

## Original Research

# STUDIES ON THE CLINICAL AND SUBCLINICAL FEATURES IN ELDERLY PATIENTS WITH ABDOMINAL PAIN PRESENTED AT THE GERIATRIC DEPARTMENT, NGU HANH SON HOSPITAL, DA NANG CITY, VIETNAM

Mai Huu Phuoc<sup>1,\*</sup>, Luu Thi Thuy Nga<sup>1</sup>, Nguyen Tien Hung<sup>1</sup>

1. Ngu Hanh Son Hospital, Da Nang, Vietnam

\* Corresponding author: Mai Huu Phuoc ✉ [mhphuoc@hotmail.com](mailto:mhphuoc@hotmail.com)

**ABSTRACT:** This study aims to evaluate the clinical characteristics of elderly patients, with particular attention to common clinical manifestations, comorbid conditions, and the length of hospital stay. In addition, it investigates laboratory parameters and examines the presence and strength of correlations among these variables within the study population. The study included 69 elderly patients presenting with abdominal pain who were admitted to the Geriatrics Department of Ngu Hanh Son Hospital. The groups were compared in terms of gender, history of abdominal pain, use of self-medication at home, clinical manifestations and associated comorbidities. There was 44.9% males and 55.1% females ( $p < 0.0001$ ). With past history of gastric pain 52.2% ( $p < 0.0001$ ). Health insurance covers 100%. Used medicament at home 39.1%. Admission  $<6h$ : 18.8%,  $6-24h$ : 42.0%,  $>24h$ : 39.1% ( $p < 0.0001$ ). Mean age:  $72.38 \pm 9.50$  years. Mean hospital stay:  $8.25 \pm 3.38$  days. Dull pain 50.7%, intermittent pain 49.3% ( $p < 0.0001$ ). Most common pain location: Epigastrium: 69.6% ( $p < 0.0001$ ). Symptoms: Vomiting (34.8%), diarrhea (34.8%). Hospital transfers 5.8%. Coexisting diseases from two to four: 85.5% ( $p < 0.0001$ ). Leukocytosis (14.5%), anemia (42.9%), ECG abnormalities (69.5%), ECHO abnormalities in GI (23.2%) and urinary system (14.5%) ( $p < 0.0001$ ). Weak positive correlation between age and length of stay ( $r = 0.17$ ), and between age and admission time ( $r = 0.22$ ). Moderate correlation between self-medication and delayed admission ( $r = 0.47$ ) ( $p = 0.0001$ ). Increase public health education, discourage unsupervised self-medication, and promote periodic health check-ups for elderly individuals to manage chronic non-communicable diseases.

**Key words:** Elderly patient, abdominal pain, epigastric ache, periumbilical ache.

1. INTRODUCTION

Abdominal pain is a frequent clinical presentation and a common reason for medical visits and hospitalization and occurs in 20% of geriatric patients who visit the emergency department [1]. The nature of abdominal pain varies from vague and transient to severe and life-threatening [5]. Pain characteristics, location, radiation, and intensity are essential for diagnosis [3]. Common sites include the epigastrium, periumbilical area, hypogastrium and right or left abdomen [3].

Common etiologies of abdominal pain include appendicitis, irritable bowel syndrome, hepatitis, hepatocellular carcinoma, gallstones, hepatic abscess, acute or chronic cholecystitis, biliary ascariasis, acute or chronic gastritis, peptic ulcer disease, gastric cancer, gastric perforation, acute or chronic pancreatitis, acute or chronic colitis, colorectal cancer, renal or ureteral calculi, bladder stones, urinary tract infection, adnexitis and ectopic pregnancy (GEU)... [4].

When encountering a patient presenting with acute abdominal pain, the clinician faces a significant diagnostic and therapeutic challenge, particularly in settings with limited or unavailable diagnostic facilities [5]. The key clinical question often revolves around whether the patient can be safely discharged with outpatient management or requires hospital admission, and whether conservative medical therapy is sufficient or urgent surgical intervention is indicated . Studies conducted in the United States have shown that approximately 10% of patients presenting with acute abdominal pain ultimately require emergency surgery [1].

2. MATERIAL AND METHODS

- Subjects: Elderly patients (≥60 years) admitted to the Geriatrics Department, Ngu Hanh Son Hospital, between January 2021 and December 2022, presenting with abdominal pain lasting <1 week.

- Exclusion criteria: Abdominal pain due to trauma or referred pain from extra-abdominal causes.

- Sample size: n = 69 patients.

- Methods: Retrospective descriptive study. Microsoft Excel 2016 and MedCalc 20.1.4 were used. Parameters analyzed included mean, standard deviation, p-values, chi-square ( $\chi^2$ ), regression and correlation coefficients (r).

3. RESULTS AND DISCUSSION

- Demographics: A female predominance was observed in the study population (55.1% female vs. 44.9% male;  $p < 0.0001$ ). Studies have shown that the hospitalization rate among females is generally higher than that among males. According to Hoang Khanh and Nguyen Thi Le Thuy, the proportion of female and male hospitalizations was 60.40% and 39.60% [2] [6] [9].

- Medical history: 52.2% had a history of gastric disease ( $p < 0.0001$ ). These findings are consistent with previous studies indicating that the prevalence of patients with a history of chronic gastric diseases ranges from 31% to 64% [5].

- Self-medication: 39.1% reported taking medication before admission. The Journal of Practical Medicine, No. 5 (1042), 2017, pp. 12–16, reported that 39.40% of patients had self-medicated prior to hospital admission [8].

- Health insurance: 100% coverage among patients. According to the Ministry of Health of Vietnam, the proportion of

**Table 1.** Comparison of patient characteristics according to demographics, medical history, self-medication, health insurance

|                | Demographics |       | History of gastric disease |       | Self-medication |       | Health insurance |    |
|----------------|--------------|-------|----------------------------|-------|-----------------|-------|------------------|----|
|                | Female       | Male  | Yes                        | No    | Yes             | No    | Yes              | No |
| n              | 38           | 31    | 36                         | 33    | 27              | 42    | 69               | -  |
| %              | 55.1%        | 44.9% | 52.2%                      | 47.8% | 39.1%           | 60.9% | 100              | -  |
| $\chi^2 = 68;$ |              |       | $\chi^2 = 68;$             |       | $\chi^2 = 68 ;$ |       |                  |    |
| $p < 0.0001$   |              |       | $p < 0.0001$               |       | $p < 0.0001$    |       |                  |    |

Vietnamese citizens covered by health insurance (HI) over the years was as follows: 60.00% in 2010; 63.00% in 2011; 66.80% in 2012; 78.00% in 2013; 76.52% in 2015; and 95.00% in 2021 [11] [16].

Comparison of patient characteristics according to demographics, medical history, self-medication, health insurance is summarized in Table 1.

3.1. Clinical features

- Time of hospitalization before 6h: 18.8%, from 6-24h: 42%, after 24h: 39.1% (p < 0.0001). According to the study conducted by Hoang Trong Ai Quoc, 23.80% of patients were admitted within 6 hours of symptom onset, whereas 30.00% presented after 24 hours [6].

- The average age was 72.38 ± 9.50 (male: 73.19 ± 10.50; female: 71.71 ± 8.68). In the study by Le Thuy Phuong, the mean age of elderly participants was 71.61 ± 7.6 years, while Nguyen Ngoc Hoanh My Tien et al. reported a mean age of 73.50 ± 7.6 years [6].

- Age distribution: 60-69 years: 52.2%; 70-79 years: 27.5%; 80-89 years: 13.0%; ≥90 years: 7.2% (p < 0.0001). Bui Long et al. found that the age distribution among patients was 46.00% for those aged 60-69 years, 44.00% for those aged 70-79 years, and 10.00% for those aged 80-89 years [6].

- Coexisting diseases: There was two coordination diseases 36.2%, from one to three 76.8%, from two to four 85.5% (p <0.0001). Nguyen Trung Anh (National Geriatric Hospital, Hanoi) reported that elderly individuals have an average of three coexisting diseases [6].

- Hospital stay: From 7 to 14 days was 71.0%, less than 7 days was 27.5%, more than 14 days was 1.40% and the average length of stay was 8.25 ± 3.38 days (p < 0.0001). According to Vo Don et al., the average duration of hospitalization among elderly patients was 14 days [8]. In another study by our group (Journal of Practical Medicine, No. 909, Vol. 3/2014), 76.92% of patients had a hospital stay ranging from 7 to 14 days. A 2015 report from the Organization for Economic Cooperation and Development (OECD) indicated that the average hospital stay among member countries was 8 days [11].

Comparison of patient characteristics

according to time of hospitalization, age groups, coexisting diseases and hospital stay is summarized in Table 2.

**Table 2.** Comparison of patient characteristics according to time of hospitalization, age groups, coexisting diseases and hospital stay

|                         | n             | %     | c2 ; p                    |
|-------------------------|---------------|-------|---------------------------|
| Time of hospitalization |               |       |                           |
| Before 6h               | 13            | 18.8% | c2 = 138<br>p < 0.0001    |
| From 6-24h              | 29            | 42.0% |                           |
| After 24h               | 27            | 39.1% |                           |
| The average age         |               |       |                           |
| Both of sex             | 72.38 ± 9.50  |       | c2 = 20.74<br>; p = 0.014 |
| Male                    | 73.19 ± 10.50 |       | C2 = 8.37 ;<br>p = 0.079  |
| Female                  | 71.71 ± 8.68  |       | C2 = 10.03<br>; p < 0.074 |
| Age groups              |               |       |                           |
| 60-69 yrs               | 36            | 52.2% | c2 = 207<br>p < 0.0001    |
| 70-79 yrs               | 19            | 27.5% |                           |
| 80-89 yrs               | 9             | 13.0% |                           |
| ≥90 yrs                 | 5             | 7.2%  |                           |
| Coexisting diseases     |               |       |                           |
| 0                       | 6             | 8.7%  | c2 = 276 ;<br>p < 0.0001  |
| 1                       | 14            | 20.3% |                           |
| 2                       | 25            | 36.2% |                           |
| 3                       | 14            | 20.3% |                           |
| 4                       | 10            | 14.5% |                           |
| Hospital stay           |               |       |                           |
| Less than 7 days        | 19            | 27.5% | c2 = 138 ;<br>p < 0.0001  |
| 7 to 14 days            | 49            | 71.0% |                           |
| More than 14 days       | 1             | 1.4%  |                           |

- Pain characteristics: Dull pain 50.7%, intermittent pain 49.3% (p < 0.0001). These findings are consistent with previous studies indicating that non-specific and mild-to-moderate abdominal pain

presentations are predominant among elderly patients. For instance, Friedman et al. reported that more than half of older adults presenting with acute abdominal pain to emergency departments exhibited vague or poorly localized pain rather than sharp, focal pain [5].

- Location of pain : Epigastric ache 69.6%, periumbilical ache 18.8% ( $p < 0.0001$ ). According to Hoang Trong Ai Quoc, epigastric pain accounted for 51.3% of cases [6].

- Symptoms: Fever 7.2%; vomiting 34.8%, constipation 10.1%, diarrhea 34.8% ( $p < 0.0001$ ). According to the study on acute abdominal pain conducted by Hoang Trong Ai Quoc, 43.7% of patients presented with vomiting [6].

- Hospital transfers 5.8%. In the study by Luo et al. (2023), 5.76% of patients presenting with acute abdominal pain were referred from other hospitals [10].

Comparison of patient characteristics according to pain characteristics, location of pain, symptoms, hospital transfers is summarized in Table 3.

**Table 3.** Comparison of patient characteristics according to pain characteristics, location of pain, symptoms, hospital transfers is summarized

|                      | n  | %     | c2 ; p                      |
|----------------------|----|-------|-----------------------------|
| Pain characteristics |    |       |                             |
| Dull pain            | 35 | 50.7% | c2 = 68.00<br>; p < 0.0001  |
| Intermittent pain    | 34 | 49.3% |                             |
| Location of pain     |    |       |                             |
| Epigastric ache      | 48 | 69.6% | c2 = 138.00<br>; p < 0.0001 |
| Periumbilical ache   | 13 | 18.8% |                             |
| Both of location     | 8  | 11.6% |                             |
| Symptoms             |    |       |                             |
| Fever                | 5  | 7.2%  | c2 = 68.00<br>; p < 0.0001  |
| Vomiting             | 24 | 34.8% |                             |

|                    |    |       |                             |
|--------------------|----|-------|-----------------------------|
| Constipation       | 7  | 10.1% | c2 = 138.00<br>; p < 0.0001 |
| Diarrhea           | 24 | 34.8% |                             |
| Hospital transfers |    |       |                             |
| Yes                | 4  | 5.8%  | c2 = 58.93<br>; p < 0.0001  |
| No                 | 65 | 94.2% |                             |

3.2. Paraclinical features

Leukocytosis 14.50%, decrease in hemoglobin 42.90% ( $p < 0.0001$ ). These hematological findings are consistent with the literature, suggesting that anemia and mild inflammatory responses are common among older adults presenting with abdominal pain due to chronic comorbidities and age-related physiological decline. Similar trends have been reported by Friedman et al. (2022), who found that anemia and elevated white blood cell counts were frequent laboratory abnormalities in elderly patients presenting to the emergency department with acute abdominal pain [5].

- ECG abnormal 69.5% (myocardial ischaemia 59.4%, others 10.1%). ECHO abnormal in the digestive system 23.2%; in the urinary system 14.5%, there was coordination 24.6% ( $p < 0.0001$ ). The study by To Van Hai et al. reported that 40.00% of patients exhibited abnormalities on routine ECG [16]. According to a study conducted by the 108 Military Central Hospital, 30–50% of individuals over 65 years of age were found to have gallstones on echocardiography (ECHO) [18].

Comparison of patient characteristics according to changes in leukocyte count, hemoglobin level, electrocardiographic findings, and ultrasonographic findings is summarized in Table 4.

**Table 4.** Comparison of patient characteristics according to changes in leukocyte count, hemoglobin level, electrocardiographic findings, and ultrasonographic findings

|                  | n  | %     | c2 ; p                     |
|------------------|----|-------|----------------------------|
| <b>Leucocyte</b> |    |       |                            |
| Normal           | 59 | 85.5% | c2 = 68.00 ;<br>p < 0.0001 |
| Increase         | 10 | 14.5% |                            |

| Hemoglobin                       |    |       |                             |
|----------------------------------|----|-------|-----------------------------|
| Normal                           | 40 | 58.0% | c2 = 68.00 ;<br>p < 0.0001  |
| Decrease                         | 29 | 42.0% |                             |
| ECG                              |    |       |                             |
| Normal                           | 21 | 30.4% | c2 = 138.00 ;<br>p < 0.0001 |
| Myocardial ischaemia             | 41 | 59.4% |                             |
| Other pathological abnormalities | 7  | 10.1% |                             |
| ECHO                             |    |       |                             |
| Normal                           | 26 | 37.7% | c2 = 207 ;<br>p < 0.0001    |
| Gastrointestinal abnormalities   | 16 | 23.2% |                             |
| Urinary abnormalities            | 10 | 14.5% |                             |
| Both systems concurrently        | 17 | 24.6% |                             |

3.3. Correlations

There was light positive correlation between the age of the patient and the length of hospital stay, with  $r = 0.17$  and  $p = 0.17$ . Light positive correlation between age and time of hospitalization, with  $r = 0.22$  and  $p = 0.08$ . Normal positive correlation between self-medication at home and time of hospitalization, with  $r = 0.47$  and  $p = 0.0001$ .

A study investigating the relationship between self-medication and frequent hospitalization of older Iranian people. While this study did not directly correlate age with the length of stay, it highlighted that older individuals are more prone to self-medication. The study concluded there was no significant relationship between frequent hospitalization and self-medication (Yazdi et al., 2025) [17].

4. CONCLUSION

In this study of 69 elderly patients with abdominal pain:

- Females predominated; gastric disease history and self-medication were frequent.
- Most admissions occurred within 6–24

- hours after onset.
- Epigastric pain was the most common location, with vomiting and diarrhea as frequent associated symptoms.
- Laboratory and imaging revealed significant rates of anemia, ischemic changes on ECG and gastrointestinal or urinary abnormalities on ECHO.
- Correlations showed older age linked to longer hospitalization and self-medication associated with delayed hospital admission.

5. RECOMMENDATIONS

- Enhance public health education regarding disease knowledge and home care practices, emphasizing the importance of avoiding self-medication without professional guidance.
- Strengthen regular health examinations to facilitate the early detection and management of non-communicable chronic diseases such as hypertension, diabetes mellitus, and myocardial ischemia. Establish comprehensive patient records, provide counseling, and ensure ongoing monitoring and treatment through the local healthcare network and the Elderly Association to mitigate comorbidities and improve quality of life.
- Provide nutritional counseling and promote behavioral modification among patients with cardiovascular and metabolic disorders, particularly addressing unhealthy habits such as high-salt diets, smoking, excessive alcohol consumption, and physical inactivity.

REFERENCES

[1] Ar-Aishah Dadeh, A., Uppakarnnuntakul, W., et al. (2024). Factors associated with serious abdominal conditions in geriatric patients visiting the emergency department. *BMC Emergency Medicine*, 24(1), 16. <https://doi.org/10.1186/s12873-024-00934-x>

[2] Aziz, A. A., et al. (2025). Gender-Related Differences in the Hospitalization Outcomes, Length of Stay, and Complications. *PMC (PMC12173479)*.

[3] Brooks, D., Smiles, J. P., Murphy, A. P., Cowan, T., Soeyland, T., Hullick, C., & Arendts, G. (2024). Assessment and management of older patients with abdominal pain in the emergency department. *Emergency Medicine Australasia*, 36(1), 149–158. <https://doi.org/10.1111/1742->

6723.14361

[4] Dadeh, A. D., Uppakarnnuntakul, W., et al. (2024). Factors associated with serious abdominal conditions in geriatric patients visiting the emergency department. *BMC Emergency Medicine*, 24(1), 16. <https://doi.org/10.1186/s12873-024-00934-x>

[5] Friedman, A. B., Chen, A. T., Wu, R., Coe, N. B., Halpern, S. D., Hwang, U., Kelz, R. R., & Capola, A. R. (2022). Evaluation and disposition of older adults presenting to the emergency department with abdominal pain. *Journal of the American Geriatrics Society*, 70(2), 501–511. <https://doi.org/10.1111/jgs.17503>

[6] Hoang, T. A. Q. (2006). Study on clinical characteristics and etiology of acute epigastric abdominal pain of digestive origin. (Master's thesis). Hue University.

[7] Ikeda, K., Ikeda, T., Tani, N., Shida, A., Aoki, Y., Morioka, F., & Ishikawa, T. (2021). Acute abdominal disease with nonspecific symptoms in the elderly: A case series. *Journal of Forensic and Legal Medicine*, 78, 102089. <https://doi.org/10.1016/j.jflm.2020.102089>

[8] Journal of Practical Medicine. Homepage. Retrieved from <http://yhht.vn>

[9] Labka, A., Elordi-Guenaga, U., Zubeldia-Etxeberria, J., Zinkunegi-Zubizarreta, N., Ugarte-mendia-Yerobi, M., & Pereda-Goikoetxea, B. (2024). Gender differences in unplanned hospital admission: A population-based approach. *Nursing & Health Sciences*. DOI 10.1111/nhs.13072.

[10] Luo, G., Liu, Q., Zhang, Z., & Jin, X. (2023). A retrospective study of patients complaining of nontraumatic acute abdominal pain, admitted in the emergency department of an urban hospital in China. *Emergency and Critical Care Medicine*, 3(4), 149–155. <https://doi.org/10.1097/EC9.0000000000000083>

[11] Ministry of Health. (2019). Handbook of emergency internal medicine treatment. (Online ed.). Hanoi, Vietnam.

[12] Nurmahomed, N., Bickerton, R., & Bronze, C. (2022). Assessment of abdominal pain in older people: A quality improvement project in the emergency department. *Future Healthcare Journal*, 9(Suppl 2), 94. <https://doi.org/10.7861/fhj.9-2-s94>

[13] Pinar Henden Çam, A., Baydin, A., Yürüker, S., Erenler, A. K., & Şengüldür, E. (2018). Investigation of geriatric patients with abdominal pain admitted to the emergency department. *Eurasian Journal of Emergency Medicine*, 17(3), 115–120. PMID: PMC5998168. <https://pubmed.ncbi.nlm.nih.gov/30002677>

[14] Schroeder, S. A., Krupp, M. A., & Tierney, L. M., Jr. (2022). Current medical diagnosis & treatment. Appleton & Lange, USA.

[15] Uwumiro, F., et al. (2023). Gender Disparities in Hospitalization Outcomes and Resource Use. *PMC*.

[16] Vietnam Association of Internal Medicine. (2011). Internal medicine. (Special issue - 7th National Scientific Conference of the Vietnam Association of Internal Medicine).

[17] Yazdi, F. B., Borhaninejad, V., Alizadeh, S., & Madadzadeh, F. (2025). Investigating the Relationship Between Self-Medication and Frequent Hospitalization of Older Iranian People Hospitalized in Yazd in 2022. *Sage Open Aging*, 11. <https://doi.org/10.1177/30495334251343243>

[18] 108 Central Military Hospital (2019). Abdominal ultrasound findings in elderly patients. *Vietnam Journal of Military Medicine*, 343(2), 22–27.