哪些人需要內視鏡檢查及定期追蹤？

Who need endoscopic screening and surveillance

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The purpose of endoscopic screening or surveillance is to detect precancerous lesions and/or early gastric cancer because the prognosis is highly correlated with the stage of cancer at diagnosis. Patients who are at risk of gastric cancer are suggested to receive endoscopy screening and surveillance.

The etiologies of gastric cancer include *Helicobacter pylori* (*H. pylori*) infection, autoimmune gastritis, hereditary gene defects, and others. *H. pylori* is a class I carcinogen and *H. pylori*-related gastritis results in atrophic gastritis and intestinal metaplasia, which are precancerous conditions of gastric cancer. Approximately one third (33% [95% CI 26%–41%]) and one fourth (25% [95% CI 19%–30%]) of the population in the world have chronic atrophic gastritis and intestinal metaplasia, respectively. Moreover, the half of them has extensive chronic atrophic gastritis (16% [95% CI 12%–20%]) and intestinal metaplasia (13% [95% CI 9.0%–17%]) [1]. The incidence rates of gastric

cancer in patients with atrophic gastritis and intestinal metaplasia are 2.25 (95% CI, 1.67–2.90) and 7.58 (95% CI, 4.10–1.91) per 1000 person-years in East Asia, respectively [2]. Intestinal metaplasia almost occurs in underlying atrophic mucosa [3]; thus, the characteristics or biomarkers of atrophic gastritis could be used to screen subjects who need endoscopic screening. Male, *H. pylori* infection, old age ≥ 40 years, and residents in countries with high gastric cancer incidences are risk factors to have chronic atrophic gastritis [1]. Autoimmune gastritis induces corpus atrophic gastritis, pernicious anemia and/or iron deficiency anemia. Subjects with autoimmune gastritis are at risk of not only gastric adenocarcinoma (the odds ratio [OR] 2.18 [95% CI 1.94–2.45]) but also gastric carcinoid tumors (OR 11.43 [95% CI 8.90–14.69]) [4]. Thus, patients with autoimmune gastritis are suggested to receive endoscopic screening and surveillance to detect both gastric adenocarcinoma and type 1 gastric neuroendocrine tumor. Family history of gastric cancer, including first- and second-degree relative, increases the risk of gastric cancer (the relative risk 2.35 [95% CI 1.96–2.81]) [5]; thus, subjects with family history of gastric cancer are suggested to commence endoscopy screening at the age of 10 years earlier than that of affected relatives while gastric cancer is diagnosed [6]. In addition, there are various suggestions for gastric cancer screening for those with hereditary genetic mutations, i.e., familial gastric cancer syndromes [7].

The severity of atrophic gastritis and intestinal metaplasia could be evaluated by histological analysis by topographic biopsy based on operative link for gastritis assessment (OLGA) and/or operative link on gastric intestinal metaplasia assessment (OLGIM), endoscopic mucosal visualization

according to Kimura-Takemoto classification or endoscopic grading of gastric intestinal metaplasia (EGGIM), or serological tests by serum pepsinogen (PG) I and I/II ratio. OLGA or OLGIM stages III–IV predict higher risk of gastric cancer than stages 0–II (OR 2.64 [95% CI 1.84–3.79] for OLGA and 3.99 [95% CI 3.05–5.21] for OLGIM) [8]. Kimura-Takemoto severe-type or open-type of atrophy has increased risk of gastric neoplasm (the pooled risk ratio 3.89 [95% CI 2.92–5.17] for severe-type and 8.02 [95% CI 2.39–26.88] for open-type) [9]. EGGIM by using narrow-band imaging could predict OLGIM stages III–IV accurately (the area under the receiver operating characteristic curve 0.96 [95 % CI 0.93–0.98])[10]. PG I ≤ 70 ng/mL and PG I/II ratio ≤ 3 could predict subjects to develop non-cardiac gastric cancer (OR 11.1 [95% CI 4.3–28.8]) [11]. Moreover, PG I < 45 ng/mL and PG I/II ratio < 6 could predict subjects with OLGA/OLGIM stages III-IV or gastric cancer (sensitivity 0.60 [95% CI 0.36–0.80] and specificity 0.71 [95% CI 0.65–0.76])[12].

In addition to down-staging gastric cancer, the balance between efficacy and costs of endoscopic surveillance is important. A cost-effectiveness analysis reported the optimal intervals of surveillance for subjects with different gastric cancer risk. The interval is annual for OR 5.46–21.5 and 2-yearly for OR 2.4–5.46 [13]. According to the OR of gastric cancer, the optimal interval of endoscopic surveillance for subjects with OLGA/OGLIM stages III–IV in Taiwan may be 2 to 3 years.

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