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The age range and gender difference of gastric cancer patient who experience gastrectomy and their hospitalization time

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Abstract:
Background*: Proofing this study has its own common age range group as risk factor to gastric cancer by specifying common age range , gender and the stay patient days in hospital to determine incident rate to gastrectomy at Hangzhou city in Zhejiang at SIR RUN RUN SHAW Hospital Zhejiang university affiliated hospital*
Materials and Methods*: The data of 143 patients at srrsh hospital, admitted as gastric cancer patient is analyzed in comparative manner. The patient gender and ages were the most focused information and matter of comparison. The whole number of patient data is analyzed. No sampling methodology is used. Simple and clear statistical methodology is used like data tabling, percentile and mean measurement.*
Results*: The common age range that lie 65.7% of patients is from age 61 years old patients to 98 years old patients. While ages from then 41 years to 60 represented only 32.9% of the patients. And younger than 40 years old represent only 1.4% admitted at hospital in two years.*
Conclusion: *Intrathecal Most common age range of gastric cancer patient in SIR RUN RUN SHAW Hospital Zhejiang university affiliated hospital that lie 65.7% of patients is from age 61 years old patients to 98 years old patients. Specific a related studies is recommended to define the highest common age and gender range of incidence for gastric cancer.*
Key Word*:* Laparoscopic gastrectomy *;* robotic gastrectomy*;* gastric cancer*;* oestrogen*;* minimally invasive surgery.

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I. Introduction

Although the overall incidence and mortality rates of gastric cancer continue to decline, it remains the fifth most common cancer and the third leading cause of cancer-related death worldwide [1]. Operation, including surgical or endoscopic resection, is the only potentially curative treatment for gastric cancer. Patients with early-stage disease may have a high survival rate after surgery; however, patients with inoperable, recurrent, or metastatic disease receiving palliative chemotherapy or supportive care have a poor prognosis [2, 3].

This surgical operability is closely related to the prognosis of patients with gastric cancer. Operability is determined not only by the stage of the tumor but also by the patient's characteristics, including age [4]. Age is a non-modifiable risk factor for gastric cancer, and the incidence of gastric cancer increases with age [3]. Furthermore, the proportion of elderly patients with gastric cancer is increasing as the life expectancy of the general population increases in developed countries [5]. Elderly patients with gastric cancer are generally recognized as having a worse long-term prognosis than younger patients [6], but controversies exist regarding the impact of age on cancer-specific mortality [7]. Several studies have been conducted on the prognosis of young and elderly patients with gastric cancer; however, the results were inconclusive, and the reference age used varied across the studies [7–10]. In addition, there are no established treatment strategies for specific age groups of patients with gastric cancer [11]. In real-world practice, elderly patients are more likely to have conservative treatment without surgery because they are perceived as having a poorer prognosis after surgery than younger patients even in the same stage [7]. However, even if age is a clear prognostic factor in patients

with gastric cancer, the influence of age on the prognosis of gastric cancer of different stages has not been well-established.

Therefore, a stage-specific approach is required to accurately analyze the impact of age on the mortality rate of gastric cancer. Such an approach may provide a basis for determining which therapeutic approaches should be applied to patients with gastric cancer according to age at different stages. Although a few studies on the impact of age by gastric cancer stage have been conducted [5, 12], there were limitations regarding accurate staging because population-based registry data were used in the studies. In this retrospective study, we aimed to evaluate the impact of age ,gender and stay patient in hospital with gastric cancer using a SIR RUN RUN SHAW Hospital Zhejiang university affiliated hospital with cancer stage data based. We retrospectively reviewed the prognostic factors of gastrectomy for 29 year to 98 year who had undergone curative gastrectomy for gastric cancer.

Laparoscopic gastrectomy (LG) has been reported to be a valid alternative to open surgery for the treatment of early gastric cancers, particularly in Eastern countries. Conventional laparoscopy presents some challenges for surgeons, including a two-dimensional view, an increase in physiologic tremors, limited manipulation, and ergonomic discomfort. These technical issues have limited the application and adoption of laparoscopy for major abdominal surgical procedures, which require a specific surgical-skill set and ability. Robotic technology can overcome most of the challenges of conventional laparoscopy, because it provides the surgeon with an advanced system for viewing and manipulation, and it eliminates physiologic tremors by using a computerized mechanical interface. Additionally, the articulated tools provide seven degrees of freedom to reproduce the movements of the human hand inside the abdominal cavity, thus facilitating manipulation. Furthermore, the robotic console reduces ergonomic discomfort, enabling the surgeon to maintain a comfortable position for many hours if needed. All of these technical advantages are very important for improving the quality of minimally invasive surgery, particularly for longer and more complex procedures. The first experiences with robotic gastrectomy (RG) were published by Giulianotti et al. and Hashizume and Sugimachi in 2003 [13 21–23 15]. Retrospective analyses, metaanalyses and reviews confirmed the safety and feasibility of using RG for lymphadenectomies in the treatment of gastric cancer.

The gastrectomy might remain one of the best solution to cure and to avoid the life threating of gastric cancer in the early gastric cancer and advanced gastric cancer for a long period of time. This operation saves and prolong the life of the patient .The surgeon surgery skills is an asset to affirm the ability to provide the best care of the oncology patient .It is possible that an experience surgeon could transition directly from open gastrectomy; LG and RG easily after a few experiences with LG. Open gastrectomy is linked with all of post operation complication.

Scientific research studies about the different methods of gastric cancer surgery and their symptoms, preoperative surgery, postoperative surgery and complications and treatments is of great importance. This available information is vital for the evident knowledge about the disease and their occurrence patterns. However, some of the patients have the early stage of gastric cancer and other the final stage of cancer. Therefore, through the retrospective analysis of a large number of clinical data .The study will also provide information about all the stage of gastric cancer surgery the location of the tumor and the comparison of surgical procedure open surgery (OG) and laparoscopy surgery (LG). In addition, the research study will also provide ways to determine which of gastric cancer surgery gender , age and stay hospital days .

The research objectives for the study are the following:

- To clarify the correlation between the gender, age on the gastric cancer surgery
- To determine the predominance gender between male and female patient on the gastric cancer
- to Define the outcome for the patient diagnosis on gastric cancer and undergo gastrectomylaporoscopy focusing on stay hospital duration time .

II. Material And Methods

The data of 143 patients at Zhejiang university school of medecine srrsh hospital, admitted as Gastric cancer patiet who in need of surgery is analyzed in comparative manner study.The patients' ages were the most focused information and matter of comparison. Gender and age biannually .The whole number of patients' data is analyzed to insure more accurate results about the topic since a generalized conclusion is aimed to achieve at the end of the study. No sampling methodology is used. Simple and clear statistical methodology is used like data tabling, percentile and mean measurement. All these patients were admitted to SIR RUN RUN SHAW Hospital Zhejiang university affiliated hospital from the period starting from JANUARY 2018 to JUNE 2019. Data was collected from these patients in accordance with various characteristics such as age, gender, macroscopic type, location and depth of the lesion, size of the tumor and pathological type etc. But this retrospective study focus mainly on the gender, age and stay hospital time in our hospital SIR RUN RUN SHAW Hospital Zhejiang university affiliated hospital.

Methods

The data of 143 patients at SIR RUN RUN SHAW Hospital Zhejiang university affiliated hospital, admitted as Gastric cancer is analyzed in comparative manner study. The patient ages and gender were the most focused information and matter of comparison. Gender and age per year admissions are also noticed in statistical approach. The whole number of patient data is analyzed to insure more accurate results about the topic since a generalized conclusion is aimed to achieve at the end of the study. No sampling methodology is used. Simple and clear statistical methodology is used like data tabling, percentile and mean measurement.All these patients were admitted to SIR RUN RUN SHAW Hospital Zhejiang university affiliated hospital from the period starting from JANUARY 2018 to JUNE 2019. Data was collected from these patients in accordance with various characteristics such as age, gender, macroscopic type, location and depth of the lesion, size of the tumor and pathological type etc. But this retrospective study focus mainly on the gender, age and stay hospital time in our hospital SIR RUN RUN SHAW Hospital Zhejiang university affiliated hospital.

	Patient	Percentage
Male	111	77.6%
Female	32	22.4%
Total	143	100%

Table 1*: *Gender difference of admitted patients

Male gender is more than female gender to this health problem.77.6% of the 143 patients that the study covered are male where 22.4% are female gender. The predominance gender of gastric cancer is male patient clearly prove and 143 patient on two years collected data clarify that only 32 female patient diagnose gastric cancer .

Age range	Number of patients		Percentage
	2018	2019	
29-40	1	1	1.4%
41-60	28	19	32.9%
61-98	53	41	65.7%
Total	143		100%

Table 2 : Age of admitted patients on this two years range

The common age range that lie 65.7% of patients is from age 61 years old patients to 98 years old patients. While ages from then 41 years to 60 represented only 32.9% of the patients.And younger than 40 years old represent only 1.4% admitted at hospital in two years.

In patient days range	Number of patients		Percentage
	2018	2019	
9-20	53	45	68.5%
21-40	28	13	28.6%
41-91	1	3	2.7%
Total	143		100%

Table 3: Stay Hospital for gastric cancer patient

The common days range 68.5% of inpatient stay at hospital less than 20 days.Between 21 to 40 days represent 28.6% of inpatient for this two year and only 2.7% for more tha 41 days.This biannually study clearly show less 2.7%of all the patient stay in hospital and the post operation complication also less for the patient who undergo gastrectomy and by contraste 68.5 % recover well.

III. Discussion

Gastric cancer is more prevalent in males. In developed countries, gastric cancer is more likely to be diagnosed in males than females. In this study, 143 patients of gastric cancer patient ages were been analyzed and it is found out that 65.7% of patient are age range of 61 to 98 years old which gives us that the common age range of incidence to gastric cancer in Hangzhou city . Where then 41 years to 60 represented only 32.9% of the patients in SIR RUN RUN SHAW Hospital Zhejiang university affiliated hospital. Whatever the cause is, age

ranges of most incidence to head injuries are different from area to another. Gender incidence is more clearly common to male as 77.6% of the patients are male gender while females represent only 22.4% of the 143 patients. The common days range 68.5% of inpatient stay at hospital less than 20 days. Between 21 to 40 days represent 28.6% of inpatient for this two year. And only 2.7% for more than 41 days.

Both environmental and genetic risk factors would contribute to the patterns of sex difference in gastric cancer. Helicobacter pylori infection has been proven as the most detrimental risk factor of gastric cancer [24] The male predominance of H. pylori infection would lead to an increased risk of gastric cancer [25] , Smoking is also an important but relatively weaker risk factor for gastric cancer, comparing with H. pylori infection [26-27] . The role of alcohol in gastric cancer depends on the level of alcohol intake. More recently a consensus has been reached that moderate alcohol intake may be not associated with gastric cancer, but heavy alcohol intake does increase the risk of gastric cancer[28] Therefore, more consumption of tobacco and alcohol in men could result in a higher risk of gastric cancer. A meta-analysis had supported the hypothesis that longer exposure to oestrogen effects of either ovarian or exogenous origin may decrease risk of gastric cancer [29]. The underlying reasons is not yet clear but various mechanisms have been suggested. There is evidence that oestrogen may lead to increased expression of trefoil factor proteins, which protect mucous epithelia or inhibit oncogene expression [30].

Gastric cancer incidence in both sexes had shown a continuing decline over the past decades. The decreasing incidence is strongly related to decreasing prevalence of H. pylori and increasing use of refrigeration resulting in less exposure to dietary carcinogens like salted and stale food [31] Previous study revealed that men had greater perceived risk for developing cancers [32] .Since risk perceptions for cancer were associated with worry about cancer, [33] men may seek healthcare more frequently and benefit more from the progress in gastric cancer screening. Screening of high-risk populations rather than mass population screening might be more cost effective in many countries, which makes screening more relevant for men [34]. In addition, prolonged exposure to perceived stress at work was associated with greater risk of gastric cancer [35] . In modern society, which is characterised by a rapid pace of life, high demands and competitiveness, men are more likely to use alcohol and women more likely to use direct action when coping with work stress [36].The interaction of a stressful work environment and the individual's responses to it may be related to an increased risk of gastric cancer among men.

Studies have shown that gastric cancer is a consequence of the accumulation of multiple epigenetic and genetic alterations [37]. Thus, it is natural that the incidence rates of gastric cancer increased with age in both sexes. The increasing sex difference under the age of 70 years could be attributed to differences in exposures to environmental carcinogens such as tobacco and alcohol consumption, [37-38] as well as biological differences such as sex hormones and the metabolic system.Interestingly, sex difference in incidence rates decreased above the age of 70 years. Spouses tend to share lifestyle factors like dietary intake and living environment over many years especially in old ages in which there is a high risk of cancer. A study of the importance of family factors in cancer had shown a significant familial risk for almost all types of cancer including gastric cancer [39], Besides, decreased levels of sex hormones in old women may weaken protection against gastric cancer, which could also reduce sex difference in the elderly.

It is noteworthy that women had higher incidence than men in younger population. Evidence had shown rising incidence of gastric cancer in younger adults in recent decades, while more common autoimmune gastritis of which gastric cancers are important long-term complications and more antibiotics use which disrupts indigenous constituents of digestive tract microbiota in women would help explain the findings[40-41]. Countries with higher levels of socioeconomical status were found to have greater sex difference in gastric cancer incidence. There are several likely explanations for this phenomenon. The longer life expectancy was observed among the rich, the more educated and those in the labour force[42].Since sex difference in gastric cancer increases with age, socioeconomical advantage on longevity in developed countries would lead to greater sex difference. There is evidence that overweight and obesity are related to an increased risk of gastric cancer [43] Socioeconomical status has more impact on males' body mass index (BMI) changes than females', with faster BMI growth rates in men of high-socioeconomical status [44] The lower quality and less affordability of medical care in developing countries might contribute to less difference in gastric cancer screening among men and women.

Stomach cancer occurs most often in the age group from 50 to 70 years and more often concerns men[45-46] . The percentage of gastric cancer in patients under 40 years old is estimated at a level of 1.4%. Overall, higher age at diagnosis was correlated with a worse gastric cancer-specific prognosis. Specifically, the mortality rate of gastric cancer increased with age in patients with stage I or II gastric cancer whereas the

mortality rate of gastric cancer was not affected by an increase in age in patients with stage III or IV gastric cancer.The incidence of gastric cancer increases with age [47] is associated with increased susceptibility to injury, delayed healing of the gastric mucosa, and increased expression of cancer stem cell markers[48-49]. Additionally, H. pylori-associated gastritis increases with age [50] . However, it had been unclear whether the prognosis of already established gastric cancer worsens with age.

As expected, overall mortality in patients with stage I and II gastric cancer was higher in the elderly groups than in the younger groups. This is likely because mortality from any cause other than gastric cancer is higher in elderly patients than in younger patients]. Relatively high gastric cancer-specific mortality in elderly patients is presumed to be associated with inadequate treatment of these patients. The primary curative treatment for gastric cancer is surgical resection, and adjunctive chemotherapy or radiotherapy may also be required [51] . Gastrectomy with extended (D2) lymphadenectomy is currently the standard surgical procedure for patients with resectable gastric cancer, with a goal of examining at least ≥15 lymph nodes [51-52] . The total lymph node number has been reported to play an important role in prognostic evaluation and treatment decisions[53-54]. However, elderly patients with gastric cancer have been reported to be associated with partial gastrectomy and inadequate lymph node harvesting, which may result in insufficient treatment and inadequate staging [55-56] . Inadequate staging may be associated with inadequate postoperative treatment, including adjuvant chemotherapy or radiotherapy. Moreover, elderly patients have been reported to receive adjuvant chemotherapy less frequently and have lower completion rates due to poor performance status[55] .

Gastric cancer shares a more aggressive growth pattern, advanced tumor stage, and higher noncurability rate, which are all poor prognostic factors for GC affecting young and older patients similarly [56] . Variations among studies, including race, clinicopathological features, and treatment strategy, may contribute to inconsistent conclusions about survival. The stage distributions were different between young and older patients. Young patients with GC are most often diagnosed at advanced stage and organ involvement, suggesting a potentially greater burden of disease. This may be explained by the fact that young patients have fewer comorbidities or impairments of functional status and better tolerate aggressive treatment. In particular, treatment strategies have evolved over time D2 surgery, minimally invasive surgery, perioperative management, and targeted therapy have been offered over the years and can significantly improve the prognosis in young patients, who are more often candidates for these treatments than their older counterparts [57].

Gastric cancer rates have been considerably lower in females than males [58]. A possible explanation might be that the protective effect of estrogen may lower the risk of gastric cancer in women. Other causes such as differences in diet and occupational exposure may contribute to increased gastric cancer incidence in males[59] Gastric cancer risk is lowered by delayed menopause and increased fertility. Increased risk may be seen with anti-estrogen drugs, for example tamoxifen [60-62] . After menopause the incidence of gastric cancer in women has a similar pattern to that in men, but with a 10- to 15-year lag period [59].

IV. Conclusion

Gastric cancer (GC) is one of the most common malignancies worldwide and it is the fourth leading cause of cancer-related death. GC is a multifactorial disease, where both environmental and genetic factors can have an impact on its occurrence and development. The incidence rate of GC rises progressively with age; the median age at diagnosis is 70 years. we have shown in this retrospective study that gastric cancer below the age of 40 years old are less 1.4% .Male gender is more than female to this health problem.77.6 of the 143 patients that the study covered are male where 22.4% are female gender. The common age range that lie 65.7% of patients is from age 61 years old patients to 98 years old patients. While ages from then 41 years to 60 represented only 32.9% of the patients. And younger than 40 years old represent only 1.4% admitted at hospital in two years. The common days range 68.5% of inpatient stay at hospital less than 20 days. Between 21 to 40 days represent 28.6% of inpatient for this two year .And only 2.7% for more than 41 days. Gastric cancer is difficult to diagnose early with a poor prognosis, and patients often do not realize until cancer progresses to early and advanced stages. This study has presented the common age range and the gender balance for gastric cancer patient.

Surgical therapy for gastric cancer originated in Western countries and developed rapidly in china. Chinese experience suggests that screening programs should be implemented to improve the early detection of gastric cancer, particularly in high incidence areas. Surgical safety and maximizing the probability of a cure should remain the highest priorities; however, chemotherapy, along with genetic diagnosis and targeted therapy, are gaining importance worldwide. Further studies are needed to consider how best to balance the combinations among neoadjuvant or adjuvant chemotherapy and surgery in patients with gastric cancer. Attempts should also be made to reduce the incidence of gastric cancer, in addition to taking account of quality of life and economic

costs. Recent developments and modifications of minimally invasive techniques have also attracted increasing interest especially in China.

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