Isobe T, J Altern Complement Integr Med 2024, 10: 528
DOI: 10.24966/ACIM-7562/100528

HSOA Journal of
Alternative, Complementary & Integrative Medicine

Research Article

Comparison of the Effectiveness of Kampo Treatment for Dysmenorrhea Depending on the Presence or Absence of Endometriosis: A Retrospective Study Over 12 Years

Tetsuya Isobe*

International Oriental Medical Center, Kamishidami, Moriyama, Nagoya, Aichi, Japan

Abstract

In modern medicine, endometriosis is known to be one of the causes of dysmenorrhea, and in Oriental medicine "stasis of the blood" or a "cold-syndrome" is considered to be a cause of menstrual cramps. Patients with endometriosis are considered to have "stasis of the blood. Some patients with "stasis of the blood" may have distended sublingual veins, and endometriosis can often be detected with ultrasound. Kampo treatment of menstrual cramps in patients with "stasis of the blood" includes an agent to "activate blood circulation", and Kampo formulations with action "to regulate 'qi' and dissipate cold" are used to treat menstrual cramps in patients with a "cold-syndrome" by improving the flow of "qi" and blood and "warming" the uterus.

This study covered a period of 12 years from September 2012 to September 2024. Potential subjects were patients whose menstrual cramps failed to respond to analgesics and who were seen at this Center's Department of Kampo medicine Subjects were 318 patients who underwent a tongue examination and ultrasound and who then received Kampo treatment (205 with endometriosis, 111 without endometriosis).

The first formulation prescribed to patients with endometriosis according to ultrasound was Tokaku-joki-to if constipation was present and Keishi-bukuryo-gan if not. The second formulation prescribed was Toki-shakuyaku-san. The third formulation prescribed was Toki-kenchu-to. In contrast, the first formulation prescribed to patients without endometriosis was Toki-kenchu-to. The second formulation prescribed was Toki-shakuyaku-san. The third formulation prescribed was Tokaku-joki-to if constipation was present or Keishi-bukuryo-gan if not.

In patients with endometriosis, effective rate was 96.7% for Tokaku-joki-to > 90.0% for Toki-shakuyaku-san > 65.2% for Keishi-bukuryo-gan > 54.5% for Toki-kenchu-to. In patients without endometriosis, effective rate was 87.5% for Tokaku-joki-to > 81.7% for Toki-kenchu-to > 79.7% for Toki-shakuyaku-san > 55.3% for Keishi-bukuryo-gan.

Effectiveness were higher in the patients with endometriosis than these in the patients without endometriosis in Tokaku-joki-to, Toki-shakuyaku-san, and Keishi-bukuryo-gan. which eliminate blood stasis. Effectiveness was higher in the patients without endometriosis than these in the patients with endometriosis in Toki-kenchu-to which improve the flow of "qi" and blood and "warming" the uterus. Tokaku-joki-to which has strongest action to eliminate blood stasis had highest effective rate in both the patients with and without endometriosis. These results imply the existence of "latent stasis of the blood."

Keywords: Dysmenorrhea; Keishi-Bukuryo-Gan; Tokaku-Joki-To; Toki-Kenchu-To; Toki-Shakuyaku-San

Introduction

Menstrual cramps or dysmenorrhea [1] is a condition that afflicts many women. Currently, many patients are using the Low-Dose (LD) pill [2] or the Ultra-Low-Dose (ULD) pill [3] with even lower hormone levels. Many patients with withdrawal bleeding (artificial menstruation) caused by the LD pill or ULD pill have very mild menstrual cramps and reduced menstrual flow. And for women over the age of 40, fourth-generation oral progestin with low androgenic activity [4] or progesterone-releasing intravaginal devices [5] and GnRH antagonists [6] and GnRH agonists [7,8] are used to stop menstruation itself and reduce menstrual cramps as much as possible. That said, there are still many patients who dislike the adverse reactions to hormones and who prefer to be treated with Kampo formulations. In modern medicine, endometriosis [9] is known to be one of the causes of menstrual cramps, and in Oriental medicine "stasis of the blood" [10] or a "cold-syndrome" is considered to be a cause of menstrual cramps. Patients with endometriosis or a uterine myoma are considered to have "stasis of the blood." Some patients with "stasis of the blood" may have distended sublingual veins, and endometriosis can often be detected with ultrasound (and transvaginal ultrasound in particular). Ultrasound signs of endometriosis often include adenomyosis, in which endometriotic lesions form in the myometrium, causing the uterus to thicken and enlarge [11], and ovarian endometrioma (a "chocolate cyst") [12], in which old blood and endometrial tissue that detached during each menstrual period accumulate in the ovaries and take the consistency of melted chocolate. Another site that is the most prone to endometriotic lesions is the Douglas cavity (the pouch between the uterus and rectum). These lesions are evident as tenderness in the

***Corresponding author:** Tetsuya Isobe, International Oriental Medical Center, Kamishidami, Moriyama, Nagoya, Aichi, Japan, E-mail: iso12-7@blue.ocn.ne.jp

Citation: Isobe T (2024) Comparison of the Effectiveness of Kampo Treatment for Dysmenorrhea Depending on the Presence or Absence of Endometriosis: A Retrospective Study Over 12 Years. J Altern Complement Integr Med 10: 528.

Received: October 28, 2024; **Accepted:** November 05, 2024; **Published:** November 12, 2024

pouch of Douglas [13] evoked by the probe during an ultrasound or as tenderness in the posterior wall of the uterus during a rectal examination. Even if the uterus and ovaries are normal on ultrasound, tenderness often suggests the existence of endometriosis. The uterine muscles need to contract to achieve hemostasis during the shedding of the endometrium, but menstrual cramps can also occur when the uterine muscles contract too strongly during menstruation. More intense contractions as a result of a "cold" pelvic uterus are considered to be painful menstruation due to a "cold-syndrome" in Oriental medicine. A Kampo formulation referred to as an agent with the action "to activate blood circulation" has been used to "eliminate blood stasis" to treat painful menstruation caused by "stasis of the blood," and a Kampo formulation that "warms" the pelvic cavity has been used to relieve painful menstruation caused by a "cold-syndrome."

Subjects and Methods

This study covered a period of 12 years from September 2012 to September 2024. Potential subjects were patients whose menstrual cramps failed to respond to analgesics and who were seen at this Center's Department of Kampo Medicine or its Department of Acupuncture and Moxibustion. Subjects were 318 patients who underwent an ultrasound and who then received Kampo treatment (205 patients with endometriosis, average age: 30.4 years; 113 patients without endometriosis, average age: 36.9 years). Endometriosis was broken down into 37 patients with adenomyosis, 42 patients with an ovarian "chocolate" cyst, and 39 patients with tenderness in the Douglas cavity. Two patients with endometriosis also had a myoma in the myometrium. The Kampo formulations used in this study are all extracts. The formulations used as an agent to "eliminate blood stasis" [14] were Tokaku-joki-to [15], Keishi-bukuryo-gan [16,17], Toki-shakuyaku-san [18,19], and Tsudo-san. The formulations used to treat a "cold-syndrome" were Toki-kenchu-to [20] and Unkei-to [21]. In order of their potency at "eliminating blood stasis," the formulations were Tokaku-joki-to > Keishi-bukuryo-gan > Toki-shakuyaku-san. However, the main crude drug in Tokaku-joki-to is from peach pits [22]. It has potent action to "activate blood circulation" and also has laxative action, so it is essentially useless for patients who are not constipated.

During actual treatment, the presence or absence of endometriosis was first determined with transvaginal ultrasound, followed by a tongue examination and asking patients if they were constipated or not. Patients with endometriosis and intractable constipation were prescribed Tokaku-joki-to (from Tsumura) in a standard dose of 7.5 g a day (3 packets/day) for 1 week. Patients started with 2 packets a day, and whether they developed diarrhea was determined. If constipation was not readily alleviated, the dose was increased by 1 packet/day. If diarrhea developed with 2 packets a day, the dose was decreased by 1 packet a day. If diarrhea still developed, the formulation was discontinued (11 patients). In some patients, the dose was adjusted in increments of half of a packet, resulting in normal bowel movements at a dose of 1.5 g or 2.5 g a day. If patients were able to take the formulation for 1 week without developing diarrhea, then they were continuously prescribed a dose for over 1 month until the end of menstruation based on their menstrual cycle. Patients were asked about their satisfaction with the formulation's alleviation of menstrual cramps right after the end of next menstruation with taking a medication. Tokaku-joki-to also suppresses irritability before menstruation, so the patients were asked about reduced irritability before menstruation as well as reduced menstrual cramps. Patients who developed diarrhea after taking just 1 packet of Tokaku-joki-to a day or those who had no response for alleviating menstrual crump after taking Tokaku-joki-to for 1 month without developing diarrhea were switched to Keishi-bukuryo-gan. This formulation has no laxative action, so patients were prescribed 3 packets a day until the end of menstruation, and patients were asked about their satisfaction with it. If patients took Keishi-bukuryo-gan but it failed to sufficiently reduce menstrual cramps, they were prescribed 4 packets a day again. Tokaku-joki-to or Keishi-bukuryo-gan was selected as the first formulation prescribed for strongly eliminating blood stasis. If the first formulation prescribed was ineffective, that formulation was switched to Toki-kenchu-to. This formulation has no laxative action, so patients took the formulation for 1 month until the end of menstruation. If the formulation was similarly ineffective in treating menstrual cramps, then the formulation was switched to Toki-shakuyaku-san, which was the third formulation prescribed, and patients were asked about their satisfaction after the end of menstruation. In contrast, the first formulation prescribed to patients without endometriosis according to ultrasound was Toki-kenchu-to. The second formulation prescribed was Toki-shakuyaku-san. The third formulation prescribed was Tokaku-joki-to if patients had intractable constipation or Keishi-bukuryo-gan if patients did not have constipation. If the first to third formulations prescribed were all ineffective, Tsudo-san was prescribed at the standard dose if patients had constipation while Unkei-to was similarly prescribed in patients who did not have constipation regardless of the presence or absence of endometriosis.

A t-test was used to compare patient satisfaction in the group with endometriosis and the group without endometriosis by formulation using a t-test with a level of significance of 2.5%.

In this study, effectiveness of treatment was determined by asking patients about their level of satisfaction after taking the herbal formulation [21,22]. Patients whose level of satisfaction with an herbal formulation prescribed for the same symptoms was 60% or higher were deemed to be responders, and the percentage of responders was defined as the effective rate of the formulation. The rationale for this definition is that patients were randomly selected to ask about their level of satisfaction once they finished taking the formulation, and at the same time, they rated their distressing symptoms on a 6-point scale (① disappeared, ② mostly disappeared, ③ considerably alleviated, ④ alleviated, ⑤ slightly alleviated, and ⑥ signs of alleviation seemed to appear). The relationship between rated alleviation of symptoms and the level of satisfaction was examined, and results revealed a close correlation between alleviation of symptoms rated as ①-② and a level of satisfaction of 90-100%, alleviation of symptoms rated as ②-③ and a level of satisfaction of 80-90%, alleviation of symptoms rated as ③-④ and a level of satisfaction of 70-80%, alleviation of symptoms rated as ④-⑤ and a level of satisfaction of 60-70%, alleviation of symptoms rated as ⑤-⑥ and a level of satisfaction of 50-60%. The average level of satisfaction among responders was defined as the efficacy of the formulation.

Patient data were strictly managed at the facility with patients indicated by only their medical chart number so that individuals could not be identified. Verbal informed consent was obtained from the patients prior to conducting this study. This study began once it was approved by the ethical review board of this facility. There are no conflicts of interests in this study.

Results

The effectiveness and efficacy (=average satisfaction of responders) of Tokaku-joki-to, Toki-shakuyaku-san, Keishi-bukuryo-gan, and Toki-kenchu-to by whether patients had endometriosis or not are shown in table 1.

According to table 1, effective rate in patients with endometriosis was 96.7% for Tokaku-joki-to > 90.0% for Toki-shakuyaku-san > 65.2% for Keishi-bukuryo-gan > 54.5% for Toki-kenchu-to. Effective rate in patients without endometriosis was 87.5% for Tokaku-joki-to > 81.7% for Toki-kenchu-to> 79.7% for Toki-shakuyaku-san > 55.3% for Keishi-bukuryo-gan. In patients with endometriosis, efficacy was almost 76 for all 4 formulations, and differences depending on the formulation were not noted. In patients without endometriosis, efficacy was close to 75 for all 4 formulations, and differences depending on the formulation were not noted.

Nine patients failed to respond to the first to third formulations prescribed (6 with endometriosis, 3 without endometriosis). Tsudo-san was prescribed in the standard dose if patients had constipation, and Unkei-to was similarly prescribed if patients did not have constipation, regardless of the presence or absence of endometriosis. Of 6 patients with endometriosis, 2 of 3 responded to Tsudo-san and 2 of 3 responded to Unkei-to. Of 3 patients without endometriosis, 1 of 2 responded to Tsudo-san and 1 of 1 responded to Unkei-to.

The number of patients with endometriosis and their age and the number of patients without endometriosis and their age were noted in table 2. According to table 2, average age of the patients with endometriosis was higher by 6.5 age than one of the patients of no endometriosis finding.

		Tokaku-joki-to	Toki-shakuyaku-san	Keishi-bukuryo-gan	Toki-kenchu-to
endometriosis(+)	Effective rate	96.7%(29/30)	90.0%(18/20)	65.2%(43/66)	54.5%(24/44)
	Efficacy	76.2	76.7	76.3	75
	Mean No. of Package	1.8	4.1	3.8	3.6
no endometriosis	Effective rate	87.5%(21/24)	79.7%(59/74)	55.3%(26/47)	81.7%(103/126)
	Efficacy	75.2	74.8	74.2	75.2
	Mean No. of Package	1.9	3.7	3.5	3.7

Table 1: The effective rate and efficacy of 4 formulations classified by whether patients had endometriosis or not and the average number of packets of each extract required for treatment.

Discussion

The effective rate of Tokaku-joki-to was 96.7% in patients with endometriosis vs. 87.5% in those without endometriosis, the effective rate of Keishi-bukuryo-gan was 65.2% in patients with endometriosis vs. 55.3% in those without endometriosis, the effective rate of Toki-shakuyaku-san was 90.0% in patients with endometriosis vs. 79.7% in those without endometriosis, and the effective rate of Toki-kenchu-to was 54.5% in patients with endometriosis vs.81.7% in those without endometriosis. Tokaku-joki-to, Keishi-bukuryo-gan, and Toki-shakuyaku-san had greater effective rate in patients with endometriosis, and only Toki-kenchu-to had greater effective rate in patients without endometriosis. When a t-test was performed on the group with endometriosis and the group without endometriosis, Tokaku-joki-to, Keishi-bukuryo-gan, and Toki-shakuyakusan had greater effective rate, especially only Tokaku-joki-to had significantly greater effective rate (P=0.082) among the 3 formulations which eliminate blood stasis. This may be because endometriosis is a condition involving "stasis of the blood" in Oriental medicine, and therefore the first 3 formulations may have had greater effective rate as agents to "eliminate blood stasis." The ranked effectiveness of the first 3 formulations coincides with their ranked potency at "eliminating blood stasis." In contrast, Toki-kenchu-to had significantly greater effective rate (P=0.0011) in the group without endometriosis. Toki-kenchu-to has action to "warm" and circulate "qi" and blood, so it was effective against menstrual cramps caused by a "cold-syndrome." A look at the efficacy by formulation revealed a trend similar to that for the effective rate of the 4 formulations, in the order of whether patients had endometriosis or not.

	Numbers of patients	Average age	10s	20s	30s	40s	50s	60s
Patients with endometriosis	113	36.9±7.9	1	21	38	50	3	0
Patients with no endometriosis finding	205	30.4±10.6	45	50	63	39	8	0

Table 2: The number of patients with endometriosis and their average age and the number of patients without endometriosis and their average age.

The number of packets of each Kampo formulation extract that was required to achieve satisfactory effectiveness was, when rounded off, 4 packets a day for the 3 formulations other than Tokaku-joki-to and 2 packets a day for Tokaku-joki-to. Tokaku-joki-to has potent laxative action, so few packets can be taken without leading to diarrhea. Nonetheless, it was best at alleviating dysmenorrhea compared to the other formulations. Moreover, Tokaku-joki-to also has action to reduce irritability before menstruation. For patients with intractable constipation who do not develop diarrhea with Tokaku-joki-to, this formulation simultaneously alleviates constipation, menstrual cramps due to endometriosis, and irritability before menstruation while also reducing the burden of taking the formulation.

Distended sublingual veins are a sign suggesting "stasis of the blood" in Oriental medicine. The incidence of distended sublingual veins was 7.96% (9/113) in patients with endometriosis and 4.47% (8/205) in patients without endometriosis. The most effective formulation was Tokaku-joki-to, which has a potent action "to activate blood circulation," regardless of whether patients had endometriosis or not. This suggests that patients with no signs of endometriosis according to ultrasound and patients with no signs of "stasis of the blood" according to a tongue examination are more likely to have "latent stasis of the blood."

According to classification by years of table 2, most common years in patients with endometriosis were 30s and 40s, most common years in patients without endometriosis were 10s, 20s, 30s. These results imply that the most popular cause of dysmenorrhea can be endometriosis (blood stasis) in middle-aged generation, can be cold-syndrome in younger generation.

Conclusion

In patients with endometriosis, the effective rate of Kampo treatment of dysmenorrhea was 96.7% for Tokaku-joki-to > 90.0% for Toki-shakuyaku-san > 65.2% for Keishi-bukuryo-gan > 54.5% for Toki-kenchu-to. Efficacy (＝average satisfaction of responders) was almost 76 for all 4 formulations. Thus, the order of precedence for Kampo formulations should be Tokaku-joki-to or Toki-shakuyaku-san (Tokaku-joki-to if constipated, Toki-shakuyaku-san if not) as the first formulation prescribed, Keishi-bukuryo-gan as the second formulation prescribed, and Toki-kenchu-to as the third formulation prescribed.

In patients without endometriosis, the effective rate of Kampo treatment of dysmenorrhea was 87.5% for Tokaku-joki-to > 81.7% for Toki-kenchu-to > 79.7% for Toki-shakuyaku-san > 55.3% for Keishi-bukuryo-gan. Efficacy (＝average satisfaction of responders) was almost 75 for all 4 formulations. Thus, the order of precedence for Kampo formulations should be Tokaku-joki-to or Toki-kenchu-to (Tokaku-joki-to if constipated, Toki-kenchu-to if not) as the first formulation prescribed, Toki-shakuyaku-san as the second formulation prescribed, and Keishi-bukuryo-gan as the third formulation prescribed.

Both effective rate and efficacy were higher in the patients with endometriosis than these in the patients without endometriosis in Tokaku-joki-to, Toki-shakuyaku-san, and Keishi-bukuryo-gan. which eliminate blood stasis. Both effective rate and efficacy were higher in the patients without endometriosis than these in the patients with endometriosis in Toki-kenchu-to which improve the flow of “qi” and blood and “warming” the uterus.

Tokaku-joki-to which has strongest action to eliminate blood stasis had highest effective rate in both the patients with and without endometriosis. This result implies the existence of “latent stasis of the blood.”

The results of current study differed from the order in which the formulations were prescribed over 12 years.

References

1. Kazama M, Maruyama K, Nakamura K (2015) Prevalence of Dysmenorrhea and Its Correlating Lifestyle Factors in Japanese Female Junior High Sckool Students. Tohoku J Exp Med 236: 107-113.
2. Iwata M, Oikawa Y, Shimizu Y, Sakashita N, Shoji A, et al. (2022) Efficacy of Low-Dose Estrogen-Progestins and Progestins in Japanese Women with Dysmenorrhea: A Systematic Review and Network Meta-analysis. Adv Ther 39: 4892-4909.
3. Harada T, Momoeda M (2016) Evaluation of an ultra-low-dose oral contraceptive for dysmenorrhea: a placebo-controlled, double-blind, randomized trial. Fertility and Sterility 106: 1807-1814.
4. Torre FL, Vannuccini S, Toscano F, Gallucci E, Orlandi G, et al. (2024) Long-term treatment for endometriosis with dienogest: efficacy, side effects and tolerability. Taylor & Francis Online 40: 2336121.
5. Creinin MD, Schreiber CA, Turok DK, Cwiak C, Chen BA, et al. (2022) Levonorgestrel 52mg intrauterine system efficacy and safety through 8 years of use. GYNECOLOGY 227: 871 -871.
6. Whitaker LHR, Saraswat L, Horne AW (2022) Combination GnRH antagonists for endometriosis: Balancing efficacy with side effects. Cell Reports Medicine 3: 100748.
7. Kobanawa M (2024) Evaluating the Impact of Long-Term GnRH Agonist Therapy on Pregnancy Outcomes in Endometriosis-Associated Implantation Failure and Pregnancy Loss. Journal of IVF-Worldwide 2: 29-36.
8. Alessandro GD, Barra F, Ferrero S (2020) Use of GnRH analogue in the endometriosis recurrence after surgery. GYNECOLOGY AND PELVIC MEDICINE 3: 1-9.
9. Harada T (2013) Dysmenorrhea and Endmetriosis in Young Women. Yonago Acta medica 56: 81-84.
10. Li XL, Jin Y, Gao R, Zhou QX, Huang F, et al. (2024) Wenjing decoction: Mechanism in the treatment of dysmenorrhea with blood stasis syndrome through network pharmacology and experimental verification. J Ethnopharmacology 337: 118818.
11. Li Q, Huang J, Zhang XY, Feng WW, Hua KQ (2021). Dysmenorrhea in patients with adenomyosis: A clinical and demographic study. Journal of Gynecology Obstetrics and Human Reproduction 50: 101761.
12. Khan KN, Kitajima M, Fujishita A, Hiraki K, Matsumoto A, et al. (2013) Pelvic pain in women with ovarian endometrioma is mostly associated with coexisting peritoneal lesions. Human Reproduction 28: 109-118.
13. Liu X, Guo SW (2008) Dysmenorrhea: risk factors in women with endometriosis. Women’s Health 4: 399-411.
14. Lu Y, Hu YL, Kong XF, Wang DY (2008) Selection of component drug in activating blood flow and removing blood stasis of Chinese herbal medicinal formula for dairy cow mastitis by hemorheological method. Journal of Ethnopharmacology 116: 313-317.
15. Isobe T (2023) Effectiveness of Kampo Extract Formulations in Traditional Japanese Herbal Medicine. J Altern Complement Integr Med 9: 369.
16. Tanaka T (2003) A novel anti-dysmenorrhea therapy with cyclic administration of two Japanese herbal medicines. Clin Exp Obst & Gyn 2: 95-98.
17. Maeda-Minami A, Kawamoto A, Yoshino T, Yokoyama Y, Suzuki S, et al. (2023). Patient prognosis and prediction model for taking Kampo formulas in dysmenorrhea: An observational study. Medicine 102: 36191.
18. Yoshino T, Katayama K, Horiba Y, Munakata K, Yamaguchi R, et al. (2016) The Difference between the Two Representative Kampo Formulas for Treating Dysmenorrhea: An Observational Study. Evid Based Complement Alternat Med 2016: 3159617.
19. Kogure T (2011) Recent Clinical Applications of Kampo Medicine in Amenorrhea. Amenorrhea InTechOpen 2011: 127-138.
20. Liao Z, Lei Y, Peng L, Fu X, Wang W, et al. (2023) Network pharmacology prediction and experimental verification of Rhubarb-Peach Kernal promoting apoptosis in endometriosis. BMC Complement Med Ther 23: 291.
21. Revicki DA (2004) Patient assessment of treatment satisfaction: methods and practical issues. Gut 53: 40-44.
22. Desta H, Berhe T, Hintsa S (2018) Assessment of patients’ satisfaction and associated factors among outpatients received mental health services at public hospitals of Mekelle Town, northern Ethiopia. Int J Ment Health Syst 12: 38.

HERALD

Advances In Industrial Biotechnology | ISSN: 2639-5665

Advances In Microbiology Research | ISSN: 2689-694X

Archives Of Surgery And Surgical Education | ISSN: 2689-3126

Archives Of Urology

Archives Of Zoological Studies | ISSN: 2640-7779

Current Trends Medical And Biological Engineering

International Journal Of Case Reports And Therapeutic Studies | ISSN: 2689-310X

Journal Of Addiction & Addictive Disorders | ISSN: 2578-7276

Journal Of Agronomy & Agricultural Science | ISSN: 2689-8292

Journal Of AIDS Clinical Research & STDs | ISSN: 2572-7370

Journal Of Alcoholism Drug Abuse & Substance Dependence | ISSN: 2572-9594

Journal Of Allergy Disorders & Therapy | ISSN: 2470-749X

Journal Of Alternative Complementary & Integrative Medicine | ISSN: 2470-7562

Journal Of Alzheimers & Neurodegenerative Diseases | ISSN: 2572-9608

Journal Of Anesthesia & Clinical Care | ISSN: 2378-8879

Journal Of Angiology & Vascular Surgery | ISSN: 2572-7397

Journal Of Animal Research & Veterinary Science | ISSN: 2639-3751

Journal Of Aquaculture & Fisheries | ISSN: 2576-5523

Journal Of Atmospheric & Earth Sciences | ISSN: 2689-8780

Journal Of Biotech Research & Biochemistry

Journal Of Brain & Neuroscience Research

Journal Of Cancer Biology & Treatment | ISSN: 2470-7546

Journal Of Cardiology Study & Research | ISSN: 2640-768X

Journal Of Cell Biology & Cell Metabolism | ISSN: 2381-1943

Journal Of Clinical Dermatology & Therapy | ISSN: 2378-8771

Journal Of Clinical Immunology & Immunotherapy | ISSN: 2378-8844

Journal Of Clinical Studies & Medical Case Reports | ISSN: 2378-8801

Journal Of Community Medicine & Public Health Care | ISSN: 2381-1978

Journal Of Cytology & Tissue Biology | ISSN: 2378-9107

Journal Of Dairy Research & Technology | ISSN: 2688-9315

Journal Of Dentistry Oral Health & Cosmesis | ISSN: 2473-6783

Journal Of Diabetes & Metabolic Disorders | ISSN: 2381-201X

Journal Of Emergency Medicine Trauma & Surgical Care | ISSN: 2378-8798

Journal Of Environmental Science Current Research | ISSN: 2643-5020

Journal Of Food Science & Nutrition | ISSN: 2470-1076

Journal Of Forensic Legal & Investigative Sciences | ISSN: 2473-733X

Journal Of Gastroenterology & Hepatology Research | ISSN: 2574-2566

Journal Of Genetics & Genomic Sciences | ISSN: 2574-2485

Journal Of Gerontology & Geriatric Medicine | ISSN: 2381-8662

Journal Of Hematology Blood Transfusion & Disorders | ISSN: 2572-2999

Journal Of Hospice & Palliative Medical Care

Journal Of Human Endocrinology | ISSN: 2572-9640

Journal Of Infectious & Non Infectious Diseases | ISSN: 2381-8654

Journal Of Internal Medicine & Primary Healthcare | ISSN: 2574-2493

Journal Of Light & Laser Current Trends

Journal Of Medicine Study & Research | ISSN: 2639-5657

Journal Of Modern Chemical Sciences

Journal Of Nanotechnology Nanomedicine & Nanobiotechnology | ISSN: 2381-2044

Journal Of Neonatology & Clinical Pediatrics | ISSN: 2378-878X

Journal Of Nephrology & Renal Therapy | ISSN: 2473-7313

Journal Of Non Invasive Vascular Investigation | ISSN: 2572-7400

Journal Of Nuclear Medicine Radiology & Radiation Therapy | ISSN: 2572-7419

Journal Of Obesity & Weight Loss | ISSN: 2473-7372

Journal Of Ophthalmology & Clinical Research | ISSN: 2378-8887

Journal Of Orthopedic Research & Physiotherapy | ISSN: 2381-2052

Journal Of Otolaryngology Head & Neck Surgery | ISSN: 2573-010X

Journal Of Pathology Clinical & Medical Research

Journal Of Pharmacology Pharmaceutics & Pharmacovigilance | ISSN: 2639-5649

Journal Of Physical Medicine Rehabilitation & Disabilities | ISSN: 2381-8670

Journal Of Plant Science Current Research | ISSN: 2639-3743

Journal Of Practical & Professional Nursing | ISSN: 2639-5681

Journal Of Protein Research & Bioinformatics

Journal Of Psychiatry Depression & Anxiety | ISSN: 2573-0150

Journal Of Pulmonary Medicine & Respiratory Research | ISSN: 2573-0177

Journal Of Reproductive Medicine Gynaecology & Obstetrics | ISSN: 2574-2574

Journal Of Stem Cells Research Development & Therapy | ISSN: 2381-2060

Journal Of Surgery Current Trends & Innovations | ISSN: 2578-7284

Journal Of Toxicology Current Research | ISSN: 2639-3735

Journal Of Translational Science And Research

Journal Of Vaccines Research & Vaccination | ISSN: 2573-0193

Journal Of Virology & Antivirals

Sports Medicine And Injury Care Journal | ISSN: 2689-8829

Trends In Anatomy & Physiology | ISSN: 2640-7752