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Editorial

Screening Upper Endoscopy for Early Detection of Gastric Cancer

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▸ See the article "Optimal Endoscopic Screening Interval for Early Detection of Gastric Cancer: a Single-Center Study" in volume 33, e166.

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Gastric cancer (GC) incidence rate in Korea is very high (52.7 for men and 21.4 for women per 100,000, age-standardized in 2014). Symptoms in early stage of GC are minimal or nonspecific, therefore, GC is usually diagnosed by screening upper endoscopy.[1] In everyday life, prevention of GC is important. The primary prevention of GC consists of *Helicobacter pylori* treatment and modifications of daily life habits to avoid GC development. The secondary prevention of GC consists of early diagnosis of early gastric cancer (EGC) for appropriate treatment. Knowledge of GC screening and surveillance data by literature are important for planning the secondary prevention of GC.

However, there are still debates on the best interval of screening endoscopy for the early diagnosis of GC. The Korean National Cancer Screening Program (KNCSP) provides GC screening by upper endoscopy or upper gastrointestinal X-ray, every 2 years for all Korean people aged over 40 years since 2005 regardless of individual degree of GC risk.[2] For the early diagnosis of GC, understanding the concept of sojourn time is helpful. The sojourn time of a cancer is defined as asymptomatic duration which a cancer can be detected by screening tests before developing typical symptoms. The mean sojourn time (MST) of GC in Korean men is estimated 2.37 years (95% confidence intervals, 1.92 to 2.96). Younger patients aged 40 to 49 years had shorter MST than older patients (1.25 vs. 3.74 years).[3] In another paper, MST for women was shorter than men (15.14 vs. 21.67 months) in GC patients. These MST results have proven that every 2 years GC screening interval by KNCSP is reasonable.

GC has two histologic subtypes, intestinal type and diffuse type. Intestinal type GC is developed by the Correa's pathogenesis mediated by *H. pylori* infection, associated with gastric atrophy and intestinal metaplasia and found more frequently in older people. Instead, diffuse type GC is sporadic, more aggressive and found more frequently in young people.

Family history of GC is associated with increased risk of GC. About 20% of GC patients have family history of GC and most cases are sporadic cases rather than inherited syndromes. People who have family history of GC do not need a more frequent GC screening program than people without family history of GC.

The prognosis of GC patients is associated with the cancer stage at initial diagnosis. Therefore, in GC, early diagnosis and early treatments including endoscopic resection

(ER) can decrease the mortality and morbidity rate. In this issue, Jin et al.[4] published a questionnaire survey for penultimate endoscopy and GC diagnosis interval. They reported that the interval of upper endoscopy below 2 years and 3 years was associated with significantly higher proportions of EGC detection. They concluded that an endoscopic screening program every 3 years might be as effective as every 2 years in EGC detection and subsequent curable ER.

In Japan, GC risk stratification by pepsinogen (PG) test and serology tests for *H. pylori* are properly used. PG I < 70 ng/mL or PG I/II ratio < 3.0 are regarded as severe gastric atrophy and are associated with high GC risk. PG test positive and *H. pylori* positive group need *H. pylori* treatment without surveillance. Upper endoscopy is recommended in the PG test positive group suggesting severe gastric atrophy and significant risk of GC regardless of *H. pylori* infection. PG test positive and *H. pylori* negative group means severe gastric atrophy that *H. pylori* is spontaneously eliminated from unfavorable gastric life conditions. In this group, frequent annual upper endoscopy is essential.[5] The best interval of screening upper endoscopy for the early diagnosis of GC in Korea is not fixed yet. In one paper, annual upper endoscopy screening in Korea improved detection of early stage (98.6% vs. 80.7%) and endoscopically treatable GC (56.9% vs. 33.3%) compared to every 2 years screening endoscopy.[6] Annual upper endoscopy may be useful for the people with high risk of GC (with age over 50 years, family history of GC, smoking, male, and presence of intestinal metaplasia).

When patients with GC underwent surgical treatment, the 5-year GC specific survival rates of screening endoscopy interval less than 2 years were significantly higher than those of screening endoscopy more than 2 years. Screening endoscopy was helpful in increasing survival of GC patients and the 2-year endoscopic screening interval is recommended to detect early stage GC. In conclusion, the KNCSP by upper endoscopy at 2-year intervals for people aged over 40 may be sufficient for GC screening in most cases unless the KNCSP provides individualized screening upper endoscopy interval by GC risk stratification.

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