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ORIGINAL RESEARCH ARTICLE

STATUS OF GERIATRIC PATIENTS WITH ABDOMINAL PAIN PRESENTED TO EMERGENCY DEPARTMENT

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ABSTRACT

Background: As the development of better health facilities with advanced tools for diagnosis and management our country is not away from global trend. Nepal's life expectancy at birth is increasing at its pace, it has increased in about 30 years in last 4 decades. Among the various problem presenting to ED abdominal pain is one of the common complain elderly patients are greater risk of missing life-threatening causes during evaluation and investigation. The aim of the study was to identify the frequency, cause and outcome of patient presenting in Emergency department with abdominal pain.

Methods: It is a retrospective study conducted in tertiary care center at Chitwan, Nepal during the period from 01/09/2017 to 30/08/2018. Electronic data entered by medical officer were retrieved and analyzed. Statistical analysis of the record was done using SPSS 16 software.

Results: Elderly population who presented with chief complaints of abdominal pain was 1160 (21.79%). Among the patient presented with abdominal pain 605(52.2%) were male and 555(47.8%) were female. Mean age of patients was 71.72±8.50 years. Most common system involved was gastrointestinal and biliary problem 730(62.93%). Most common diagnosis was Urinary tract infection 269 (23.2%) among them, 487(41.98%) required hospital admission.

Conclusions: Abdominal pain is one of the common presentations of elderly to emergency department. Disorders of Gastrointestinal and biliary system were among leading causes of emergency visit. Emergency physician should be tactful to identify life threatening conditions and emergency management.

INTRODUCTION

The global population is in increasing trend. With the advancement of medical science, availability of medical centers and increasing life expectancy, senior citizens are reaching the hospital for their problems in a greater number as compared to the past. Due to the development of better health facilities with advanced tools for diagnosis and management, Nepal is not away from global trend. Nepal's life expectancy at birth is increasing at its pace, about 40 years back in 1980-85 life expectancy was 48.34 years, 30 years back (1990-95) it was 56.44 years, 20 years back (2000-05) was 64.06 years in 2010-15 it was 69.01 years.[1] The average life expectancy at birth in Nepal in 2017 is 71 years(Male:70.4 years and female 71.6 years).[2] The life expectancy has increased by around 25 years in last 35 years and it seems to be increasing. With the increase in the elderly population visiting health care center is also increasing. Elderly age group is fastest growing segment of the population in the western world and the highest emergency department (ED) users of any age group.[3] Although there is no data available

regarding the elderly visiting emergency room in our country but according to increased life expectancy it might have increased.

Among the various problem presenting to ED abdominal pain is the most common presenting complaint,[3] and in older adults, abdominal pain is the fourth most common chief complaint.[4] Pain abdomen has extremely high risk in elderly population, with a mortality rate approaching 10%.[5] Due to age this group need high amount of ED resources, requiring laboratory testing, imaging, and consultant services at significantly higher rates than younger patients.[6]Elderly patients with acute abdominal pain present with diagnostic challenges also. The change in physiology in elderly leads to atypical presentations, delayed symptoms, less predictable alterations in vital signs in response to disease, and markedly unreliable physical examinations leading to complication of symptom during presentation.[7] Elderly people present in ED with acute abdomen having vascular abnormality (Acute mesenteric ischemia, Abdominal aortic aneurism), intestinal disorder (bowel obstruction, Diverticular disease, Appendicitis), peptic ulcer disease, biliary disease and pancreatitis, and non-abdominal cause of abdominal pain(myocardial infarction, cystitis , pyelonephritis, hyper-calcemic, diabetic ketoacidosis).[8] This study aimed at identifying the frequency, cause and outcome of patient presenting in Emergency department with abdominal pain.

METHODS

It is a retrospective descriptive study conducted in tertiary care center at Chitwan, Nepal. Electronic data of one year from September 1st 2017 to August 30th 2018 were retrieved from emergency department and medical record. Inclusion criteria included all the elderly population equal and above the age of 60 years and presented with complaints of abdominal pain arriving to emergency department. Medical record was retrieved for patients'arrival, age, sex, presenting symptom, comorbidities, diagnosis, consultation, disposal of patient.

Data were analyzed using Statistical Package for Social Sciences (SPSS) for Windows 16.0 program. Frequency(n) and percentage (%) were given for categorical variable. Mean, standard deviation, minimum and maximum values were given for continuous variable. For comparison between age and sex of patient, Mann Whitney U test was used.

RESULTS

During the study period total of 24026 patients presented at Emergency Department. Among them 5323 (22.15%) were elderly more than or equal to 60 years. Elderly population who presented with chief complaints of abdominal pain were 1160 (21.79%). Among the patient presented with abdominal pain 605 (52.2%) were male and 555 (47.8%) were female.

Mean age of patients was 71.72±8.50 years (min: 60 years and max: 98 years). While mean age of female was 70.81± 8.20 years, similarly mean age of male was 72.56± 8.69 years. While comparing the age and sex of the study population age of male patient was significantly higher than females ($p<0.05$). In total 736 (63.44%) were from age group 60-74 years and 424 (36.55%) were from age group 75 years and above.

On the basis of time of presentation at ED, 800(68.96%) presented at day time (from 8 AM to 8PM). Among the presented at day time 446(38.4%) presented from 8 AM to 2 PM and 354(30.5%) presented from 2 PM to 8 PM. Remaining 336(31%) presented from 8PM to 8AM). Comparison was made among the sex and timing of presentation, and there was no any association between them ($p>0.05$). Month wise distribution of the patient was also studied. Maximum number of elderly presented at month of July and August of 2018 (i.e 120) and minimum were in the month of December 2017 (i.e. 73). Month wise distribution of elderly patient is shown in the Figure 1.

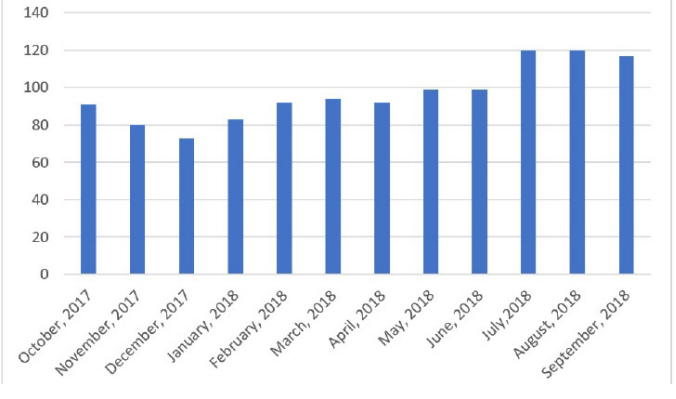

Figure 1: Month wise distribution of elderly Patient presenting at ED.

Among the study patient who presented with abdominal pain 730(62.93%) presented with gastrointestinal and biliary problems, 377(32.5%) with renal problem, 10(0.9%) with cardiovascular problem, 6(0.5%) with reproductive problem, 1(0.08%) with vascular and remaining 36(0.03%) had no any diagnosis made. While studying individual disease the most common diagnosis along with top 10 disease is tabulated in Table 1. Top 10 disease covers 82% of total patients.

Table 1: Top 10 disease of Elderly patient Presented in ED During 1 year period.

Diagnosis	Female(%)	Male(%)	Number of patients(%)
Urinary Tract infection	142(52.78%)	127(47.21%)	269(23.2%)
Peptic Ulcer Disease	126(51.63%)	118(48.36%)	244(21%)
Acute Gastroenteritis	112(62.22%)	68(37.77%)	180(15.5%)
Obstructive Uropathy	14(17.5%)	66(82.5%)	80(6.9%)
Upper Gastro-Intestinal Bleeding	12(24%)	38(76%)	50(4.3%)
Cholelithiasis	27(67.5%)	13(32.5%)	40(3.4%)
Pancreatitis	13(44.82%)	16(55.17%)	29(2.5%)
Alcoholic Liver Disease	7(31.82%)	15(68.18%)	22(1.9%)
Cholecystitis	12(57.14%)	9(42.85%)	21(1.8%)
Acute Appendicitis	9(52.94%)	8(47.05%)	17(1.5%)

When patient presented with abdominal pain, their Comorbidities (chronic illness) were studied and found out that 231(19.9%) had some comorbidities. While comparing between presence of co-morbidities and age groups (i.e. 60-74 years and 75 and above) a significance relation was obtained ($p<0.05$). Common co morbidity was hypertension present in 168(72.72%), Diabetes Mellitus was present in 48(20.77%) of patient with co morbidities. Among patient with co morbidities 154(66.66%) of patient had a single comorbidities and rest had more than one co-morbidity.

Furthermore the consulted department was also analyzed. A total number of 956 (82.41%) needed consultation and remaining were diagnosed and discharged by ED physician. Among the patient who were consulted 556 (58.15%) were consulted by Medicine department alone and 355(37.13%) were consulted by Surgery department only and 37(3.8%) were consulted with Surgery and Medicine in combined. Similarly remaining 8 (0.83%) were consulted with gynecology and obstetrics department.

Of the patient, 487(41.98%) got admitted, 1 patient was dead during treatment and 13(1.1%) people were referred to another center. Of the 659(56.8%) patient who were discharged from ED, 479(72.7%) were discharged with full recovery were patients that can be treated at home with oral medication, 158(24%) were discharged on request (i.e. can be discharged with oral medication but has not fully recovered presenting complaints) and 22(3.3%) were advised admission but left against the medical advice.

Among the admitted patient 223(45.79%) were admitted to medicine ward, 147(30.18%) admitted critical care unit, 116(23.81%) in surgery ward and 1(0.2%) at gynecology ward.

DISCUSSION

The life expectancy of people is rising all across the glove with the availability of modern tools of health care and increasing awareness of the disease.[9] As the life expectancy is being increased the need of emergency care has also been increasing. [10-11] Studies on elderly patient in different part of world suggests the range between 9 to 21%.[11-13] In our study we found to have 22.15%. The reason of having high elderly patient in our center might be due to its nature of care, since it is tertiary care center providing various type of super specialized service among 6 surrounding districts.

In studies conducted on various part of world showed that majority of females present to ED.[17-19] In contrary our study showed that majority were

male (52.2%). Although life expectancy of female is higher than male[2] but this study identified that as the age increase the chance of having a male patient was higher. This could be due to social hierarchy between male and female. Since Nepal is considered as the male dominant society and females are more likely to hide the disease condition. Siddiqui et al. conducted a study based on diabetes comparing male and female in glycemic control and found that female is likely to be engaged in household activity so they are likely to care less for their disease.[20]

A study conducted by Kilicarslan et al. found that common problem that elderly patent present on ED due to chest pain, abdominal pain, shortness of breath and headache(in the order of decreasing proportion of presentation).[14] Since this article is focused on elderly patient on abdominal pain, various studies have been done showing the percentage of elderly with abdominal pain at ED is between 5-10%.[14-16]

The most common diagnosis of this study based on system was gastrointestinal and biliary system having 730 (62.93%) patients. Among that system peptic ulcer disease 224 (21%), acute gastroenteritis 180(15.5%) upper GI bleeding 50(4.3%), cholelithiasis 27(3.4%), pancreatitis 22(1.9%) Alcoholic Liver disease 22(1.9%), cholecystitis 21 (1.8%) and Acute appendicitis are major diagnosis. Changing physiology of the elderly patient, the increased use of medications such as nonsteroidal anti-inflammatory drugs (NSAIDs), aspirin, steroids, and anticoagulants contribute to an increasing incidence of PUD.[22]Up to 40% of elderly population take NSAID for various pains that might lead to Peptic Ulcer Disease (PUD).[22] Although our study do not give any finding regarding the definitive cause of PUD, it has been found that *Helicobacter pylori* infection accounts for 53-73% of PUD.[22-23] Further detailed study of PUD is needed for identifying cause. Second most common diagnosis is gastroenteritis. Hall et.al. in a study identify that the gastroenteritis in elderly is nearly to 3% in Australia. But in this study gastroenteritis was diagnosed in 180(15.5%). This could be due to poor hygiene and poor eating habit of elderly population. Although hand washing practice is not studied in general population in Nepal but hand washing before eating and after going to toilet might be leading cause of gastroenteritis.

Biliary disease, specifically acute cholecystitis, is common surgical emergency among the elderly.[26]Reasons for cholecystitis can be due to age-related changes in the vasculature, increased co morbidities, and an increased incidence of gallstones.[27] In our study it shows the elderly patient presenting to ED have 4.2% of total disease relating to gall bladder.

Second most common system involved is urinary system i.e. 377 (32.5%). On urinary system Urinary tract infection alone was diagnosed in 269 (23.2%). A study in USA suggest that UTI accounts for almost 5% of all emergency department visits by adults aged 65 years and older in each year.[28]Incidence of UTI is higher in women compared with men across all age groups.[29]This study also suggest female patients 142(52.78%) as compared to male patients 127(47.21%) regarding UTI. Most common cause of UTI is having UTI previously,[30] In a study of postmenopausal women aged 55 to 75 years, having a history of UTI increased the risk of UTI by more than 4-fold in comparison with postmenopausal women without a history of UTI.[31]Other risk factors associated with developing UTI in older women include a history of urinary incontinence, presence of a cystocele, history of diabetes mellitus and poor peri vaginal hygiene.[30]

Among all the elderly population with abdominal pain 10(0.9%)were diagnosed as having cardiovascular disease (Coronary artery disease). In a study of elderly patients with unstable angina, 45% did not have any chest pain instead 8% had epigastric pain.[32]Patients with atypical presentations tend to have longer delays in treatment and therefore an increased mortality rate.[33] Therefore, it is very important to obtain an electrocardiogram in every elderly patient with epigastric pain.

Study conducted by Seung et.al. identifies that the majority of patient visit in the special time of day than as compared to night.[21] Similar findings have been identified in our study showing 68.96% in day time. Although the preference of gender visiting ED has not been studied and our study also didn't find out any significant relation between this.

Nepali communities have high social tolerance to alcohol use. Production, sale, and consumption of alcohol are ever on the increase and it could be taken as the number one problem drug in the country.[25]

Hence alcohol related disease in elderly was common including upper Gastrointestinal bleeding, alcoholic liver disease and alcoholic pancreatitis in our study.

This study also studied the presence and absence of co-morbidity. Various study from different part of world showed the prevalence of chronic disease is about 70-90%.[11,12,34] This study suggests very a smaller number of chronic illness/co morbidities (19.9%). Study conducted by Pinar et al.[11] common chronic illness to be hypertension (47.2%), Diabetes Mellitus (25.7%) and malignancy (24%). This study identifies that common co morbidities are Hypertension (72.72%), Diabetes mellitus (20.77%).

We also studied about the consultation done for abdominal pain in different department. Study conducted by Pinar et al.[11] concluded that 75.9% of patient needed consultation (44.5% to medicine and 27.2% to Surgery). Our study also has very high consultation 556 (82.41% total and 58.15% to Medicine, 355(37.8%) to Surgery,37(3.8%) to both surgery and medicine and 8(0.83%) to gynecology and obstetrics.)

This study also studied about the disposition of patient. This reports that 487(41.98%)patient was admitted at hospital. In a study conducted in turkey shows the similar type o finding regarding admission. That showed that 41% of patient got admitted due to abdominal pain.[11] Most of patient in our study was admitted to medical ward (45.79%), then to Critical Care unit (30.18%) and to Surgery ward (23.81%). Similar study finding was gained for study for Turkey, having highest number of admissions in medical department.[11] It could be because medical treatment is the most common treatment method in elderly population with abdominal pain unless the emergency surgical care is needed.[35,36]

This study has only taken data of emergency department. The disease process of patient of admitted patient was not studied. Further elaborative study is suggested.

CONCLUSION

This study suggested that the gastrointestinal and Biliary system were the most common problems presenting in the Emergency Department. Infectious disease covered the major portion of ED visit by the elderly which could be due to poor hygiene and sanitation.

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