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Research Article

**SERUM C-REACTIVE PROTEIN LEVEL IN PATIENTS
WITH GASTRIC CANCER**

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Abstract:

OBJECTIVE: To determine the serum C-reactive protein level in patients with gastric cancer.

PATIENTS AND METHODS: The two year hospital based cross-sectional multidisciplinary and multicenter study was conducted at tertiary care hospitals and the data was also recruited from few private hospitals. All the patients presented with gastrointestinal symptoms as poor appetite, weight loss, abdominal (belly) pain and sense of fullness, nausea and vomiting were explored for gastric cancer while the known cases of gastric cancer were also recruited and studied. After taking clinical history, physical examination and routine investigations, the patients were explored for C-reactive protein by taking 2 cc venous blood sample and sent to laboratory for analysis whereas the frequency / percentages (%) and means \pm SD computed for study variables.

RESULTS: During two year study period total fifty patients were explored and study. The mean \pm SD for age (yrs) of population was 54.31 \pm 6.64. Regarding gender male 35 (70%) and female 15 (30%), residence as urban 30 (60%) and rural 20 (40%), raised WBC count 42 (84%), raised ESR 44 (88%), anemia 37 (74%) and raised C-reactive protein 34 (68%) respectively.

CONCLUSION: Increased serum CRP level was significantly associated with poor prognosis in patients with gastric cancer.

KEYWORDS: C-reactive protein (CRP), Stomach cancer, Gastric cancer and gastrointestinal malignancy.

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INTRODUCTION:

Gastric cancer remains one of the most common and deadly cancers worldwide, especially among older males and at present, complete resection is the only curative therapy, with evidence for increased survival with addition of adjuvant therapies. Nowadays tumor node metastasis (TNM) staging remains to be the major tool for prognosis evaluation in gastric cancer before treatment.¹ However the accuracy of TNM staging is far from satisfactory due to the individual differences.

C-reactive protein (CRP), named for its capacity to precipitate C-polysaccharide of *Streptococcus pneumoniae*, has been widely known as a protein involved in host defense and accepted to be a sensitive but nonspecific systemic marker of inflammation.² Mainly produced by hepatocytes, CRP in plasma elevates during acute inflammation caused by infection and other stimuli such as trauma burns.³ As a marker of inflammation, the prognostic value of CRP in cancer has also been uncovered.⁴ We therefore conducted hospital based cross sectional study in relation to determine prognostic importance of serum CRP in gastric cancer in our population.

PATIENTS AND METHODS:

The two year hospital based cross-sectional multidisciplinary and multicenter study (2015-

2017) was conducted at tertiary care hospitals and the data was also recruited from few private hospitals. All the patients presented with gastrointestinal symptoms as poor appetite, weight loss, abdominal pain and sense of fullness, nausea and vomiting were explored for gastric cancer while the known cases of gastric cancer were also recruited and studied while the exclusion criteria were patients with connective tissue and autoimmune disorders, intestinal perforation, hematological malignancies, pregnant women, esophageal cancer already on anti-inflammatory medication, antibiotics, corticosteroids, immunosuppressive drugs and the subjects with gastric perforations. After taking clinical history, physical examination and routine investigations, the patients were explored for C-reactive protein by taking 2 cc venous blood sample and sent to laboratory for analysis. The data was collected on pre-designed proforma and analyzed in SPSS to manipulate the mean \pm SD, frequencies and percentages.

RESULTS:

During two-year study period total fifty patients were explored and study. The mean \pm SD for age (yrs) of population was 54.31 ± 6.64 . The demographical and clinical profile of study population is presented in Table 1.

TABLE 1: THE DEMOGRAPHICAL AND CLINICAL PROFILE OF STUDY POPULATION

Parameter	Frequency (N=50)	Percentage (%)
AGE (yrs)		
20-29	03	14
30-39	07	24
40-49	16	26
50-59	18	20
60+	06	16
GENDER		
Male	35	70
Female	15	30
RESIDENCE		
Urban	30	60
Rural	20	40
RAISED WBC COUNT		
Yes	42	84
No	08	16
RAISED ESR		
Yes	44	88
No	06	12
ANEMIA		
Yes	37	74
No	13	26
RAISED C-REACTIVE PROTEIN		
Yes	34	68
No	16	32

DISCUSSION:

The present study showed that the increased CRP level in gastric cancer patients indicated a significant association with poor outcome.⁵The underlying molecular mechanism of the prognostic value of CRP in gastric cancer remains unclear, although the close association between systemic inflammation and cancer can be the major factor, while the long-term inflammation can lead to tumorigenesis.⁶ A typical example is the relation between Helicobacter pylori infection and gastric cancer.⁷ H. pylori infection can induce acute or chronic gastritis, which may lead to gastric cancer after the gastric mucosa passing through a sequence of histological changes, including atrophy, intestinal metaplasia, dysplasia, and adenocarcinoma.^{8,9} The local infection induces a series of cytokines released from either immune or non-immune cells and these cytokines enhance the production of CRP from hepatocytes. On the other hand, with the progression of gastric cancer, the tumor itself can also trigger regional inflammatory response and release proinflammatory cytokines results in the formation of an inflammatory microenvironment.¹⁰

CONCLUSION:

Increased serum CRP level was significantly associated with poor prognosis in patients with gastric cancer and suggests that serum CRP level can be used to provide more appropriate prediction of survival.

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