Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

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Preventive strategy of gastrointestinal endoscopy unit against COVID-19: A tertiary center experience in Taiwan

Coronavirus disease-2019 (COVID-19) caused by severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2) has become global pandemic since the early 2020.[1–3] It is spread out by aerosol droplet, saliva and feces whereas gastrointestinal (GI) endoscopy poses a potential risk for transmission.[1–4] We took countermeasure to prevent GI endoscopy associated COVID-19 infection since late January 2020 at the Ultrasonography and Endoscopy Center of Far Eastern Memorial Hospital in Taiwan.

Pre-procedural measures

All personnel entering the hospital had to wear surgical masks, including staffs, patients and accompanying persons. They used smart phone to self-report a 7-day renewed TOCC questionnaire. A checkpoint station was set up at the entry of hospital and endoscopy unit. Risk stratification for possible COVID-19 exposure were done by checking body temperature, reading TOCC data and health ID card which linked to immigration record. Social distancing was executed with at 1.5-m distance marking at floor in the queue area and chairs in the waiting zone, and cleanable plastic clapboard in catering area for separation of staffs. There were dedicated endoscopes, processors, automatic endoscope reprocessors, and disinfection and storage areas for confirmed COVID-19 infected patients.

Intra-procedural measures

Low risk patients received endoscopy in regular rooms, and high risk or confirmed patients in negative-pressure rooms. Donning and doffing personal protection equipment (PPE) was performed as recommended orders. For patients at high risk or confirmed infection, all endoscopes and processors were protected with disposable transparent plastic film, and an acrylic box at patient's head position to prevent staffs from saliva and aerosol droplets exposure (Fig. 1). Alternative percutaneous biliary drainage was recommended for obstructive jaundice patients at high risk for COVID-19 instead of duodenoscopy. Elective colonoscopy for diarrhea patients with positive TOCC within 2 weeks was postponed.

Post-procedural measures

Patients were scheduled back to outpatient department within 14 days to inquire about new-onset COVID-19 related symptoms. All endoscopy accessories were disposable and processed as contaminated wastes. Staffs who had been exposed to high risk or confirmed patients strictly followed autonomous health management and reported back if any suspicious symptoms. All endoscopes used in high-risk or confirmed patients underwent routine high-level disinfection with detergent-immersion method which prevents aerosol particle spilled out. Terminal disinfection of the environment in the endoscopy suite with 75% alcohol and 600 ppm sodium hypochlorite were performed.

Until 4th April 2021, the global data showed more than one hundred and thirty million confirmed cases with about 2.8 million deaths (mortality rate 2,848,304/130,893,813 = 2.2%) in 192 countries.[2] In Taiwan, there were 1047 confirmed patients with 10 deaths (mortality rate 1.0%). In our institute, totally 14,119 persons received RT-PCR for SARS-CoV-2 until February with 10 confirmed cases without mortality. Between 1st January 2020 and 24th February 2021, there were 22,294 patients underwent endoscopic procedures and 8060 accompanying persons with real-name registered. 420 suspicious but PCR tested negative patients underwent endoscopic examination. There was no GI endoscopy related SARS-CoV-2 transmission in our institute.

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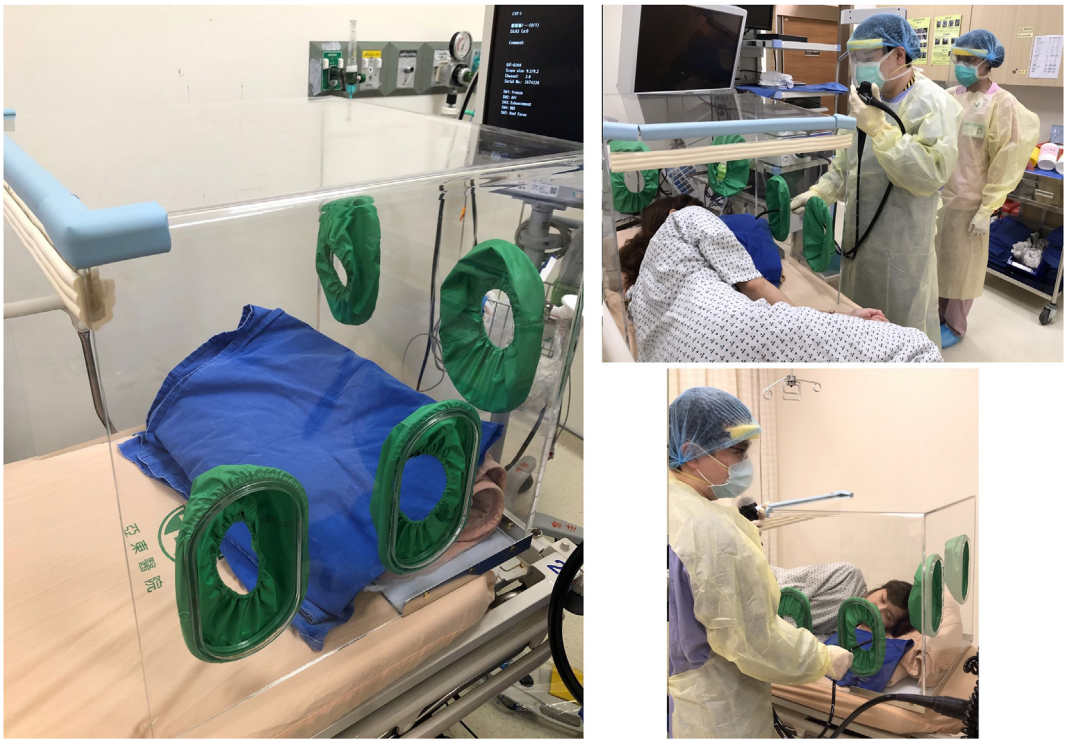

Fig 1. Protective equipment to prevent staff exposure to aerosol droplets during upper gastrointestinal endoscopy procedures.

Preventive strategy against COVID-19 by reallocation of endoscopy or institute resources and risk stratification is crucial to decrease the spread of SARS-CoV-2 before effective treatment and vaccine developed.[5–7]

Author contributions

Study concept and design: Chen-Shuan Chung, I-Fang Tsai, Kuan-Ming Chiu, Chun-Hsing Liao. *Analysis and interpretation of data:* Chen-Shuan Chung, Chen-Shuan Chung, I-Fang Tsai, Kuan-Ming Chiu, Chun-Hsing Liao. *Critical revision of the manuscript for important intellectual content:* Chen-Shuan Chung, I-Fang Tsai, I-Hua Lee, Pei-Chun Tsai, Meiyu Wu, Ya-Ching Huang, Jing-Yi Ma, Po-Chun Tseng, Kuan-Ming Chiu, Chun-Hsing Liao. *Statistical analysis:* Chen-Shuan Chung. *Obtained funding:* Chen-Shuan Chung. *Administrative, technical or material support:* I-Hua Lee, Pei-Chun Tsai, Meiyu Wu, Ya-Ching Huang, Jing-Yi Ma, Po-Chun Tseng.

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The authors have no conflicts of interest or financial ties to disclose.

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Chen-Shuan Chung
Division of Gastroenterology and Hepatology, Department of Internal Medicine, Far Eastern Memorial Hospital, New Taipei City, Taiwan
Ultrasonography and Endoscopy Center, Far Eastern Memorial Hospital, New Taipei City, Taiwan
College of Medicine, Fu Jen Catholic University, New Taipei City, Taiwan

I-Fang Tsai
I-Hua Lee
Pei-Chun Tsai
Ultrasonography and Endoscopy Center, Far Eastern Memorial Hospital, New Taipei City, Taiwan

Mei-Yu Wu
Ya-Ching Huang
Division of Infectious Diseases, Department of Internal Medicine, Far Eastern Memorial Hospital, New Taipei City, Taiwan

Jing-Yi Ma
Ultrasonography and Endoscopy Center, Far Eastern Memorial Hospital, New Taipei City, Taiwan

Po-Chun Tseng
Division of Gastroenterology and Hepatology, Department of Internal Medicine, Far Eastern Memorial Hospital, New Taipei City, Taiwan

Kuan-Ming Chiu
Department of Cardiovascular Medical Center, Far Eastern Memorial Hospital, New Taipei City, Taiwan

Chun-Hsing Liao*
Division of Infectious Diseases, Department of Internal Medicine, Far Eastern Memorial Hospital, New Taipei City, Taiwan
School of Medicine, National Yang Ming Chiao Tung University, Taiwan

*Corresponding author. Department of Internal Medicine, Far Eastern Memorial Hospital; No. 21, Section 2, Nanya South Road, Banciao District, New Taipei City, Taiwan. Fax: +886 2 89660906.
E-mail address: liaochunhsing@gmail.com (C.-H. Liao)

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