]	Comparative studies without concurrent controls	16 cases	03 months	*Hemakanda Grita* 5ml and *Kanchanara kashaya* 50ml bd *Yoga basti – palasha kashaya* & *Tila taila*	Oral drugs and rectal enema	In significant reduction of fibroid size (p>0.05)	Significant reduction Menorrhagia (p<0.05), dyemennorhoea (p<0.001), pressure symptom (p>0.05)

10	Singh (2017)[19]	Case study	01 case	06 months	*Kanchanara gugulu* 500mg, *Punarnava mandura* 500mg, *Dashamoola arishta* 15 ml, *Ashokarishta* 15ml bd *Uttara basti* – *Apamargakshara* oil 5ml- 3day in 3 consecutive cycles	Oral drugs and uterine enema	Not mentioned	Menorrhagia, dysmenorrhea reduced
11	Perera & Dei (2018)[20]	Case Study	01 case	03 months	1st month -*Virechana karma* – *trivrut avaleha* with *Triphala yavakuta* and *Lekhana basti* – *lekhaniya mahakashaya* 2nd and 3rd month – *Varunadi kwata* 50 ml BD, *Uttara basti- phalakshara taila* 5ml /per day for 6 days after menstruation.	Oral drugs, Purgatives and uterine enema	Reduced transverse and vertical diameters by 1.1cm and 1.3 cm	Menorrhagia, non cyclic pelvic pain reduced
12	Archana, Kalepandit, Anu.and Dei (2018)[21]	Case study	01 case	03 months	Day 1-*Virechana karma* - *Trivritaleha* – 100 gm, 90 days- *Sthanyasodhana gana kashaya* 48ml BD,	Oral drugs, and Purgatives	No change	Pregnancy positive at 3rd month
13	Perera and Dei (2018)[22]	Case study	01 case	19 days	*Amapachana vati* 2bd – 5 days Day 1- *Virechana karma* – *Trivrut Avaleha* 120gm with *Triphala kwatha* 30gm	Purgative	Reduced size (volume from 4.2 ml to 1.5 ml)	Menorrhagia, non cyclic pelvic pain reduced
14	Shruti, Padmasarith a, and Ramesh (2018)[23]	Case study	01 Case	04 months	*Ashokaghrita*- 2 tsp BD *Ushira asava* 3 tsp TID Cap. Infex 1 TID Tablet Gynaekot 1BD *Kanashtahwadi kashaya* 2 tsp BD *Kravyadi rasa* 1BD *Pulimkuzhambu* ½ tsp BD	Oral drugs	Reduced size (from 18mm to 15mm)	Menorrhagia, dysmenorrhoea, non cyclic pelvic pain reduced
15	Shubhashree, Doddamani, Bhavya, et al. (2019)[24]	Case study	01 case	03 months	*Ashokarishta* 15ml BD *Chandraprabha vati* 01 tablet BD *Pushyanuga churna* 2 tablet BD Poly herbal syrup 10ml BD	Oral drugs	Reduced size (from 13*15mm to 7*4mm)	Menorrhagia, fatigue reduced

16	Rawat, Barla, Roushan (2019) [25]	Case study	01 Case	*Kumaryasava, Ashokarishta Pradaranthaka rasa Arogya vardhana vati Kanchanara gugulu*	Oral drugs	Reduced size from (12.5mm to 10*11mm)	Not mentioned

By the review 03 two armed comparative studies without concurrent controls, nine single case study and 04 were case series were identified (Table 1). The sample size varies from 01 to 30 due to consideration of case studies. All were single centered studies with duration of 19 days to 09 month study intervention with maximum (62.5%) of oral rout (Table 2). The key data of those studies were summarized in table 3.

Discussion

Understanding of systematic reviews and meta-analyses and their practical uses are essential for everyone who concerned with society's health [26]. This review evaluates different Ayurveda interventions published on the management of uterine fibroids. Prevalence of publishing Ayurveda based clinical studies on uterine fibroids has been increased for the last few years. The rate of publication from 2014 to 2019 fluctuated between three and four papers per year, except for the year 2016 which exhibited the lowest number of papers (Table 03). However, the rate of publication has increased substantially. All the selected 16 studies were conducted in India, the most likely explanation for this bias in the contribution by one country could be India, the birthplace of Ayurveda, where there is a widespread practice.

Level of evidence

Conduction clinical trials on herbal medicine is a challenging task in the field of Ayurveda. Develop a protocol par with the basic concepts, identical control group with identical color, odder and taste of the intervention used are challenges for the researchers[27]. This negative impact has demonstrated by this study finding too. Case reports represented the highest proportion of the papers. Sixteen studies included for qualitative synthases had a small sample size, with 09 case reports, 04 case series of five to thirty study population in a study and 02 two arm comparative studies (30 cases in each study) without concurrent controls (Table 1). None of the trials not reported on pre-trial sample size calculation, method of randomization or blinding method. But detailed explanation on study interventions was included.

Type of care delivery

Interventions of most of the studies were comprised a combination of care types; drug regimens (Table 1). Those regimens are comprised of oral drugs and specific Ayurveda therapies. Drugs used in trials were a combination of plants or compounds containing minerals. Positive points of these selected drugs were, most of them are freely available in the countries practicing Ayurveda viz. India, Sri Lanka, Nepal. Therefore, conducting further research on the same field with included drugs is highly encouraging. Ayurveda medicine based treatment methods have been used *viz Vireka* (purgation), *Vasti* (enema) and *Uttara vasti* (uterine enema) in reviewed researches. These therapies (*Panchakarma*) are identified in Ayurveda as first line of therapies which gives the effect of purification [28] and restores the balance of body [29]. The action or mechanisms of those herbs or formulas on controlling the condition were not discussed by the studies. Further, the important of these regimens against oral drugs cannot be figured out by the review due to limited information.

Improvement of fibroid related symptoms

Only the single prominent fibroid was measured and included sizes were limited to ≥ 4 cm in diameter. Their measurements were taken by Ultrasonography before and after the treatment, trials reported variable presentations, including volume changes, vertical and horizontal diameter comparisons. When considering the result on the size of the fibroid, conducted 04 studies shown size reduction [12,13,14,18,20,25] while 04 studies result in complete remission of the fibroid [10,15,16,17]. None of the trial was reported measurements increased during the study period. Fibroid related symptoms were also taken to consideration by the majority of studies. They were mainly focused on menorrhagia, dysmenorrhea and non-cyclical pelvic pain but due to variable interpretation and unreported

analysis method final conclusion was questionable on fibroid related symptoms.

Toxic effects and safety measures

No trial reported on minor or serious adverse effects or there were not recorded trials. There is no argument on safety issues on these Ayurveda drugs and therapies used in these clinical trials as they are already well documented in Ayurveda texts with the recipe, ingredients, dose and indication. According to WHO Operational Guidance [30], if historical evidences are available for most herbal medicines, if their substantial prior human use conveys reasonable confidence, these regimens can safely be administered to small numbers of carefully monitored clinical participants in phase 2 trials [31]. Anyhow it would have to be more appreciated if studies had carried out basic safety measures including hematological and urine investigations.

Limitations

This study found several limitations. As these studies not planned and adopted the own research methodologies in Ayurveda quality of the methodology adopted for the included studies were generally limited to poor or not stated sufficient details. Further, assessment tools and the data analyzing methods are to be further improved with validated scientific parameters. Therefore, these researched results and conclusions may be opened to biases. Somehow it is encouraging to see that such researches continued annually up to date starting from year the 2014.

Recommendations

It is the time to define Ayurveda itself that whether the use of herbs is Ayurveda or the use of herbs and other treatment modalities as per Ayurveda principles is Ayurveda. The research methodology should be organized accordingly. Advancement in the ongoing research methodology are highly required for the promotion of Ayurveda. If not, such negative findings will be emphasized more by future such studies.

To summarize, the current reviewed research works do not strongly support the effectiveness of Ayurveda treatment as a management option for uterine fibroids in the scientific background though some positive findings were observed. Therefore, there is a need for well-planned randomized Ayurveda clinical trials providing data on safety and efficacy with longer follow up. Then only Ayurveda treatment can be recommended as evidence-based treatment for fibroids.

From a methodological perspective, there have been short comings and inconsistencies in reporting of findings of research projects. The practical value of published papers would be improved by following stranded guidelines for reporting research projects and clinical trials.

Conclusion

There were only a few studies and limited evidences available on the use of Ayurveda treatment on uterine fibroids. Poor quality of methodology adapted for included studies was the main limitation. According to the review there were no acceptable randomized trials done for Ayurveda medicine. Therefore, there is a need of well-designed randomized controlled trials to prove the effectiveness of Ayurveda interventions to control uterine fibroids and clinical features in the future.

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