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COULD HERBAL MEDICINE BE A COMPLEMENTARY THERAPY IN LEUCORRHEA TREATMENT AND CARE?

Zubaeda*, Nur Khafidhoh

Master of Applied Science in Midwifery, Poltekkes Kemenkes emarang, Semarang, Indonesia

*Corresponding author's e-mail: zubaeda95@gmail.com

ABSTRACT

Background: The frequency of using the antibiotics and antifungals as a treatment of leucorrhea may cause the bacterial and fungal resistance. Therefore, a treatment is not always optimal and sometimes leads the infection to be worsen. The herbal medicine is needed as an alternative treatment. This study aims to examine the effectiveness of using various herbal medicine in the management of leucorrhea.

Methodology: The literature review was conducted in several electronic databases i.e., Google Scholar, Science Direct, and PubMed. The protocol for this study was PRISMA. The keywords such as "herbal medicine" and "leucorrhea" or "vaginal infection" were used to select the literatures. This study only selected the studies conducted during 2000 to 2019, presented in English and used clinical trial research design.

Results: This study obtained 10 of 5184 total publications from electronic databases. The publication about herbal medicine for leucorrhea, both of herbal medicine and placebo, herbal medicine compared to conventional medicine and herbal medicine combined with conventional medicine showed that herbal medicine could reduce the symptoms and complaints of leucorrhea which had the ability to be an antimicrobial agent. In contrast, 2 studies revealed the side effects of herbal medicine, i.e., irritation, vomiting, and dry vagina.

Conclusion: Herbal medicine was effective as a treatment of leucorrhea and had the prospect to develop as a complementary therapy for treating the leucorrhea.

Keywords: Leucorrhea, complementary therapy, herbal medicine

INTRODUCTION

Reproductive health is an important problem throughout human life [1]. According to the International of Conference on Population and Development (ICPD) reproductive health is a complete physical condition, mental and social well-being and the absence of diseases or weaknesses related to the functions and processes of the reproductive system [2]. Today, reproductive tract infections are still a common disease throughout the world [3] and in the developing countries infections of the reproductive tract are still one of the main burdens of disease [2]. Reproductive tract infections are generally caused by bacteria and fungi [4] with the most common symptoms is abnormal vaginal discharge or leucorrhea [3].

Leucorrhea is one of the most common complaints in obstetrics [5]. According to the World Health Organization (WHO), 75% of women in the world have the potential of leucorrhea once-in-a-lifetime and 45% of women have the potential of recurrent leucorrhea. In developing countries like Indonesia the amount is higher, in 2013 70% of women have leucorrhea [6].

Management of leucorrhea is generally by using antibiotics and antifungals, but long-term use of antibiotics can cause antibiotic resistance and also normal vaginal flora reduction which causes the growth of fungal *candida albicans* in the vagina [4,7]. The general antifungal used are fluconazole [4], but based on the results of Morchhauser's study [8] and research by Kothavade et al [9], overuse of fluconazole has caused resistance to *candida albicans* and several types of *candida tropicalis* increased, so that fluconazole should not be given to patients who have recurrent infections [8,9].

The increased of antibiotic and antifungal resistance causes the infection treatment will not be optimal and further aggravates the condition of infection, increases mortality and decreases women's reproductive ability [1]. If the resistance is continue, it is feared that the growth rate of bacteria and fungi will not be comparable to the ability of the pharmaceutical industry to find new antibiotics. In addition, because research is being conducted continuously, the cost of drugs will be increasingly expensive [10]. Therefore, it is necessary to find other treatment alternatives, one of them is complementary therapy by using herbal medicine.

The purpose of this study is to review the effectiveness of the use of various herbal medicine in the management of leucorrhea, so that herbal medicine can be used as part of the treatment in leukorrhea.

METHODS

Search Strategy

The protocol for the literature review was published on PRISMA-P (Preferred Reporting Items for Systematic review and Meta-Analysis Protocols) 2015[11]. Articles were reviewed from several electronic databases that are Google Scholar, Science Direct, Pubmed, and other related websites. Reports and textbooks are also used to obtain more information that is not obtained from electronic search engines. Data were searched from 2000 to March 2019. Articles search by using the keywords "herbal medicine" and "leucorrhea" or "vaginal infection".

Inclusion and exclusion criteria

The author screened the title and abstract of studies which are not full text and irrelevant. Articles reviewed in this study are articles that presented in English, use clinical trial research designs and the outcome are the symptoms of leukorrhea and the ability of herbal medicine as an antibiotic and antifungal for leucorrhea.

Data extraction

The data from databases is selected and filtered manually so that no data is duplicated. Then the data is filtered again based on the relevant titles and abstracts. Title or abstract that is relevant and appropriate with the criteria which are then selected and used in this study.

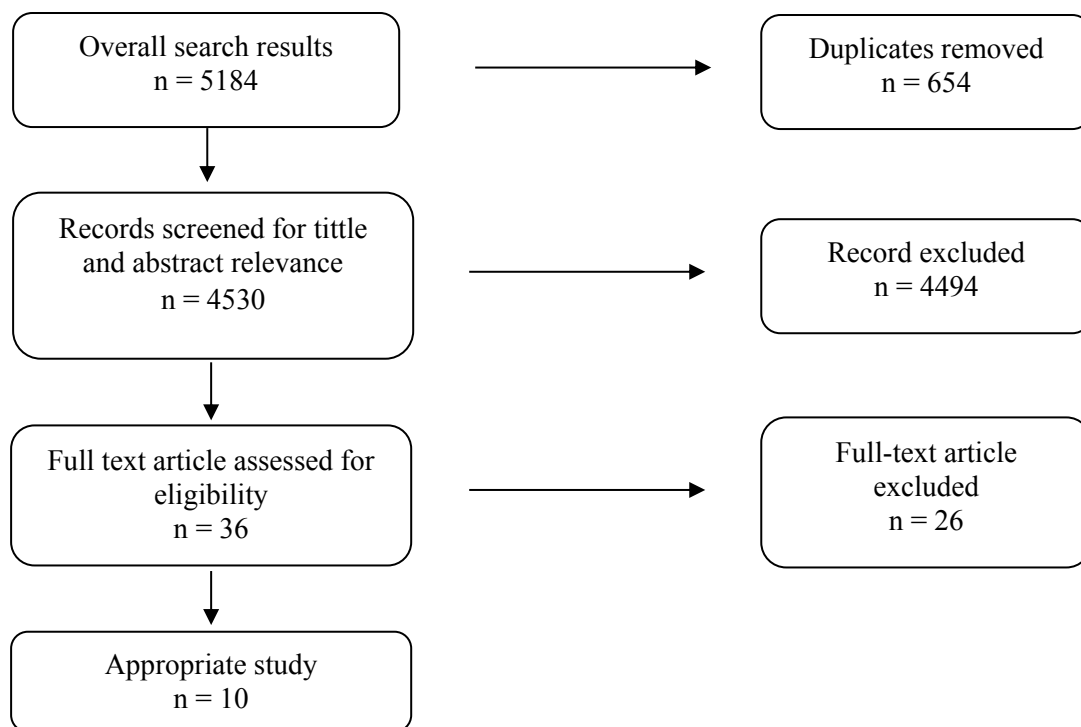


Diagram 1. PRISMA flow diagram of search result

RESULTS

A total of 5184 overall search result from 3 databases which then manually checked and obtained 4530 articles that did not have duplications. Then, the articles are filtered again based on the relevance of the title and abstract. Total 4494 articles were removed because were irrelevant to the title and abstract so that the remaining 36 articles were continued for assessment of eligibility. After the feasibility assessment, 26 articles were removed because were not appropriate with the inclusion and exclusion criteria, and obtained 10 articles were used in this study.

The results of the review below are presented based on herbal medicine research compared to placebo, conventional medicine and herbal medicine combined with conventional medicine.

Herbal Medicine Compared to Placebo

Praven conducted a study to compare the effectiveness of lukol syrup in dealing with symptoms of leucorrhoea [12]. Lukol syrup itself consists of a mixture of herbal *Symplocos racemosa*, *Woodfordia fruticosa*, *Asparagus racemosus*, *Butea frondosa*, *Cuminum cyminum*, *Syzygium cumuni*, *Vetiveria zizanioides*, *Zingiber officinale*, *Piper Nigrum*, *Aegle marmelos*, *Triphala*, *Phoenix dactylifera*, *Adhatoda vasica*, *Vetiveria zizanioides*, and *Boerhaavia diffusa*. The study was conducted on 70 women which were over 30 years old with symptoms of vaginal discharge that were examined at Dr. Ezhilarasu Children's Hospital. The samples divided into two groups. In the intervention group, lukol syrup was administered with a dose of two teaspoons twice a day for 4 weeks, while in the control group received a placebo with the same dose and time. The results showed that the use of lukol syrup was significantly effective in reducing symptoms of leucorrhoea and accompanying complaints such as itching, pain in the vula and vagina, loss of appetite and no side effects. Microbiological examination results showed a reduction in candida albicans and trichomonas vaginalis compared to the control group.

Another study was conducted by Mobabshera et al [13] which the aim is to evaluate the effectiveness of gule dhawa (*Woodfordia fructosa* L. Kurz) and mocharas (*Bombax malabaricum* DC) in the treatment

of *sainal al-uterus* (vaginosis bacteria). The study was conducted on 60 women who had been diagnosed with vaginosis bacteria. The samples divided into two groups. In the intervention group was given 6 grams of gule dhawa and mochara powder in capsule preparations given orally three times a day for 4 weeks. Whereas the control group was given a placebo. The results showed that ghule dhawa and mocharas were more effective in removing vaginal discharge, fishy odor and reducing vaginal discharge compared to the placebo group, but there were no significant differences in changes of vaginal pH.

Herbal Medicine Compared to Conventional Medicine

Sakineh et al [7] examined the effectiveness of *Hypericum Perforatum* compared to metronidazole. The study was conducted on 162 of women which 18-49 years old with vaginosis bacteria at the Jolfa and Hadishahr Health Centers, East Azerbaijan City, Iran. The sample divided into two groups. The intervention group was given 5 grams of vaginal gel *H.Perforatum* 3% and placebo metronidazole while in the control group 5 grams of metronidazole 0.75% and placebo *H.Perforatum* were given. This study was conducted for 10-12 days. The results showed that the use of gel *H.Perforatum* can reduce bacterial vaginosis infections and more effective in reducing complaints of itching, dysuria, burning sensation, dyspareunia and abdominal pain compared to metronidazole. However, side effects occurred during the first day after the intervention. The side effects in intervention group are irritation, nausea and vaginal dryness while in the control group there are side effects of heat in the vagina, nausea, vomiting, dizziness, vaginal dryness, and mouth feeling of metal.

Study by Abdali et al [14] was conducted to compare the effectiveness of vaginal cream *Zataria multiflora* with oral metronidazole tablets in treating trichomonas vaginal infections and vaginal bacteria. The study was conducted on 420 reproductive age women consisting of 140 women with Trichomonas infection, 140 women with vaginosis bacteria, and 140 women with both infections. Each group that was sorted by type of infection was divided into two groups again. They are the treatment group and the control group, so that the total consisted six groups. The treatment group was given 50 grams of Leucorex cream *Zataria multiflora* 0.1% and placebo pills every night for 7 days while the control group was given metronidazole tablets 250 mg orally and placebo cream every 12 hours for 7 days. The results showed that vaginal cream *Zataria multiflora* had the same effect as oral metronidazole tablets, but more effective in reducing itching and odor complaints than metronidazole tablets. In addition, *Zatalia multiflora* cream more effective than metronidazole in patients with trichomonas infection and vaginosis bacteria. Based on the test of side effects, in the control group there were side effects of nausea, dizziness and metal taste in the mouth, whereas in the intervention group only irritation.

Tara et al [15] conducted a study to analyze the effect of ozonation olive oil compare clotrimazole in the treatment of vulvovaginal candidiasis. The study was conducted on 100 female patients with candidiasis vulvovaginal who were referred to the gynecology clinic at Omolbanin and Ghaem Hospital. The samples were divided into two groups. In the intervention group, 5 grams of olive oil ozonation was treated using a vaginal applicator while in the control group 5 grams of clotrimazole were applied every night for 7 days. The results showed that the use of ozonated olive oil was able to reduce symptoms and vulvovaginal candidiasis tissue culture, as effective as the use of clotrimazole, but olive oil ozonation was more effective in dealing with burning sensations of vulvovaginal candidiasis compared to clotrimazole and did not cause side effects.

Accordance with the study above, Saghafi et al [16] also examined the effectiveness of *Anethum graveolens* compare clotrimazole in treating vulvovaginal candidiasis. The study was conducted in 60 women with candidiasis vulvovaginal who were referred to the gynecology clinic of the Academic Hospital in Mashrad, Iran. Samples were divided into two groups. In the intervention group *Anosum graveolens* 2% suppository tablet was given while the control group 100 mg clotrimazole suppository tablets was given for seven consecutive nights. The results showed that *Anethum graveolens*

suppositoria was effective as clotrimazole in reducing clinical and microbiological symptoms of candidiasis.

More study compare herbal medicine and clotrimazole was conducted by Darvishi et al [17]. The study to determine the effect of vaginal cream from a mixture of yogurt and honey compared to clotrimazole in dealing with symptoms of vulvovaginal candidiasis. The study was conducted on 70 women with vulvovaginal candidiasis. The samples were divided into two groups. In the intervention group, yogurt and honey vaginal creams were given, while in the control group clotrimazole vaginal cream was given. Intervention was given for seven days. The results showed that yogurt and honey vaginal creams had abilities similar to clotrimazole but more effective in reducing symptoms of vulvovaginal candidiasis such as itching, irritation and vaginal discharge.

Herbal Medicine Combined with Conventional Medicine

Masoudi et al [18] was conducted a study on the effect of therapeutic fruit extract *Berberis Vulgaris* with metronidazole in patients with Vaginitis Bacteria (VB). The study was conducted on 80 women with VB who were divided into groups. In the intervention group 5% of *Berberis Vulgaris* extract was given on the basis of metronidazole gel, while in the control group only 0.75% of metronidazole vaginal gel was given for 5 days every night. The results showed that fruit extract *Berberis Vulgaris* in metronidazole was more effective in reducing symptoms of heat sensation, itching, and fever or chills compared to metronidazole alone. In addition, there was no recurrence in the intervention group, while 30% of patients in the control group have recurrence during the 3-week follow-up period.

Masoudi et al [19] also examined the effects of therapy on *Myrtus communis* with metronidazole in patients with VB. This study was also conducted on 80 women with VB divided into two groups. In the intervention group, 2% of *Myrtus communis* extract was given on a metronidazole gel basis while in the control group 0.75% metronidazole was given. The results obtained that myrtus communis in the metronidazole gel were more effective in reducing symptoms of irritation, redness, and dysuria compared to the use of metronidazole alone. In addition, the control group also found recurrence after 3 weeks of follow-up.

Another study was conducted by Zare et al [20] to analyze the effects of herbal medicine *Quercus Brantii Lindl* combined with metronidazole in treating vaginosis bacteria (VB). The study was conducted on 176 women with VB. The sample were divided into two groups. In the intervention group vaginal cream *Quercus Brantii Lindl* and metronidazole tablets were given 500 mg orally every 12 hours and while in the control group only 500 grams of metronidazole tablets were given. Results were examined after 7-10 days after intervention. The results showed that there were no significant differences, but metronidazole given with *Quercus Brantii Lindl* was more effective in reducing vaginal discharge and restoring vaginal pH compared with metronidazole only.

DISCUSSION

This review focuses on evaluating the effectiveness of herbal medicine based on the positive and negative effects of various herbal medicine in control the symptoms of leukorrhea and the ability to eliminate microorganisms causing leukorrhea, so that it can provide an overview of herbal medicine to be developed as a complementary therapy for leukorrhea.

The Positive Impact

Use of herbal medicine compared to placebo shows that herbal medicine can reduce complaints of leucorrhoea such as itching, vulvar and vaginal pain, loss of appetite, reduce bacteria that cause leucorrhoea [12], reduce vaginal discharge and bad odor [13]. In addition, herbal medicine compared to conventional medicine shows that the ability of herbal medicine are same with ability of conventional medicine. In several studies also showed that herbal medicine was more effective in reducing complaints of leucorrhoea such as itching, odor, heat sensation, dyspareunia, reducing tissue culture, and reducing

vaginal discharge compared to conventional treatment [7,14–16]. Herbal medicine combined with conventional medicine also shows results that are more effective than conventional treatments only. Herbal medicine combined with conventional medicine can prevent recurrence and restore normal vaginal pH [18–20].

Based on the findings found in the studies above, it was found that the most common component in herbal medicine which have role in improving the condition of leucorrhea is the flavonoids of phenolic compounds derived from aromatic plants. 5 of 10 findings explain that the plants used in herbal medicine contain flavonoids as the main component that improves the condition of leucorrhea and has functions as an anti-inflammatory, antioxidant and anti-microorganism. As anti-inflammatory, flavonid can stimulate the release of prostaglandin hormones that affect pain and inflammatory responses. Whereas as an antimicrobial, flavonoid works by inhibiting RNA replication and microorganism DNA causing leukorrhea [21].

The Negative Impacts

2 of the 10 studies reviewed reported that herbal medicine had several side effects arising on the first day of using herbal medicine such as irritation, vomiting, and dry vagina [7,14]. In addition, one of the findings reported that herbal medicine had not been able to effectively restore vaginal pH to normal [13].

The side effects above must be considered and re-examined. Studies that have been reviewed mostly suggest that further studies be conducted on larger samples, longer time, examining the placebo effect and using a double-blind method.

Based on the explaining above, although some herbal medicine has some negative effects, the positive impact of herbal medicine in overcoming and treating leukorrhea and its ability to eliminate leucorrhea microorganism, makes herbal medicine have a prospect to be developed as a complementary therapy in the treatment of leucorrhea. Furthermore, WHO has even promoted herbal medicine and complementary therapy into the country's health care system and also has further proposed the organization and training of practitioners of traditional medicine for primary health care services to enable the utilization of traditional systems of medicine in individual countries, with appropriate regulations based on their national health systems [22,23].

In several countries such as East Asia and Southeast Asia, herbal medicine has also been applied and has special policies, such as Chinese Medicine, Thai Medicine in Thailand, and Jamu in Indonesia. However, the application of herbal medicine in the health care system also still has challenges such as security, efficacy and supervision that still need to be developed through clinical research. Therefore, this article is expected to provide an overview as a material for consideration of the application of herbal medicine policy as a complementary therapy in the future management of leucorrhea.

CONCLUSION

Leukorrhea is a common complaint that many women still had. The treatment of leucorrhea is still using antibiotics and antifungals, but the frequent use of antibiotics and antifungals can increase the incidence of resistance. So it is necessary to make an effort to control this, one of by using herbal medicine. The results showed that the treatment of leucorrhea with herbal medicine has good effectiveness in improving the condition of leucorrhea. Thus, herbal medicine has the prospect of being developed as complementary therapy in the treatment of leucorrhea.

CONFLICTS OF INTEREST

There is no conflict of interest

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