Impact of timing to surgery in gastric cancer survival: An NCDB Analysis

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Background

Surgical resection is the first line of treatment for gastric cancer and it remains unclear whether surgical delay has a meaningful impact on survival outcomes. We aimed to elucidate if a longer time interval between diagnosis and surgery impacts survival outcomes, and if so, determine the optimal timing to perform the procedure with the highest survival outcomes.

Methods

Patients diagnosed with Stage I-IV gastric cancer who underwent surgery between 2004-2018 were identified in the NCDB and divided into four groups based on time intervals between diagnosis and surgery. Cox-PH analysis and Kaplan-Meier curves were used to evaluate survival outcomes.

Conclusions

Our study identifies no association between worse survival and timing to surgery spanning 4 to 12 weeks and beyond. Clinicians and surgeons should be cognizant of this information when balancing timing to surgery with other patient needs in order to optimize patient outcomes. On Stage II-IV disease, surgery should be ideally done between 4-12 weeks for improved survival.

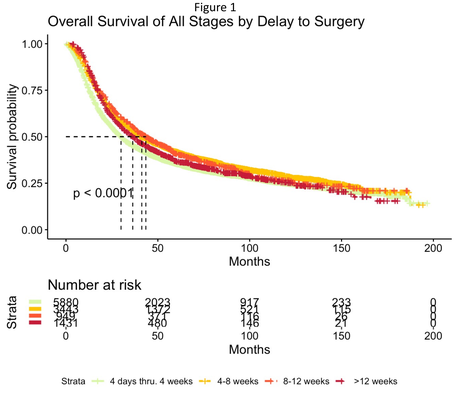
Results

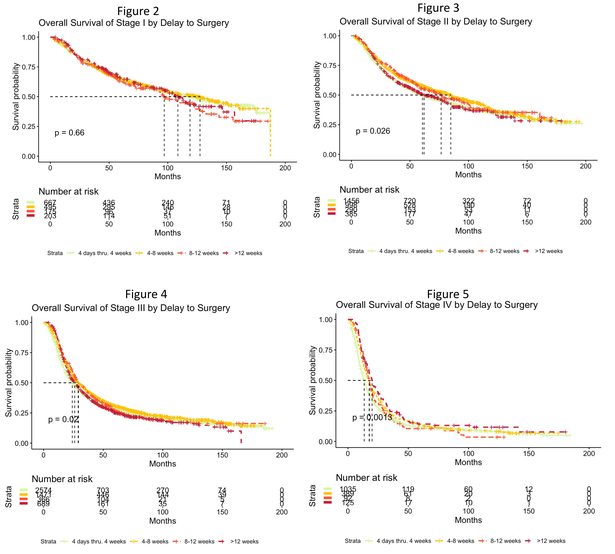
11,703 GC patients identified through the NCDB were further divided by length of time from diagnosis to surgery into 4 groups:

- 3 days to 4 weeks [5,880 (50.2%)]
- 4 to 8 weeks [3,443 (29.4%)]
- 8 to 12 weeks [949 (8.2%)]
- >12 weeks [1,431 (12.2%)]

When controlling for possible confounders (Table 1), patients who had surgery between 4 weeks and 8 weeks had better survival outcomes than those who had surgery before 4 weeks. A delay to surgery of 8 to 12 weeks and >12 weeks had better survival, but not at a statistically significant level.

Figure 1-5: Kaplan-Meier survival curves without adjustment for confounders.





When evaluating all stages, there was a difference in survival probability among the four groups (Figure 1). On a stage by stage analysis, only Stage 1 gastric cancer patients showed no difference in survival among groups (Figure 2).

Table 1. Multivariable survival analysis assessing the independent effect of delay to surgery.

Characteristic	HR	95% CI	p-value
Surgical Delay Group			**0.009**
≥ 4 days to < 4 weeks	—	—	
4 weeks to 8 weeks	0.81	0.72, 0.92	
8 weeks to 12 weeks	0.86	0.71, 1.04	
>12 weeks	0.88	0.71, 1.07	
Age	1.01	1.01, 1.02	**<0.001**
Race			**<0.002**
Asian	—	—	
Black	1.46	1.16, 1.83	
White	1.37	1.12, 1.67	
Other	0.84	0.52, 1.37	
Clinical T Stage			**<0.001**
1	—	—	
2	1.00	0.85, 1.17	
3	1.45	1.25, 1.68	
4	1.84	1.53, 2.21	
Tumor location			**<0.001**
Body or Curvature	—	—	**<0.002**
Fundus	1.33	1.03, 1.71	
Gastroesophageal junction/ Cardia	1.26	1.11, 1.49	
Overlaping lesion	1.40	1.17, 1.67	
Pylorus	1.14	0.88, 1.48	
Gastric Histology			**0.039**
Absent Signet Ring	—	—	
Present Signet Ring	1.15	1.01, 1.32	
Lymphovascular Invasion			**<0.001**
Absent	—	—	
Present	1.46	1.30, 1.65	
Adjuvant Therapy Group			**<0.001**
Radiotherapy and Systemic Therapy	—	—	
No adjuvant therapy	6.65	3.18, 13.9	
Only Radiotherapy	0.98	0.67, 1.43	
Only Systemic	1.18	1.06, 1.33	

References:

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