http://www.pjbs.org

PJBS

ISSN 1028-8880

Pakistan Journal of Biological Sciences

ANSInet
Asian Network for Scientific Information
308 Lasani Town, Sargodha Road, Faisalabad - Pakistan

Pakistan Journal of Biological Sciences 16 (17): 891-894, 2013
ISSN 1028-8880 / DOI: 10.3923/pjbs.2013.891.894

Efficacy of *Eremostachys laciniata* Herbal Extract on Mitigation of Pain after Hysterectomy Surgery

[1]Parvin Mostafa Gharabagy, [1]Poone Zamany, [2]Abbas Delazar,
[3]Morteza Ghojazadeh and [4]Mohamad Goldust
[1]Department of Gynecology, [2]Department of Pharmacology,
[3]Department of Physiology, Tabriz University of Medical Sciences, Tabriz, Iran
[4]Student Research Committee, Tabriz University of Medical Sciences, Tabriz, Iran

Abstract: Pain is the most common complaint in all kinds of diseases. Considering side effects of chemical medicines as well as unnecessary continuation of pain after surgery, the present study aimed at evaluating anti-pain effect of Chelledaghi herbal extract on mitigation of pain after hysterectomy surgery. This study was conducted on 90 randomly selected patients. The subjects were divided into three groups each of them consisting of 30 cases. One group was regarded as control and two other groups as case groups. The group A (control group) received the placebo from 24 h before surgery to 24 h after surgery. The group B (case I) received placebo 24 h before surgery and medicine containing Chelledaghi herbal extract for 24 h after surgery. The group C (case II) received medicine containing Chelledaghi herbal extract which was prepared as a suppository from 24 before to 24 h after surgery for every 12 h. Then, pain severity based on VAS within different time intervals after surgery. Mitigation rate of pain after surgery, need to use sedatives, low dosage of the consumed anti-pain medicine and pain severity after surgery were all better in the groups B and C in comparison with the placebo group. Rate of complications after surgery was the same for all three groups and there was not any statistically meaningful difference in this regard. Chelledaghi herbal extract can be effectively used to mitigate pain after surgery in the selected patients without any significant side effects.

Key words: Chelledaghi herbal extract, *Eremostachys laciniata*, selective hysterectomy, mitigation

INTRODUCTION

Pain is the most common complaint in all kinds of diseases. Although each pain has a different nature, location and cause, it is regarded as the main complaint of about 50% of the patients referring to physicians (Grube *et al*., 2009; Lee *et al*., 2011). The studies have demonstrated that 30-40% of the patients suffer from moderate to severe pains after surgery (Hariharan *et al*., 2009; Levandovski *et al*., 2008). Feeling of distress or pain associated with sensitivity of neural ends results from a personal or concrete multifactor phenomenon being affected by physiologic cultural, mental and social factors (Hussain *et al*., 2008; Paraiso *et al*., 2011). Traditionally, several actions have been taken to mitigate, control or completely heal the pain. Current treatment strategies used to control pain before and after surgery are mainly based on treatment, opiate anti-pain medicines and non-steroid anti-inflammation drugs (NSAIDs) (Ajori *et al*., 2012). Theoretical advantages of NSAIDs in comparison with the opiates include lack of respiratory depression, impossibility of drug abuse, less sedative effects, low rate of nausea, quick return of intestine function and quicker recovery period (Imagawa *et al*., 2011). Increase of renal dysfunction risk, digestive side effects, sensitivity increase reactions and digestive hemorrhage can be introduced as potential side effects of NSAIDs (Fleming *et al*., 2011). Considering complications of the commonly effects to be replaced by the chemical medicines (Tuncer *et al*., 2010). Researches conducted in some regions of Iran demonstrated that it is for a long time that roots of an herb known as Chelledaghi are traditionally used as a poultice (mixed with sheep fat) to treat and heal rheumatic pains, smooth muscles of the area where an object has penetrated, remove the object, reduce the displaced bones, smooth and mitigate the heel apophysis (Akhaddar *et al*., 2009). The herb is of spearmint family with the scientific name of *Eremostachys laciniata* which is known as Sonbol Biabani Parebarg in Persian. Chelledaghi is a plant with thick roots and white and light purple flowers. It is native plant of Iran and other middle east countries, East and west Asian countries and

Corresponding Author: Mohamad Goldust, Student Research Committee, Tabriz University of Medical Sciences, Tabriz, Iran
Tel: 00989111289630 Fax: 00984113368805

Caucasia (Eftekharsadat *et al*., 2011). The roots and flowers of the plant are orally used to treat allergy, headache and liver disease. Therefore, an herbal natural material can be used to mitigate pain without any side effects. Although a satisfactory analgesia can be obtained using common anti-pain drugs, sometimes the patients' pain unnecessarily lasts for a period after surgery (Modaressi *et al*., 2009). Therefore, Chelledaghi can be used to mitigate patients' pain without any side effects mentioned about opiates or NSAIDs. The studies suggested that healing the pain after surgery using anti-pain medicines before surgical incision may prevent from neuronal hyperalgesia in the spinal cord (Wodlin *et al*., 2011). The method which is known as "painless has been provided" is based on using antagonist medicines of N-methyl-d-aspartate receptor including NSAID (Kroll *et al*., 2011). The present study aimed at evaluating anti-pain effects of Chelledaghi herbal extract in mitigating pain after selective hysterectomy surgery. The study compared its anti-pain effect prescribed before surgery and placebo in the operated patients.

MATERIALS AND METHODS

This double-blinded/placebo clinical trial conducted on 90 patients underwent selective hysterectomy surgery at Tabriz, Alzahra Hospital from April 2011 to April 2012 (for 12 months). Written consent was obtained from all the patients. This study was approved by ethic committee of Tabriz university of medical sciences. The patients were divided into three groups. The understudy patients were hospitalized during the study and the sampling was conducted randomly from those cases qualified to enter the study. The inclusion criteria were women older than 35 years underwent selective hysterectomy surgery for different reasons other than gynecologic cancer. The mentioned subjects should not suffer any background disease or allergy to any special medicine. Suffering from any background disease, history of mental disorder, consumption of special medicines including ecstasies were regarded as exclusion criteria. The patients were studied in three groups each of them consisting of 30 patients. One of the groups was the control group receiving placebo and the other two groups (case groups) received Chelledaghi. Every suppository contained 35 mg of Chelledaghi herbal extract. The placebo suppositories contained starch and cacao butter. The effective dosage of Chelledaghi includes 1mg for every kilogram of body weight per day. It was used as suppositories containing 35 mg of the herbal extract in the present study. Surgical section researcher provided necessary information about pain severity after surgery as well as pain score varying from complete painless to sever pain (0-10 score) using Visual Analogue Scale (VAS). The group B received placebo 24 h before surgery and suppository containing Chelledaghi herbal extract for 24 h after surgery repeated every other 12 h. The group C received suppository containing Chelledaghi herbal extract for 24 h before and after surgery repeated every other 12 h. The group A received placebo in the form of suppository from 24 h before to 24 h after surgery. All suppositories were apparently identical and the researcher and patients were not aware of kind of the prescribed medicine during the study. Pain severity was evaluated as follow: (a) During recovery; (b) One hour after entering the ward; (c) Two hours after entering the ward; (d) Three hours after entering the ward; (e) Four hours after entering the ward and (f) 8, 16 and 24 h after entering the ward. If the patients complained from the pain during different times of study, they received the required medicine considering pain severity. If the patients suffered from ≥7 pain (according to the patient comments), they received muscular tramadol (100 mg). If the pain severity was determined as 4 <pain< 7, the patients received diclofenac suppositories and if 4 ≥pain>0, no medicine was prescribed. The studied parameters included age, educational level, occupation, residence, number of previous pregnancies, history of previous surgery, duration of surgery, consumption of any medicine, reason of current hysterectomy and pain severity score at different time interval after surgery- recovery, 1, 2, 3, 4, 8, 16, 24 h after entering the ward. If the patients complained pain after entering the ward, the pain severity was registered and the patients received appropriate medicine. Type of the medicine used at each of the mentioned time intervals, total dosage of the consumed medicines, times of medicine prescription and appearing of postoperative complications such as nausea, vomit, drowsiness, fever, restless, headache and etc were studied. The data were statistically analyzed using SPSS-16 software and descriptive statistical methods (frequency, percentage and mean ±standard deviation) including mean difference test for independent groups (one-way ANOVA), Chi-square test, Fischer's exact test, Mann Whitney test and repeated measurement plan. In this study, $p \leq 0.05$ was regarded meaningful.

RESULTS

Mean age of the patients was 47.47±60.6, 45.40±5.72 and 49.13±7.56 years in the groups B, C and A, respectively. Evaluating results of mean difference test for independent groups demonstrated that the difference is

Table 1: Demographic data of study population

Parameters	A	B	C	P
Age	49.13±7.56	47.47±6.06	45.40±5.72	0.08
Previous surgery	73.3%	63.3%	83.3%	0.21
Etiology of hysterectomy			0.23	
Myoma	23.3%	64.3%	43.3%	
Unusual	66.7%	36.7%	56.7%	
Post surgery complication				0.81
Nausea	12(40%)	13(43.3%)	10(33.3%)	
Headache	9(30%)	7(26.7%)	7(23.3%)	
Sleepiness	8(26.7%)	8(26.7%)	6(20%)	

not statistically meaningful (p = 0.08). Demographic data has been demonstrated in Table 1. There was not any complication during surgery in none of the control and case groups. The results show that pain difference in the groups A, B and C after 2, 3, 4, 16 and 24 h of surgery was statistically meaningful (p<0.001). The difference was not statistically meaningful at recovery ward (p = 0.34), one (p = 0.34) and 8 (p = 0.35) hours after surgery. In the case groups, none of the patients received anti-pain medicine while peptidine ampoule (50 mg) was injected to one of the patients of the control group. In the group A (control group), 30 patients received tramadol and 30 ones received diclofenac suppository within 1 h after entering the ward. In the group B, 30 patients received tramadol and 10 ones received diclofenac. In the group C, 30 patients received tramadol and 10 ones received diclofenac. The medicine was prescribed based on pain severity score. Results of Chi-square test demonstrated that the difference is statistically meaningful (p<0.001). In the group A (control group), 30 patients received tramadol and 30 ones received diclophenac suppository. In the group B, 30 patients received tramadol and none of the patients received diclophenac. In the group C, the results were the same as the group C. Evaluating results of Chi-square test demonstrated that the difference is statistically meaningful considering consumption of diclophenac (p<0.001). Diclophenac suppository was used in 20 patients of the group A (control group) while no medicine was used in the groups B and C. Evaluating results of Chi-square test showed that the difference is statistically meaningful (p<0.001). It should be mentioned that none of the patients received any medicine 2, 3 and 4 h after surgery. In all three groups, tramadol ampoule (100 mg) was prescribed to be muscularly injected every eight hours and can be repeated to two dosages. In the group B, 13 (43.3%) patients complained about nausea, 7 (23.3%) from headache and 8 (26.7%) from drowsiness. It was as 10 (33.3%) cases of nausea, 7 (23.3%) of headache and 6 (20%) of drowsiness in the group C. In the group A, nausea, headache and drowsiness were observed in 12 (40%), 9 (30%) and 8 (26.7%) of the patients, respectively. Evaluating results of Chi-square test demonstrated that the difference is not statistically meaningful considering consumption of diclophenac (p = 0.81). Mean hospitalization duration was 2 days for all three groups. Evaluating results of Chi-square test demonstrated that the difference is not statistically meaningful considering consumption of diclophenac (p = 0.81).

DISCUSSION

Laciniata has traditionally been taken orally for the treatment of allergies, headache and liver diseases. Three antibacterial iridoid glucosides, phloyoside I , phlomiol and pulchelloside I have been isolated from the rhizomes of this plant (Modaressi *et al*., 2009). This study considered effects of preoperative using of Chelledaghi herbal extract in pain mitigation after selective hysterectomies. Pain mitigation rate in the group C (the group receiving Chelledaghi herbal extract from 24 h before to 24 h after surgery) and group B was better than the control group at different time intervals. Postoperative painless duration, pain severity at different time intervals, total dosage of the consumed anti-pain medicines and times of medicine prescription were better in the group receiving Chelledaghi herbal extract. There was not any complication resulting from Chelledaghi herbal extract. In a previous study, Chelledaghi herbal extract introduced as a good substance in the control of the pain (Shadkami-Tili, 2012). In a previous study, authors stated the efficacy of *Eremostachys laciniata* oil in the improvement of the pain (Navaei and Mirza, 2006). In a previous study, authors evaluated all effects of this herbal medical product considering traditional medicine and its repeated consumption for several years. The evaluated parameters of the mentioned study included antioxidant activity, anti-inflammatory activity and antimicrobial effects. Each of these cases was well regarded as positive treatment effects (Modaressi *et al*., 2009). In researchers study, potential and several treatment effects of Eremostachys were evaluated and it was concluded that the product has moderate anti-pain and anti-inflammatory effects. During consumption of the medicine, pain and need to anti-pains were significantly decreased and physical function was considerably improved (Khan *et al*., 2010). In this study, less need to sedatives was also observed. In a previous research, researcher studied anti-pain effects of herbal solid phase extract of Chelledaghi and reported good effect in the management of the pain (Nisar *et al*., 2011). In a previous study, authors stated the antioxidant effect of *Lamiaceae* extracts (Erdemoglu *et al*., 2006). In a clinical trial study, authors demonstrated the effects of Chelledaghi herbal extract on mitigation of mild to moderate pain of tunnel carpal syndrome in comparison with the placebo. In this study conducted on 80 patients suffering from tunnel carpal syndrome, effects of herbal powder which was used topically in these patients were observed as

significant pain mitigation as well as reduction of mean duration of symptoms in the medicine-receiving group (Eftekharsadat *et al*., 2011).

CONCLUSION

Postoperative pain mitigation rate in the patients receiving Chelledaghi herbal extract before and after surgery was higher than the placebo group. Evaluating pain severity at different time intervals after surgery demonstrated that it was less in the group receiving Chelledaghi herbal extract in comparison with the placebo one. Total dosage of the prescribed sedatives was also less.

REFERENCES

Ajori, L., L. Nazari, M.M. Mazloomfard and Z. Amiri, 2012. Effects of gabapentin on postoperative pain, nausea and vomiting after abdominal hysterectomy: A double blind randomized clinical trial. Arch. Gynecol. Obstet., 285: 677-682.

Akhaddar, A., M. Mahi, M. Elouennass, R. Niamane, B. Elmoustarchid and M. Boucetta, 2009. Chronic pelvic pain reveals sacral osteomyelitis three years after abdominal hysterectomy. Surg. Infect. (Larchmt), 10: 549-551.

Eftekharsadat, B., S.K. Shakouri, M. Shimia, M. Rahbar, M. Ghojazadeh, M.R. Rashidi and M.H. Faraji, 2011. Effect of *E. laciniata* (L.) ointment on mild and moderate carpal tunnel syndrome: A double-blind, randomized clinical trial. Phytother. Res., 25: 290-295.

Erdemoglu, N., N.N. Turan, I. Cakici, B. Sener and A. Aydon, 2006. Antioxidant activities of some Lamiaceae plant extracts. Phytother. Res., 20: 9-13.

Fleming, N.D., L.J. Havrilesky, F.A. Valea, T.K. Allen, G. Broadwater, A. Bland and A.S. Habib, 2011. Analgesic and antiemetic needs following minimally invasive vs open staging for endometrial cancer. Am J. Obstet. Gynecol., 204: 65-66.

Grube, T., C. Uhlemann, T. Weiss and W. Meissner, 2009. Influence of acupuncture on postoperative pain, nausea and vomiting after visceral surgery: A prospective, randomized comparative study of metamizole and standard treatment. Schmerz, 23: 370-376.

Hariharan, S., H. Moseley, A. Kumar and S. Raju, 2009. The effect of preemptive analgesia in postoperative pain relief--a prospective double-blind randomized study. Pain Med., 10: 49-53.

Hussain, A.M., F.A. Khan and L. Sheikh, 2008. Effect of diclofenac suppository on tramadol consumption in posthysterectomy pain. J. Coll. Physicians. Surg. Pak., 18: 533-537.

Imagawa, V.H., D.T. Fantoni, A.C. Tatarunas, S. Mastrocinque, T.F. Almeida, F. Ferreira and I.P. Posso, 2011. The use of different doses metamizol for post operative analgesia in dogs. Vet. Anesthesia Analgesia, 38: 385-393.

Khan, S., M. Nisar, W. Rehman, R. Khan and F. Nasir, 2010. Anti-inflammatory study on crude methanol extract and different fractions of *Eremostachys laciniata*. Pharm. Biol., 48: 1115-1118.

Kroll,. P.B., L. Meadows, A. Rock and L. Pavliv, 2011. A multicenter, randomized, double-blind, placebo-controlled trial of intravenous ibuprofen (i.v.-ibuprofen) in the management of postoperative pain following abdominal hysterectomy. Pain Pract., 11: 23-32.

Lee, J.W., H.J. Park, J. Choi, S.J. Park, H. Kang and E.G. Kim, 2011. Comparison of ramosetron's and ondansetron's preventive anti-emetic effects in highly susceptible patients undergoing abdominal hysterectomy. Korean J. Anesthesiol., 61: 488-492.

Levandovski, R., M.B. Ferreira, M.P. Hidalgo, C.A. Konrath, D.L. da Silva and W. Caumo, 2008. Impact of preoperative anxiolytic on surgical site infection in patients undergoing abdominal hysterectomy. Am J. Infect. Control, 36: 718-726.

Modaressi, M., A. Delazar, H. Nazemiyeh, F. Fathi-Azad and E. Smith *et al*., 2009. Antibacterial iridoid glucosides from *Eremostachys laciniata*. Phytother. Res., 23: 99-103.

Navaei, M.N. and M. Mirza, 2006. Chemical composition of the oil of *Eremostachys laciniata* (L.) Bunge from Iran. Flouver an Fragrance J., 21: 645-646.

Nisar, M., S. Khan, A. Dar, W. Rehman, R. Khan and I. Jan, 2011. Antidepressant screening and flavonoids isolation from *Eremostachys laciniata* (L.) Bunge. Afr. J. Biotechnol., 10: 1696-1699.

Paraiso, M.F., J.E. Jelovsek, A. Frick, C.C. Chen and M.D. Barber, 2011. Laparoscopic compared with robotic sacrocolpopexy for vaginal prolapse: A randomized controlled trial. Obstet. Gynecol., 118: 1005-1013.

Shadkami-Tili, H., 2012. Under-over ground biomass characteristic of perennial species (*Eremostachys laciniata*) in northwest Iran (Till area of shabestar). Int. J. Forest, Soil Erosion, 2: 150-154.

Tuncer, S., R. Reisli, M. Kececioglu and A. Erol, 2010. The effects of intravenous dexketoprofen on postoperative analgesia and morphine consumption in patients undergoing abdominal hysterectomy. Agri, 22: 98-102.

Wodlin, N.B., L. Nilsson and P. Kjolhede, 2011. The impact of mode of anaesthesia on postoperative recovery from fast-track abdominal hysterectomy: A randomised clinical trial. BJOG, 118: 299-308.