Delay in Diagnosis of Stomach Cancer Patients Attending a Tertiary Care Hospital in Kashmir: A Hospital Based Cross Sectional Study

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Abstract:

Introduction: The incidence of cancer is increasing throughout the world. However, early detection of cancers is associated with a favourable outcome. Stomach cancer is one of the most common cancers of gastrointestinal tract. Majority patients visit physicians in developed stages. **Objective:** To evaluate the reporting pattern of stomach cancer patients living in Kashmir valley in order to determine the median time of delay from the beginning of symptoms to diagnosis. **Method:** Total 116 proven stomach cancer patients were evaluated for the pattern of presentation at endoscopy laboratory of Super Speciality Hospital, Shireen Bagh Kashmir from April 2019 to September 2020. **Results:** In this study, the mean age (SD) of participants was 60.22 ± (11.90) years. Majority of the participants (69.8%) were males. Cases were predominantly from the rural area (58%).Only 15.5 % of the cases were diagnosed within one month of their symptoms while as 3.4% of the cases had a total delay of more than 12 months. The study found a considerable total delay in the diagnosis of stomach cancer. The mean of the patient delay was 45.6 days. The median total delay was 20 weeks. **Conclusion:** Since stomach cancer has high mortality and morbidity rates associated, creating awareness among the population and training of physicians regarding timely referral of patients seems important.

Key words : Delay in diagnosis, Kashmir, Patient delay, Stomach cancer, Total delay

Introduction:

For centuries, cancer has been posing a major challenge to clinicians as well as epidemiologists throughout the world, contributing a major portion to the total deaths caused by non-communicable diseases. [1] Cancers of the gastrointestinal tract and the accessory organs of digestion (pancreas, liver, gall bladder) when considered collectively, have higher prevalence and cause more cancer related deaths than any other system in the body. In 2018, they accounted for an estimated 3.4 million deaths worldwide, with a further 4.8 million new cases diagnosed in the same year. Cancer of the stomach is the second most common cancer among cancers of Gastrointestinal tract. [2]

Stomach cancer is a major contributor of morbidity and mortality worldwide. It is the 5th leading cancer in the world and the 3rd most common cause of cancer related deaths. According to GLOBOCAN 2018, 1033701 (5.7% of total cancer) new cases of stomach cancer and 782685(8.2%)

stomach cancer related deaths occurred in 2018 globally. In India, stomach cancer is the 5th most common cancer (5.0 % of total) and the 5th most common cause of cancer related deaths (6-6% of total) among both genders together.[2] Traditionally stomach cancer has been reported to be more common in the southern parts of India, however recent reports have suggested a higher incidence in north-eastern regions of India including Jammu and Kashmir.[3]

Despite number of new diagnostic techniques, stomach cancer in its less aggressive stages is not diagnosed more frequently and hence the prognosis still remains poor. Thus, there is a possibility of delay in diagnosis as seen in literature also.[4] Early Diagnosis of cancer has important implications for patient care, researchers, and policy. When a diagnosis is made in a timely manner, a patient has the best opportunity for a positive health outcome because clinical decision making will be directed to a correct understanding of the patient's health problem. In case of stomach cancer, the prognosis is related to its clinico-pathological stage. However, there is no screening program, and even patients who develop suspicious symptoms may remain undiagnosed for many months or even years. The particular problem when dealing with stomach cancer is that there is no typical symptom which brings the patient to the doctor. Also, it is well known that delay in diagnosis is extremely important because cancers grow continuously, at differing rates, and that delay probably represents 1 – 2 doubling times of the tumour for most of the stomach cancer patient.[5] As this disease has relatively high prevalence in our part of the world and low survival rate, there is need to study any delay in reporting pattern of patients with stomach cancer. Therefore the present study was conducted with the aim to evaluate the reporting pattern of stomach cancer patients living in Kashmir valley in order to determine the median time of delay from the beginning of symptoms to diagnosis.

Method:

A Cross sectional study was conducted at Super Speciality Hospital, Shireen Bagh, which is an associated hospital of Government Medical College Srinagar, located in the Kashmir Division of the Union Territory of Jammu and Kashmir. It is one of the two multispecialty referral hospitals located in the Kashmir Division and provides specialist services like oncology, gastroenterology, cardiology, nephrology, among others. Study was conducted over a period of 18 months from April 2019 to September 2020.

Incident cases of stomach cancer diagnosed histo-pathologically were selected from Endoscopy Laboratory (Department of Gastroenterology) and General surgery ward (Department of Surgery). Persons residing in Kashmir since birth (original inhabitants of Kashmir) and histo-pathologically diagnosed stomach cancer were included in study. Patients diagnosed with any other malignancy in addition to stomach cancer, recurrent stomach cancer and those not giving consent were excluded from the study. Convenient sampling was used for the study. Due to time constraints, all the stomach cancer patients that reported during the study period were recruited for the study.

A total of 124 patients who had endoscopic findings suggestive of stomach cancer or were diagnosed with stomach cancer histologically during the study period were assessed for eligibility in the study. Twelve patients were enrolled from the Surgery ward, they were already histologically confirmed cases of stomach cancer and were awaiting surgery. One (01) patient among these did not give consent and two (02) were found to be recurrent cases and were therefore excluded. A total of 112 patients were considered eligible from the endoscopy laboratory immediately after they underwent upper gastrointestinal endoscopy and had endoscopic findings suggestive of stomach cancer. Upper gastrointestinal endoscopy was performed by an experienced gastroenterologist

under local anesthesia using a fiberoptic endoscope. Biopsy specimens of stomach lesions taken during endoscopy were sent for histo-pathological examination. Out of these 112 patients, histo-pathological report of four (04) did not confirm stomach cancer and hence were not included in the study, and one (01) patient did not give consent for the study and was excluded. Therefore, out of 124, 8 participants were excluded and hence total of 116 Patients were eligible for the study after fulfilling inclusion and exclusion criteria.

Selection of study participants
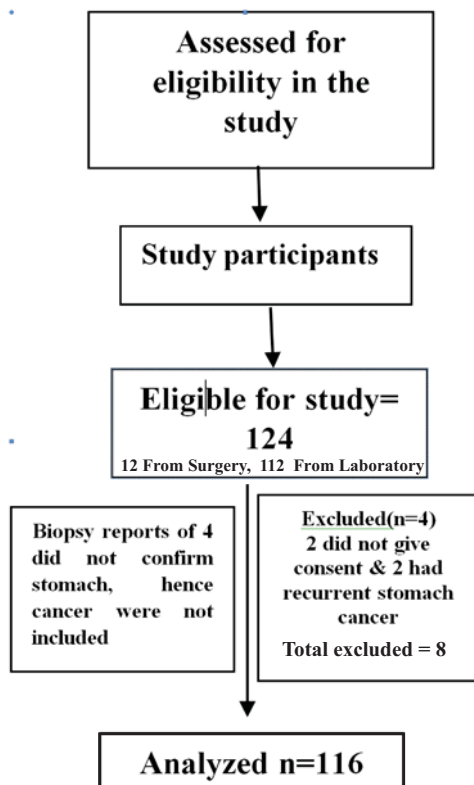
A total of 116 patients with endoscopic findings suggestive of stomach cancer and were biopsy report suggestive of stomach cancer were included in the study. Upper gastrointestinal endoscopy was performed by an experienced gastroenterologist under local anaesthesia using a fiberoptic endoscope. After selection, the study participants were thoroughly informed about the study. A written informed consent to participate in this study was obtained from all the study participants. A face-to-face interview was conducted by a Resident Doctor

from department of Community Medicine, Government Medical College Srinagar with each study participant based on a predesigned semi-structured questionnaire, which had been tested in a pilot phase on ten participants. The questionnaire elicited information on socio-demographic characteristics, presenting symptom, initial management of symptoms, Time from the first symptom to first contact with a Registered Medical Practitioner (Patient delay), Referral pattern, Time from the first symptom to diagnosis (Total delay) etc.

The data was entered in a Microsoft Excel spreadsheet and analyzed using SPSS software. Categorical variables were expressed as frequencies and percentages. Continuous variables were expressed as mean and standard deviation. Patient delay and total delay was expressed in the form of box and whisker plot. The study was approved by the Institutional Ethical Committee of Government Medical College, Srinagar.

Results:

In present study, the mean age (SD) of participants was $60.22 \pm (11.90)$ years. Majority of the participants (69.8%) were males. Cases were predominantly from the rural area (58%). Around 48.3 % of the participants belonged to class III of modified Kuppuswamy Socioeconomic scale 2019[6] (lower middle) while as an equal number (48.3%) belonged to class IV of the modified Kuppuswamy Socioeconomic scale 2019. (Table1)

The most common presenting symptom among cases was pallor occurring in 25 (21.6%) patients followed by malena (18.1%). (Figure 1) Approximately four fifth (81%) of the cases sought consultation from a Registered Medical Practitioner (RMP) for their initial symptoms while as 12.1% of the cases sought early consultation from sources other than Registered Medical Practitioner like pharmacist, traditional healer. (Figure 2) Figure 3 demonstrates a box and whisker plot that shows

Table 1: Socio-demographic characteristics of study participants (N=116)

Variables	Frequency (%)
Age (years)	
Mean ± S.D	60.22 ± 11.90
<35	5 (4.3)
35-44	10(8.6)
45-54	9 (7.7)
≥55	92(79.4)
Gender	
Male	81(69.8)
Female	35(30.1)
Residence	
Urban	49(42.0)
Rural	67(58.0)
Socioeconomic status*	
Class II (upper middle)	4(3.4)
Class III (lower middle)	56(48.3)
Class IV (upper lower)	56(48.3)

*As per Modified Kuppuswamy Socioeconomic scale 2019[6]

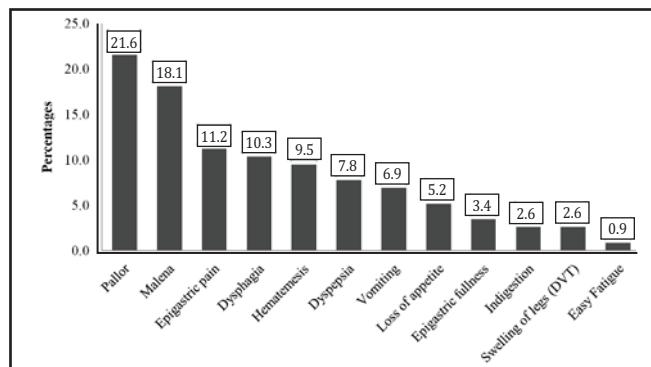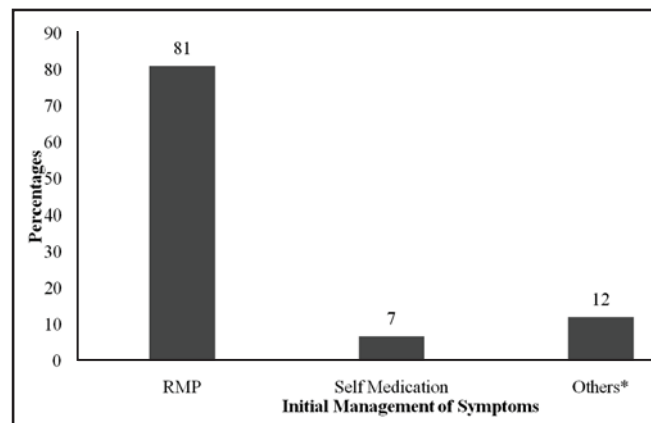## Figure 1: Distribution of participants as per their Presenting symptom

Figure 2: Distribution of participants as per their Initial management of symptoms

*Others include pharmacists, traditional healers.

patient delay in days. In this study, the first place of seeking medical advice for the majority of the patients (41.4%) was a Community Health Centre (CHC) while as private hospital consultation was preferred by only 9.4% of the cases.

Table 2 depicts the distribution of cases as per their time of the first contact with a doctor/medical facility after the onset of symptoms. The mean of the patient delay was 45.6 days. The distribution of cases as per the time taken from the onset of symptoms till the final diagnosis is also mentioned in Table 2.Only 15.5% of the cases were diagnosed within one month of their symptoms while as 3.4% of the cases had a total delay of more than 12months. The median total delay was 20 weeks (140 days) with an Interquartile range of 17 (Figure 4).

Discussion:

The present study was a cross sectional study that was conducted at Super-Specialty Hospital, Shireen Bagh. A total of 116 participants were included in the study. In this study, majority of the participants (41.4%) were in the age group 65-74 years and majority of the participants (69.8%) were males.

The most common presenting symptom among participants was pallor occurring in 25 (21.6%) patients followed by malena (18.1%) and the least common symptom was fatigability which was reported by 0.9% of the cases. However, in a study conducted by Mikulin T et al, the commonest presenting symptoms among stomach cancer were increasing intensity of epigastric pain, vomiting, and dysphagia.[7] Distribution of cases as per their time of

Table 2: Distribution of participants as per patient delay and total delay (N=116)

Time to first contact with doctor/medical facility (patient delay)	Frequency (%)
Within 1 week	53 (45.7)
1-2 weeks	10 (8.6)
2-3 weeks	5 (4.3)
3-4 weeks	23(19.8)
1-2 months	4(3.4)
2-3 months	6(5.2)
> 3 months	15(12.9)
Time from onset of symptoms till final diagnosis (total delay)	
<1 month	18(15.5)
1-3 months	46(39.7)
4-6 months	17(14.7)
7- 12 months	31(26.7)
>12 months	4 (3.4)

Figure 3: Box and whisker plot showing patient delay in days
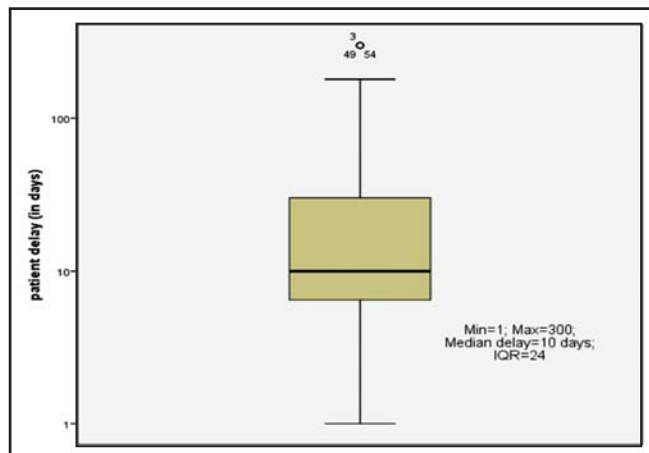
Figure 4: Box and whisker plot showing total delay in days

the first contact with a doctor/medical facility after the onset of symptoms. This time period from onset of the first symptom was studied to the first visit to a doctor is termed as a patient delay. However, recall bias can be introduced by patients by not correctly remembering the time of their first symptoms, and avoidance of such bias is impossible. About 45.7% of the cases reported to a doctor within one week of their symptoms while as 12.9% of the cases had a patient delay of more than 3 months. The mean of the patient delay was 45.6 days. Seyed Nejat Hosseini et al in Iran, found that the mean length of patient delay in stomach cancer was 15.01 days.[4] In this study, though the symptoms of stomach cancer were very varied, there was only a short delay for most of the patients before seeking medical advice, the median delay being of 10 days and an Interquartile range (IQR)= 24. These results are in agreement with a study conducted by Seyed Nejat Hosseini et al in Iran in which they found a median patient delay of 8

days.[4] However, in another study conducted by Haugstvedt TK in Norway, the median patient delay was of 42 days.[8]

Distribution of cases as per the time taken from the onset of symptoms till the final diagnosis was evaluated in present study. This time period from onset of symptoms till diagnosis is referred to as total delay. Around 15.5% of the cases were diagnosed within one month of their symptoms while as 3.4% of the cases had a total delay of more than 12months. Haugstvedt TK in Norway found that 11% of the patients had a total delay of more than 12 months.[8] In current study, the mean of the total delay was 20.16 weeks(140.7 days) which is similar to the

mean of total delay of 121.5 days observed by Seyed Nejat Hosseini et al in Iran.[4] The median total delay was 20 weeks (140 days) with an Interquartile range of 17 in current study. These results are in accordance with a study conducted by Mikulin T et al in which the median total delay was 22 weeks with an Interquartile range of 19.[7] However, in a study conducted by Haugstvedt TK et, the median total delay was 107 days[8] and in a study by Seyed Nejat Hosseini et al, the median total delay was 96 days.[4] The increased total delay in our study may be attributed to the patient's failure to take the symptoms seriously initially and not following up with the doctor regularly.

The present study also found that both patient and system related factors were responsible for causing delay in stomach cancer patients. The patient related factors mainly included the patient's failure to take the symptoms seriously initially and not following up with the doctor regularly. Hospital related factors include duplication of investigations, fully investigating iron-deficiency anaemia as many patients presented with pallor and initial misdiagnosis. However, Doctors can contribute to overall delay by failing to keep a high level of suspicion for stomach cancer and delay in referral to an endoscopist. Similar findings were reported in literature also. [9,10]

Conclusion:

Total delay in diagnosis of stomach cancer was higher than expected. Since stomach cancer has high mortality and morbidity rates creating awareness among the population and training of physicians regarding timely referral of patients seems important. It is essential to educate the common mass regarding the early signs and symptoms of stomach cancer. At the same time, secondary delays need to be avoided by directly visiting the physician after the onset of symptoms. This will contribute to increasing the survival rate for the disease.

Recommendations:

Screening plans for early diagnosis of stomach cancer are required so as to ensure early diagnosis of this disease, thereby reducing the delay, and consequent mortality caused by this disease. Further studies are required to study the factors associated with various types of delay and act thereupon.

Declaration:

Funding: Nil

Conflict of Interest: Nil

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