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Comparison of the Intensity of Pain in Patients with Acute Cholecystitis with Different Types of Surgical Accesses

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Brief Summary

Background: Topicality is related to the widespread prevalence of acute cholecystitis as one of the surgical pathologies. There are 3 types of surgical access for cholecystectomy: laparotomy, laparoscopic and mini-laparotomy in the right hypochondrium. At the postoperative period, patients complain of the pain that occurs at the site of the surgical wound. Intensity of pain depends on the type of surgery.

The aim of the study: To analyze and compare the intensity of postoperative pain in different types of surgical accesses in patients with acute cholecystitis.

Methods: The study was performed at the State Institution "V. T. Zaitsev Institute of General and Urgent Surgery of the National Academy of Medical Sciences of Ukraine" on the treatment of acute cholecystitis from 2019 to 2021. 30 case histories of patients with acute cholecystitis were analyzed. Patients were divided into 3 groups: Group I – 24 (80.00%) patients underwent laparoscopic cholecystectomy, Group II – 5 (16.67%) – with mini-access and Group III – 1 (3.33%) – laparotomy due to the pronounced adhesion process of the abdominal organs. The intensity of pain was assessed by using a Visual Analog scale.

Results: According to the results of the assessment of pain intensity by Visual Analog scale: patients of Group I on the 2nd day after surgery noted pain at the level 50 ± 8.75 mm, on the 5th day – 0 mm, patients of the II



Group on the 2nd day – 70±9.32 mm, on the 5th day – 20±5.88 mm. Group III on 2nd day – 90±8.85 mm, on 5th day – 40±2.87 mm.

Conclusions: *The use of laparoscopic access in the surgical treatment of acute cholecystitis improves the quality of life of patient in the postoperative period and reduces pain.*

Keywords:

postoperative pain syndrome, laparoscopy, laparotomy, cholecystectomy, mini-laparotomy in the right hypochondrium.

Background:

An acute cholecystitis is one of the most common surgical diseases of the abdominal cavity. The most common cause of acute cholecystitis is the ingress of gallstones into the gall bladder's cervix, which prevents the outflow of bile from the gall bladder, causing its stagnation, activation of inflammatory agents with the addition of bacterial agents, with further inflammation of the organ's wall and its perforation (Hassler et al., 2021; Kim & Donahue, 2018; Warchałowski et al., 2020). In this case, perforation of gall bladder leads to the development of biliary peritonitis, which causes high mortality in most cases. Parasitic factors, congenital anomalies of the gallbladder and a pronounced adhesion of the abdominal organs also can cause acute cholecystitis (Kim & Donahue, 2018; Kim et al., 2020; Sanford, 2019).

There are different options for surgical approaches for cholecystectomy. Cholecystectomy is performed by a laparotomy approach, which has lost its popularity today due to the appearance of postoperative complications (e. g., infectious complications from a surgical wound) in the recovery period, but it is performed when patient has contraindications for laparoscopy (Abelson et al., 2015; Bingener et al., 2015; Jones et al., 2021; Singh et al., 2020). There are also laparoscopic cholecystectomy and cholecystectomy performed in the way of a mini-laparotomy in the right hypochondrium (Del-Moral-Martínez et al., 2015; Jung et al., 2019; Qiu et al., 2019). Postoperative pain deteriorates the quality of life of patients, increases the duration of patients' hospitalization and the duration of recovery period (Hassler et al., 2021; Kim & Donahue, 2018). So, pain needs to be minimized and eliminated with narcotic or non-narcotic analgesics as needed.

The aim of the study. To compare the intensity of postoperative pain in different types of surgical approaches in patients with acute cholecystitis, with using a Visual-analog scale.



Methods:

Patients were treated in the surgical departments of the State Institution “V. T. Zaitsev Institute of General and Urgent Surgery of the National Academy of Medical Sciences of Ukraine” with an acute cholecystitis from 2019 to 2021. The materials of the study were 30 case-histories of patients, that were hospitalized with acute cholecystitis. The diagnosis of acute cholecystitis was established on the basis of complaints, which included: pain in the right hypochondrium, dyspeptic complaints, such as nausea and vomiting, fever over 38° C, ultrasound examination of the gall bladder. According to the ultrasound examination of the gall bladder: an increasing size of gall bladder more than 80x40 mm, wall thickening - more than 3 mm and its double contour, the presence of stones in the cervix of gall bladder and a positive ultrasound symptom of Murphy were found.

According to the type of surgery performed on patients, patients were divided into 3 groups: Group I – 24 (80.00%) patients underwent laparoscopic cholecystectomy, Group II – 5 (16.67%) patients underwent mini-access cholecystectomy and Group III – 1 (3.33%) included a patient who underwent cholecystectomy with laparotomy access. The indication for laparotomy was the presence of a pronounced adhesion process in the abdominal cavity.

The intensity of pain in the postoperative period was assessed using the Visual Analog Pain Scale, which has a graduation from 0 to 100 mm, 0 to 4 mm complies with the absence of pain, 5 to 44 mm is a weak pain, 45 to 74 mm complies with the level of moderate pain, and 75 to 100 mm characterizes severe pain. Patients were asked to assess pain at the site of the surgical wound by questionnaire. The questionnaire included questions about the type of surgery performed and the determination of pain intensity on a Visual-analog scale. The survey was conducted on the 2nd day after surgery and on the 5th day of the postoperative period.

Results:

According to the results of the assessment of pain intensity on the Visual-analog scale, patients of group I on the 2nd day after surgery noted pain at the level of 50±8.75 mm, on the 5th day this group of patients noted pain intensity equal to 0 mm. Among patients of group II on the 2nd day the pain intensity was at the level of 70±9.32 mm, and on the 5th day – 20±5.88 mm. Among patients of group III on the 2nd day the pain intensity was at the level of 90 mm, and on the 5th day – 40 mm.

In most cases, non-narcotic analgesics were prescribed to patients of group I in the postoperative period: in 18 patients (83.33%), patients in



group II were prescribed both non-narcotic analgesics (in 4 patients – 80.00%) and narcotic analgesics (in 1 patient – 20.00%). Patients in group III who underwent cholecystectomy by laparotomy were prescribed narcotic analgesics to eliminate pain, improve their recovery period and improve the quality of life in the postoperative period.

Conclusions:

The intensity of pain in the postoperative period was the highest in patients of groups III and II on the 2nd day of assessment on the Visual-analog scale of pain. At the 5th day, patients who underwent laparoscopic access had a pain intensity of 0 mm, in contrast to group II patients, who had slight discomfort in the area of the surgical wound, and group III patients, who had severe pain that was almost equal to the pain that occurred in patients of group I for 2 days after surgery.

Also, more than 80% of patients in groups II and III required the usage of narcotic analgesics to relieve postoperative pain, in contrast to patients in group I, who were prescribed non-narcotic analgesics in 80% of cases and narcotic in only 20% of cases.

The usage of laparoscopic access in the surgical treatment of an acute cholecystitis improves the quality of life of the patient in the postoperative period, reduces pain and does not require the usage of narcotic analgesics to eliminate pain in the postoperative period.

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Conflicts of interests:

The authors declare that there is no conflict of interests.

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References

- Abelson, J. S., Afaneh, C., Rich, B. S., Dakin, G., Zarnegar, R., Fahey III, T. J., & Pomp, A. (2015). Advanced laparoscopic fellowship training decreases conversion rates during laparoscopic cholecystectomy for acute biliary diseases: A retrospective cohort study. *International Journal of Surgery*, 13(January), 221–226. <https://doi.org/10.1016/j.ijss.2014.12.016>
- Bingener, J., Thomsen, K. M., McConico, A., Hess, E. P., & Habermann, E. B. (2015). Success of elective cholecystectomy treatment plans after emergency department visit. *The Journal of Surgical Research*, 193(1), 95–101. <https://doi.org/10.1016/j.jss.2014.06.023>
- Del-Moral-Martínez, M., Barrientos-Delgado, A., Crespo-Lora, V., Cervilla-Sáez-de-Tejada, M. E., & Salmerón-Escobar, J. (2015). Eosinophilic cholecystitis: An infrequent cause of acute cholecystitis. *Revista Espanola de Enfermedades Digestivas – The Spanish Journal of Gastroenterology*, 107(1), 45–47. <https://scielo.isciii.es/pdf/diges/v107n1/nota2.pdf>
- Hassler, K. R., Collins, J. T., Philip, K., & Jones, M. W. (2021). Laparoscopic cholecystectomy [Review]. In *StatPearls*. StatPearls Publishing. <https://www.ncbi.nlm.nih.gov/books/NBK448145/>
- Jones, M. W., Guay, E., & Deppen, J. G. (2021). Open cholecystectomy [Review]. In *StatPearls*. StatPearls Publishing. <https://www.ncbi.nlm.nih.gov/books/NBK448176/>
- Jung, G. S., Kim, Y. J., Yun, J. H., Park, J. G., Yun, B. C., Han, B. H., Lee, S. U., & Kim, Y. H. (2019). Percutaneous transcholecystic removal of common bile duct stones: Case series in 114 patients. *Radiology*, 290(1), 238–243. <https://doi.org/10.1148/radiol.2018173043>
- Kim, S. S., & Donahue, T. R. (2018). Laparoscopic cholecystectomy. *JAMA*, 319(17), 1834. <https://doi.org/10.1001/jama.2018.3438>
- Kim, T. H., Bae, H. J., & Hong, S. G. (2020). A rare fatal bile peritonitis after malposition of endoscopic ultrasound-guided 5-fr nasogallbladder drainage. *Clinical Endoscopy*, 53(1), 97–100. <https://doi.org/10.5946/ce.2019.032>
- Qiu, S. Y., Ng, K. K., Cheung, T. T., Liu, C. H., Zhu, H. T., Xu, B. R., Ji, R., & Lo, C. M. (2019). A successful combined laparoscopic cholecystectomy and laparoscopic exploration of common bile duct for acute gangrenous cholecystitis and choledocholithiasis during pregnancy: A case report. *International Journal of Surgery Case Reports*, 58, 14–17. <https://doi.org/10.1016/j.ijscr.2019.03.062>



- Sanford, D. E. (2019). An update on technical aspects of cholecystectomy. *Surgical Clinics of North America*, 99(2), 245–258. <https://doi.org/10.1016/j.suc.2018.11.005>
- Singh, S., Armenia, S. J., Merchant, A., Livingston, D. H., & Glass, N. E. (2020). Treatment of acute cholecystitis at safety-net hospitals: Analysis of the national inpatient sample. *The American Surgeon*, 86(1), 28–34. <https://doi.org/10.1177/000313482008600116>
- Warchałowski, Ł., Łuszczki, E., Bartosiewicz, A., Dereń K., Warchałowska, M., Oleksy, Ł., Stolarczyk, A., & Podlasek, R. (2020). The analysis of risk factors in the conversion from laparoscopic to open cholecystectomy. *International Journal of Environmental Research and Public Health*, 17(20), 7571. <https://doi.org/10.3390/ijerph17207571>

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