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Pain management after Ferguson Hemoroidectomy: A multiple comparison of pain management alternatives

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Running Title: Pain management after Ferguson Hemoroidectomy

Dear Editor,

Pain management after Ferguson Hemoroidectomy is an important stage of surgical process. However, there have not been sufficient sources on outputs of past experiments which will be source for further applications. I wish to submit the manuscript to the journal for consideration.

There is no conflict of interest, and all authors have read and approved of the manuscript being submitted.

Pain management after Ferguson Hemoroidectomy: A multiple comparison of pain management alternatives

Abstract

Objectives: In this retrospective cross-sectional study, it was aimed to evaluate pain management after Ferguson Hemoroidectomy.

Design&Setting: 151 patients who underwent Ferguson Hemorrhoidectomy between June 2017 and July 2019 were retrospectively included in the study. Postop, 1st day and 1st week Visual Analog Scale (VAS) and follow up durations based on different pain management groups were compared.

Results: VAS level was highest in both groups on 1st day and 1st week in the group administered 150 mg pethidine (sc), and the difference was statistically significant ($p<0.05$). In the group treated with 200 mg tremadol (iv) + 150 mg diclofenac sodium (im), the VAS level was the lowest on 1st day and 1st week. The highest VAS levels were in the local lidocaine group on 1st day and 1st week, whereas the lowest values were in the 150 mg diclofenac sodium (im) + 50 mg dexketoprofen (oral) group.

Conclusion: There was four common pain management procedure during hospitalization, whereas six pain management procedures were cumulated after hospitalization. Results reveal that although there have been a unique pain management procedure or a guideline on pain management after Ferguson Hemoroidectomy, clinical research results may have contribution for effective pain management after Ferguson Hemoroidectomy.

Key Words: Pain, Ferguson Hemoroidectomy, hemoroid.

What is already known about this topic?

It is known from both literature and clinical applications that pain management is a serious problem after Ferguson Hemoroidectomy, and some pain killer agents are combined together to provide best pain management. However, there have not been any literature research includes pain management experiences in order to provide a source for further researches and clinical applications.

What does this article add?

Article adds literature a pioneer approach to the pain management by experiences and patient classifications, and a guide for clinical applications. In other areas of the pain and surgery, pain management experiences have been shared by clinicians, and developed by meta-analysis studies. However, it is a necessity in Ferguson Hemoroidectomy, and article provides a guide.

Introduction

In health services, pain is an important and life quality decreasing factor for patients. Especially paint management becomes more important for surgical operations (1-5). During operations, in hospital and after hospital pain management procedures differ based on surgery type, clinic and demographic properties of patients and other related parameters (6-8). In addition, some medications used in pain management include opioids (9-12). Thus, pain management during and after surgeon may be also seen a n issue for public health.

Ferguson Hemoroidectomy is one of the most pain complaints including surgery among others (13-15). During hospitalization and after discharge, pain management may be a serious problem for both patient and clinicians. Although there have been numerous painkillers and pain management procedures, there have not been sufficient clinical guidelines or clinical researches on this issue (16-18). Thus, cumulative analysis of individually given pain management procedures may contribute this requirement.

In this retrospective cross-sectional study, it was aimed to evaluate pain management after Ferguson Hemoroidectomy.

Materials and Methods

Patients

In the study, 151 patients who underwent Ferguson Hemorrhoidectomy between June 2017 and July 2019 were included in the study. VAS score was used for evaluation of pain by patients at 1st day and 1st week after surgeon. Postop, 1st day and 1st week Visual Analog Scale (VAS) and follow up durations based on different pain management groups were compared.

Statistical Method

Gender and painkiller groups were described by frequency analysis. Scale parameters were described by mean and standard deviations. Kolmogorov Smirnov test was used for normality of parameters. For normally distributed parameters, One Way ANOVA test was used with Levene's

equality of variance test. For non-normally distributed parameters, Kruskal Wallis H test was used. Gender differences between groups were analyzed with Chi-Square (Likelihood Ratio) test. All analysis was performed at SPSS 17.0 for windows at 95% Confidence Interval.

Ethical Approval

An ethical approval from Gazi Yaşargil Education and Research Hospital, Medical Sciences University was applied and received.

Results

Gender, age and VAS Scores of patients according to hospital medication groups were given in the Table 1.

Gender distribution of hospital medication groups were similar and differences were insignificant ($p>0.05$). Age mean was the highest in the 150 mg pethidine (sc) + 75 mg diclofenac sodium (im) group, but the difference was insignificant ($p>0.05$). postop follow up duration differences were also insignificant ($p>0.05$). VAS 1st day and 1st week values were the highest in the 150 mg pethidine (sc) group with significant difference ($p<0.05$). Gender, age and VAS Scores of patients according to discharged medication groups were given in the Table 2.

Similar to hospital medication group results, gender distribution, age and postop follow up parameter differences were not statistically significant ($p>0.05$). VAS 1st day and VAS 1st week levels were the highest in the local lidocaine group with significant difference ($p<0.05$). VAS 1st day mean and distributions according to hospital medication group was shown in the Scheme 1.

Scheme 1 showed that VAS score at 1st day was the highest in the 150 mg pethidine (sc) group, and VAS range was the highest in the 150 mg pethidine (sc) + 150 mg diclofenac sodium (im) group. The minimum range for VAS score was found at 150 mg pethidine (sc) + 75 mg diclofenac sodium (im) group, meaning that this medication group provided a stabile pain medication compared to other hospital medication treatments. VAS 1st week mean and distributions according to discharged medication group were given in the Scheme 2.

According to Scheme 2, the first three medication groups (150 mg diclofenac sodium (im), 150 mg diclofenac sodium (im) + 50 mg dexketoprofen (oral), and 200 mg tremadol (oral) + 50 mg dexketoprofen (oral)) had more stabile and not ranged pain scores. On the other hand, VAS scores of 200 mg tremadol (oral) + local lidocaine, 50 mg dexketoprofen (oral), and local lidocaine groups showed variations and had relatively higher ranges.

Discussion

In the studies on pain complaints after hemorrhoid surgery, various demographic features are given. In these studies, there are studies showing that men are more painful than women and vice versa, there are studies showing that women are more painful (19-26). In our study, it was seen that women applied for more pain complaints than men. However, gender distributions did not show statistically significant difference in pain treatment groups ($p > 0.05$). The same was true for age and postoperative follow-up.

Although pain management is an important issue in hospital surgical interventions, there is no appropriate pain management guide for every scenario. Especially in interventions accompanied by high pain such as hemorrhoids, different types of pain treatment are observed depending on the patient's condition (27-31). In our study, VAS level was highest in both groups on 1st day and 1st week in the group administered 150 mg pethidine (sc), and the difference was statistically significant ($p < 0.05$). In the group treated with 200 mg tremadol (iv) + 150 mg diclofenac sodium (im), the VAS level was the lowest on 1st day and 1st week.

In the post-hospital period, pain management is particularly important in high-surgical surgical interventions such as hemorrhoids (32-38). The pain management method to be given in this regard is determined according to many factors such as clinical condition of the patient and concomitant disease. In our study, in the management of post-hospital pain, women were the majority in all six pain management identified. However, there was no significant difference between the groups according to age and sex. The highest VAS levels were in the local lidocaine group on 1st day and 1st week, whereas the lowest values were in the 150 mg diclofenac sodium (im) + 50 mg dexketoprofen (oral) group.

Conclusion

There was four common pain management procedure during hospitalization, whereas six pain management procedures were cumulated after hospitalization. although there have been a unique pain management procedure or a guideline on pain management after Ferguson Hemoroidectomy, clinical research results may have contribution for effective pain management after Ferguson Hemoroidectomy.

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Disclosure

The author declares no conflicts of interest in this work.

References

1. Lovich-Sapola, J., Smith, C. E., & Brandt, C. P. Postoperative Pain Control. Surgical Clinics of North America, 2015; 95(2), 301–318. https://doi.org/10.1016/j.suc.2014.10.002

2. Chou, R., Gordon, D. B., De Leon-Casasola, O. A., Rosenberg, J. M., Bickler, S., Brennan, T., … Wu, C. L. Management of postoperative pain: A clinical practice guideline from the American pain society, the American society of regional anesthesia and pain medicine, and the American society of anesthesiologists' committee on regional anesthesia, executive committee, and administrative council. Journal of Pain, 2016; 17(2), 131–157. https://doi.org/10.1016/j.jpain.2015.12.008

3. Luo, J., & Min, S. Postoperative pain management in the postanesthesia care unit: An update. Journal of Pain Research, 2017; 10, 2687–2698. https://doi.org/10.2147/JPR.S142889

4. Aubrun, F., Nouette-Gaulain, K., Fletcher, D., Belbachir, A., Beloeil, H., Carles, M., … Zetlaoui, P. Revision of expert panel's guidelines on postoperative pain management. Anaesthesia Critical Care and Pain Medicine, 2019; 38(4), 405–411. https://doi.org/10.1016/j.accpm.2019.02.011

5. Corke, P. Postoperative pain management. Australian Prescriber, 2013; 36(6), 202–205. https://doi.org/10.18773/austprescr.2013.079

6. Garimella, V., & Cellini, C. Postoperative pain control. Clinics in Colon and Rectal Surgery, 2013; 26(3), 191–196. https://doi.org/10.1055/s-0033-1351138

7. Joshi, G. P., Kehlet, H., Beloeil, H., Bonnet, F., Fischer, B., Hill, A., … Van De Velde, M. Guidelines for perioperative pain management: Need for re-evaluation. British Journal of Anaesthesia, 2017; 119(4), 720–722. https://doi.org/10.1093/bja/aex304

8. Nett MP. Postoperative Pain Management. Orthopedics, 2010; 33(9), 1-4. https://doi.org/ doi: 10.3928/01477447-20100722-60

9. Batista, J., Garcia, S., Bonilla, P., Campos, D., Cantú, F., Diaz, E., … Guerrero, C. Optimizing post-operative pain management. Rev Bras Anestesiol. 2017; 67(4):395-403.

10. Gan, T. J., Epstein, R. S., Leone-Perkins, M. L., Salimi, T., Iqbal, S. U., & Whang, P. G. Practice Patterns and Treatment Challenges in Acute Postoperative Pain Management: A Survey of Practicing Physicians. Pain and Therapy 2018; 7(2), 205–216. https://doi.org/10.1007/s40122-018-0106-9

11. Carroll, I. R., Angst, M. S., & Clark, J. D. Management of perioperative pain in patients chronically consuming opioids. Regional Anesthesia and Pain Medicine 2004; 29(6), 576–591. https://doi.org/10.1016/j.rapm.2004.06.009

12. Prabhu, M., Bortoletto, P., & Bateman, B. T. Perioperative pain management strategies among women having reproductive surgeries. Fertility and Sterility 2017; 108(2), 200–206. https://doi.org/10.1016/j.fertnstert.2017.06.010

13. Agbo SP. Surgical Management of Hemorrhoids. J Surg Tech Case Rep. 2011 Jul-Dec; 3(2): 68–75.

14. Pokharel, N., Chhetri, R. K., Malla, B., Joshi, H. N., & Shrestha, R. K. Haemorrhoidectomy: Ferguson's (closed) vs Milligan Morgan's technique (open). Nepal Medical College Journal 2009; NMCJ, 11(2), 136–137.

15. Santos, G. de A., Coutinho, C. P., Meyer, M. M. M. M. D. E., Sampaio, D. V., & da Cruz, G. M. G. Surgical complications in 2,840 cases of hemorrhoidectomy by Milligan-Morgan,

Ferguson and combined techniques. Journal of Coloproctology 2012; 32(3), 271–290. https://doi.org/10.1590/S2237-93632012000300011

16. Emile, S. H. Evidence-based review of methods used to reducepain after excisional hemorrhoidectomy. Coloproctology 2018; 9(1), 81–89.

17. Jetmore, A. B., & Hagen, D. Prolonged Opioid-Sparing Pain Control after Hemorrhoidectomy with Liposome Bupivacaine: Results from a Cohort of 95 Patients. Pain Studies and Treatment 2016; 04(01), 5–12. https://doi.org/10.4236/pst.2016.41002

18. Shaikh, A. R., Dalwani, A. G., & Soomro, N. An evaluation of Milligan-Morgan and Ferguson procedures for haemorrhoidectomy at Liaquat University Hospital Jamshoro, Hyderabad, Pakistan. Pakistan Journal of Medical Sciences 2012; 29(1), 122–127. https://doi.org/10.12669/pjms.291.2858

19. Colak, T., Akca, T., Dirlik, M., Kanik, A., Dag, A., & Aydin, S. Micronized Flavonoids in Pain Control after Hemorrhoidectomy: A Prospective Randomized Controlled Study. Surgery Today 2003; 33(11), 828–832. https://doi.org/10.1007/s00595-003-2604-5

20. Abdelaziz AS, Ghoneem AM and Elewesy EA. (2018). The impact of surgical hemorrhoidectomy on male sexual function: A preliminary study. Urol Ann 2019;11:235-40.

21. Medina-Gallardo, A., Curbelo-Peña, Y., De Castro, X., Roura-Poch, P., Roca-Closa, J., & De Caralt-Mestres, E. Is the severe pain after Milligan-Morgan hemorrhoidectomy still currently remaining a major postoperative problem despite being one of the oldest surgical techniques described? A case series of 117 consecutive patients. International Journal of Surgery Case Reports 2017; 30, 73–75. https://doi.org/10.1016/j.ijscr.2016.11.018

22. Imbelloni, L. E., Vieira, E. M., & Carneiro, A. F. Postoperative analgesia for hemorrhoidectomy with bilateral pudendal blockade on an ambulatory patient: A controlled clinical study. Journal of Coloproctology 2012; 32(3), 291–296. https://doi.org/10.1590/S2237-93632012000300012

23. Huang, Y. J., Chen, C. Y., Chen, R. J., Kang, Y. N., & Wei, P. L. Topical diltiazem ointment in post-hemorrhoidectomy pain relief: A meta-analysis of randomized controlled trials. Asian Journal of Surgery 2018; 41(5), 431–437. https://doi.org/10.1016/j.asjsur.2017.06.002

24. Khan, K. I., Akmal, M., Waqas, A., & Mahmood, S. Role of prophylactic antibiotics in Milligan Morgan hemorrhoidectomy - A randomized control trial. International Journal of Surgery 2014; 12(8), 868–871. https://doi.org/10.1016/j.ijsu.2014.06.005

25. Elbarmelgi, M. Y., Farag, A., & Farag, A. Clinics in Surgery Comparative Study of Outcome of Conventional versus 2016; 1, 1–7.

26. Gallo, G., Mistrangelo, M., Passera, R., Testa, V., Pozzo, M., Perinotti, R., … Trompetto, M. Efficacy of mesoglycan in pain control after excisional hemorrhoidectomy: A pilot comparative prospective multicenter study. Gastroenterology Research and Practice, 2018. https://doi.org/10.1155/2018/6423895

27. Cross, T., Bartlett, L., Mushaya, C., Ashour, M., & Ho, Y. H. Glyceryl trinitrate ointment did not reduce pain after stapled hemorrhoidectomy: A randomized controlled trial. International Surgery 2012; 97(2), 112–119. https://doi.org/10.9738/CC92.1

28. Hetzer, F. H., Demartines, N., Handschin, A. E., & Clavien, P.-A. Stapled vs Excision Hemorrhoidectomy. Archives of Surgery 2002; 137(3). https://doi.org/10.1001/archsurg.137.3.337

29. Al-Mulhim, A. S., Ali, A. M., Al-Masuod, N., & Alwahidi, A. Post hemorrhoidectomy pain: A randomized controlled trial. Saudi Medical Journal 2006; 27(10), 1538–1541.

30. Davis, B. R., Lee-Kong, S. A., Migaly, J., Feingold, D. L., & Steele, S. R. The American Society of colon and rectal surgeons clinical practice guidelines for the management of hemorrhoids. Diseases of the Colon and Rectum 2018; 61(3), 284–292. https://doi.org/10.1097/DCR.0000000000001030

31. Younes, H. E. A., Metwally, Y. H., El-hussainy, A. F., Elsayed, M. E., & Ahmad, M. S. Local Anesthesia Versus Spinal Anesthesia for Hemorrhoidectomy. Al_Azhar Assiut Medical Journal 2014; 12(4), 258–269.

32. Brown, S. R. Haemorrhoids: an update on management. Therapeutic Advances in Chronic Disease 2017; 8(10), 141–147. https://doi.org/10.1177/2040622317713957

33. Sohn, V. Y., Martin, M. J., Mullenix, P. S., Cuadrado, D. G., Place, R. J., & Steele, S. R. A Comparison of Open versus Closed Techniques Using the Harmonic Scalpel in Outpatient Hemorrhoid Surgery. Military Medicine 2008; 173(7), 689–692. https://doi.org/10.7205/milmed.173.7.689

34. Joshi, G. P., & Neugebauer, E. A. M. Evidence-based management of pain after haemorrhoidectomy surgery. British Journal of Surgery 2010; 97(8), 1155–1168. https://doi.org/10.1002/bjs.7161

35. Al Tamimi, A. S. Classical Milligan Morgan Hemorrhoidectomy versus its Modification: Higher Risk of Fistula and Mucosal Ectropion. International Journal of Research in Pharmaceutical Sciences 2018; 9(SPL1), 144–151. https://doi.org/10.26452/ijrps.v9ispl1.1287

36. Borse, H., & Dhake, S. A Comparative Study of Open (Milligan-Morgan) Versus Closed (Ferguson) Hemorrhoidectomy. MVP Journal of Medical Sciences, 2016; 3(1), 7. https://doi.org/10.18311/mvpjms/2016/v3/i1/732

37. Evans, CFM, Hyder SA and Middleton SB. Modern surgical management of haemorrhoids. Pelviperineology 2008; 27: 139-142.

38. Raza, M., Khan, A., & Kamran, R. Haemorrhoidectomy With and Without Lateral Internal Sphinterotomy. Journal of Rawalpindi Medical Collegge, 2013; 17(2), 189–191. Retrieved from http://www.journalrmc.com/volumes/1395217691.pdf

Table 1. Gender, age and VAS Scores of patients according to hospital medication groups

Table 2. Gender, age and VAS Scores of patients according to discharged medication groups

Scheme 1. VAS 1st day mean and distributions according to hospital medication group

Scheme 2. VAS 1st week mean and distributions according to discharged medication group

Table 1. Gender, age and VAS Scores of patients according to hospital medication groups

	150 mg pethidine (sc)	**150 mg pethidine (sc) + 150 mg diclofenac sodium (im)**	**150 mg pethidine (sc) + 75 mg diclofenac sodium (im)**	**200 mg tremadol (iv) + 150 mg diclofenac sodium (im)**	**p**
Females, n (%)	22 (84.6)	68 (97.1)	7 (87.5)	36 (94.7)	0.180[a]
Males, n (%)	4 (15.4)	2 (2.9)	1 (12.5)	2 (5.3)	
Age, mean±SD	35.11±10.13	41.78±12.00	**45.12±15.66**	39.16±10.74	0.050[b]
Postop Follow up, mean±SD	**1.61±1.02**	1.44±0.73	1.12±0.35	1.53±0.86	0.522[c]
VAS 1st day, mean±SD	**5.00±0.56**	3.06±0.48	3.87±0.64	3.05±0.23	0.000[c]
VAS 1st week, mean±SD	**5.81±1.02**	5.16±1.12	4.87±1.36	4.55±1.33	0.001[c]

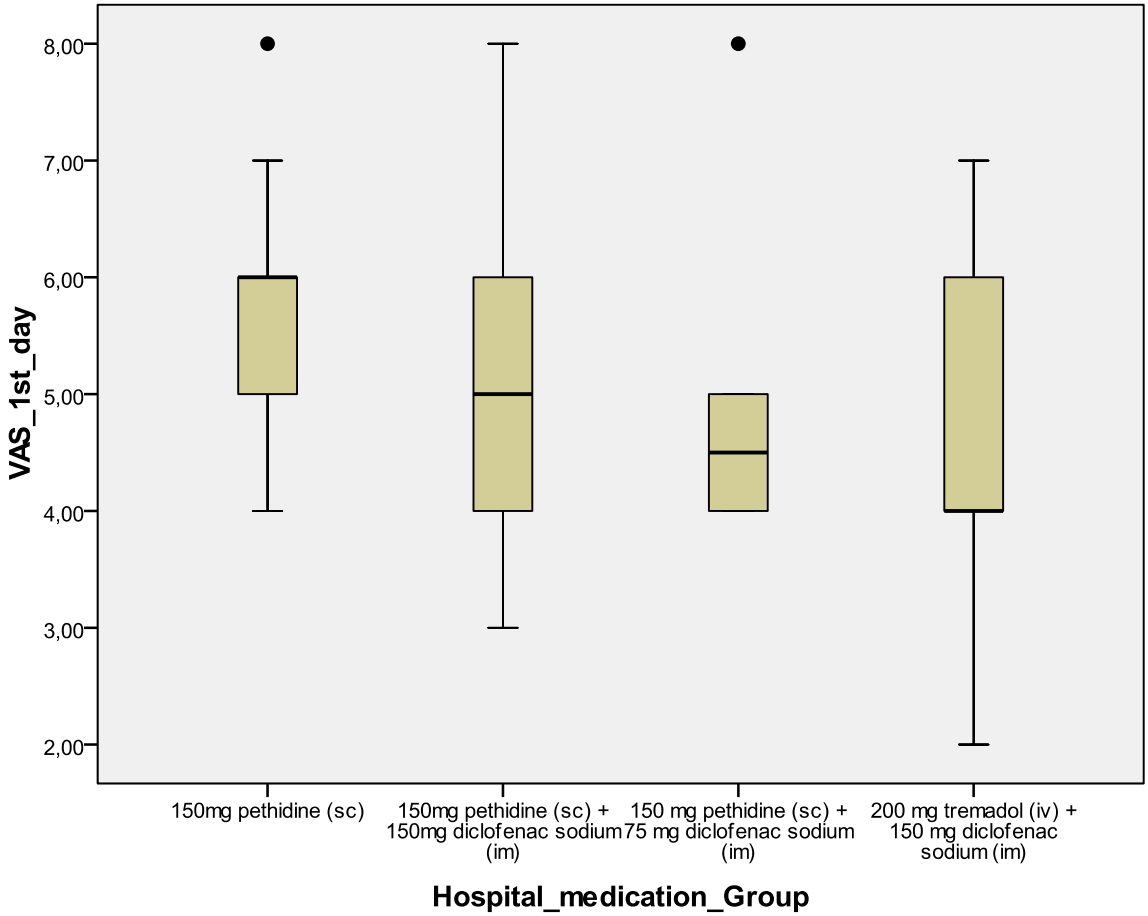
a. Chi-Square (Likelihood Ratio), b. Oneway ANOVA, c. Kruskal Wallis H Test.

Table 2. Gender, age and VAS Scores of patients according to discharged medication groups

	150 mg diclofenac sodium (im)	**150 mg diclofenac sodium (im) + 50 mg dexketoprofen (oral)**	**200 mg tremadol (oral) + 50 mg dexketoprofen (oral)**	**200 mg tremadol (oral) + local lidocaine**	**50 mg dexketoprofen (oral)**	**local lidocaine**	**p**
Females, n (%)	15 (100.0)	32 (91.4)	42 (95.5)	5 (83.3)	22 (91.7)	17 (94.4)	0.635[a]
Males, n (%)	-	3 (8.6)	2 (4.5)	1 (16.7)	2 (8.3)	1 (5.6)	
Age, mean±SD	41.07±14.09	41.11±12.53	**42.81±10.38**	35.17±10.63	37.69±10.44	35.11±12.40	0.162[b]
Postop Follow up, mean±SD	1.27±0.46	**1.68±0.99**	1.48±0.66	1.67±0.82	1.37±0.92	1.33±0.84	0.245[c]
VAS 1st day, mean±SD	3.13±0.52	3.08±0.28	3.11±0.44	4.33±1.03	3.92±1.14	**4.39±1.14**	0.000[c]
VAS 1st week, mean±SD	4.47±0.83	3.97±0.82	5.59±0.95	5.50±1.05	5.50±1.10	**5.94±1.39**	0.000[c]

a. Chi-Square (Likelihood Ratio), b. Oneway ANOVA, c. Kruskal Wallis H Test.

Scheme 1. VAS 1st day mean and distributions according to hospital medication group



Scheme 2. VAS 1st week mean and distributions according to discharged medication group