



Long-term late effects in older gastric cancer survivors: Survival analysis using cox hazard regression model by retrospective electronic health records

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Background

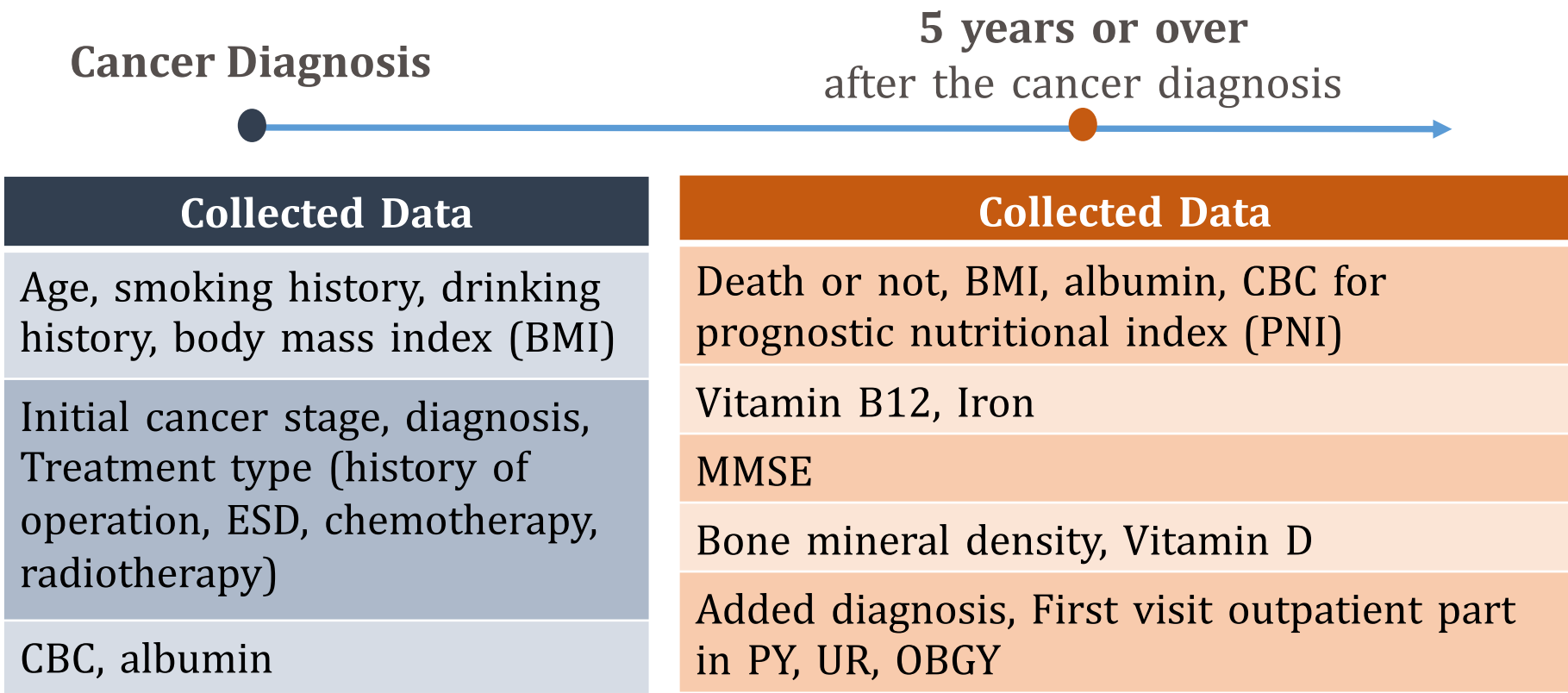
- The rise in **older gastric cancer(GC) survivors** due to high incidence rate and low mortality rate
- Lower quality of life** in older cancer survivors and **increase in social care cost** of the older cancer survivors

Purpose

- To explore **long-term late effects** of gastric cancer survivors and consider **factors that contribute to the survival** of older cancer survivors

Methods

- Research design: **Retrospective Descriptive study** based on **electronic health records** analysis
- Searched Date: January 1, 2011 – April 15, 2017
- Study population: A total of **9539 cases**, **gastric cancer patients** who underwent **gastrectomy** or **endoscopic submucosal dissection(ESD)**
- Data collection:**



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Methods cont'd

- Data analysis: **R software**
 - ✓ **Descriptive statistics analysis:** General characteristics, clinical characteristics, late effects characteristics
 - ✓ **t-test, Wilcoxon test, Cochran-Armitage Trend test, and chi-square tests**
 - ✓ **Survival analysis using Cox proportional hazard model:**
Cumulative hazard ratio, Schoenfeld test, Cox proportional hazard regression

Results

Table 1. The key characteristics of the study population

Category		Total N=9539 mean±SD or n(%)	Under 65 years N=5951 mean±SD or n(%)	Over 65 years N=3588 mean±SD or n(%)
Age at the diagnosis		59.89±11.79	52.72±8.45	71.78±4.92
Death		856 (9.0)	443 (7.4)	420 (11.7)
Sex*	Male	6328 (66.3)	3833 (64.4)	2495 (69.5)
	Female	3211 (33.7)	2118 (35.6)	1093 (30.5)
Initial stage*	CIS	259 (2.7)	133 (2.2)	126 (3.5)
	1	6582 (69.0)	4097 (68.8)	2485 (69.2)
	2	1019 (10.7)	642 (10.8)	377 (10.5)
	3	1199 (12.6)	739 (12.4)	460 (12.8)
	4	249 (2.6)	186 (3.1)	63 (1.7)
	No information	238 (2.5)	158 (2.7)	80 (2.2)
Treatment type*	ESD	2432 (25.5)	1262 (21.2)	1170 (32.6)
	Gastrectomy	4382 (45.9)	2886 (48.5)	1496 (41.7)
	Multimodality treatment	3825 (28.6)	1803 (30.3)	922 (25.7)

* P<0.05

Results cont'd

Table 2. Significant differences in long-term late effects between young and old groups

Category	Subcategory	Under 65 years (N = 5951) mean±SD or n (%)	Over 65 years (N = 3588) mean±SD or n(%)
ER visit* (n=358)	Once or more	187 (3.14)	171 (4.77)
MMSE* (n=223)	Normal	65 (90.3)	107 (73.3)
	Abnormal	7 (9.7)	39 (26.7)
Vitamin B12* (n=3248)	(pg/mL)	485.37±325.51	851.14±639.68
	Normal	1813 (78.8)	692 (73.1)
	Deficiency or High	488 (21.2)	255 (26.9)
Iron* (n=3088)	(ug/dL)	121.78±47.13	100.52±35.57
	Normal	666 (30.0)	409 (47.0)
	Deficiency	429 (19.3)	188 (21.6)
	High	1123 (50.6)	273 (31.4)
PNI* (n=4489)		54.45±2.99	51.04±3.82
	Normal	2594 (85.7)	981 (67.1)
	Mild malnutrition	334 (11.0)	362 (24.8)
	Severe malnutrition	65 (2.1)	80 (5.5)
	Serious malnutrition	34 (1.1)	39 (2.7)

* P<0.05; PNI: Prognostic Nutritional Index

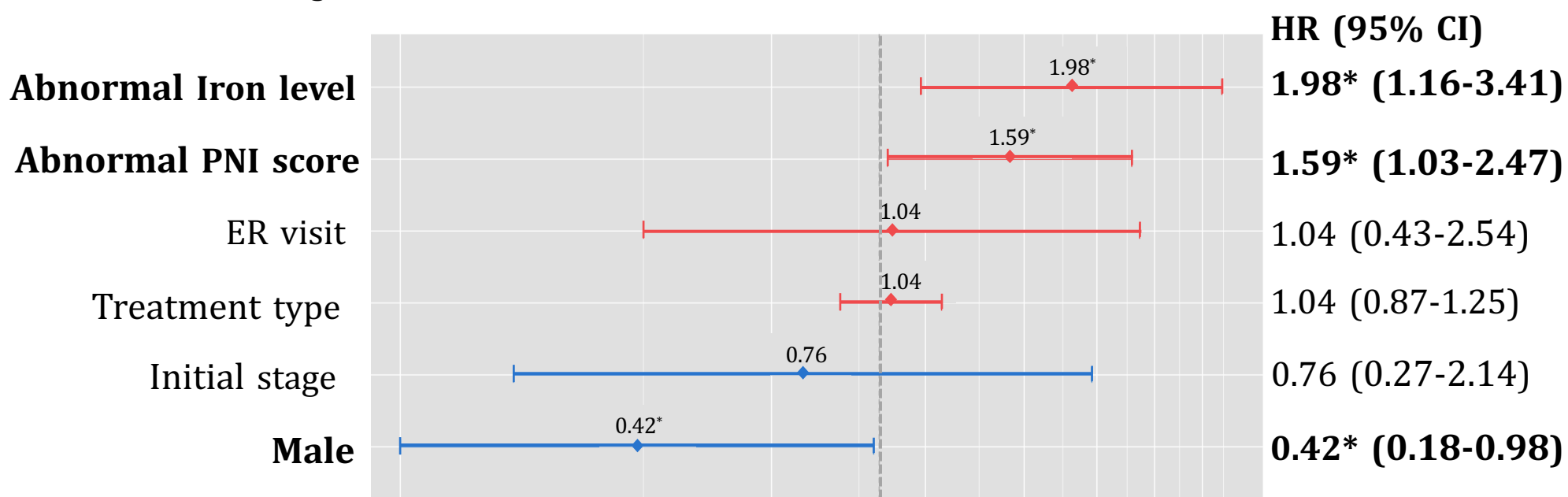


Figure 1. Cox proportional hazard ratio in older 65 years

Conclusions

- Some prognostic factors, including female, iron level, and PNI score, should be considered as predictors of survival in older GC survivors 5 years after diagnosis.