Variations in the reported prevalence of gastroesophageal reflux disease in Taiwan

Gastroesophageal reflux disease (GERD) has been the troublesome symptoms and complications caused by the reflux of gastric content. Based mainly on the pathological characteristics of reflux injuries that present in the esophagus, GERD is often classified in terms of nonerosive reflux disease, erosive esophagitis (EE), or Barrett’s esophagus. Clinically, GERD is not uncommon in Taiwan. A small-scale study observed that EE presents in 36% Taiwanese subjects with a clinical diagnosis of GERD. As early as a 1997 report, 5% of gastroenterological endoscopic services indicated EE. A large, nation-wide population study (n = 123,882) performed by the National Health Insurance Databank reported that 3.9% of registrants were diagnosed with GERD. Regarding the main reflux symptoms, 7% of physically examined patients reported at least one incidence of heartburn per week. On a community study-based questionnaire distributed to 1238 residents, 25% were diagnosed with GERD. In another study, the authors indicated that 17.3% of 2040 patients were diagnosed with EE. Data obtained from small (n = 482) and large-scale (n = 19,812) studies performed in Taiwan indicate that the prevalence of EE is 12% and 15.7%, respectively. It seems that the prevalence of EE in Taiwan, according to studies on patient examinations, are somewhat comparable without marked deviation. However, some variation in reported GERD prevalences, ranging from 3.9—25%, does exist in Taiwan. This variation probably means that the definition of GERD, study patients, pathological diagnosis, and other factors may differ between studies and account for these discrepancies. In addition, there are usually obvious intra- and interobserver inconsistencies regarding endoscopic diagnosis, particularly for the diagnosis of EE. Accordingly, it is very likely that the endoscopic diagnosis of EE and reported results of various institutions/endoscopists may be variable. Apart from the above-mentioned confounding factors, the current prevalence of low-grade EE has already been confirmed to be on the rise in Taiwan, even within the latest 7-year period. However, even though the prevalence of GERD has been reported twice, the authors never addressed why their community study indicated a higher prevalence whereas the prevalence determined by physical examination was lower. Among the prevalence studies, the community or large-scale values are generally lower compared with those of selected populations because the latter were usually too concerned with their current state of health to respond to the questionnaires. For example, a nation-wide GERD prevalence study conducted in Taiwan reported a relatively lower prevalence compared with other selected population studies.

Regarding the risk factors leading to GERD, the authors also indicated that male gender, smoking, increased body mass index, and hiatal hernia were independent risk factors among the enrolled subjects. However, these reported GERD risk factors are not new in Taiwan because the literature already indicates that male gender, old age, hiatal hernia, smoking, alcohol consumption, metabolic syndrome, high fasting blood glucose level, high blood pressure, obesity, and chronic obstructive pulmonary disease are well-known confounding factors that can lead to GERD, including EE. The authors are just confirming the known GERD risk factors again. In contrast to the abovementioned risk factors, the authors had indicated that females and the middle-aged persons (40—59 year of age) are at increased risk of developing GERD according to their community study. Until now, the notion that females are at increased risk of developing GERD seems very unusual regardless if the study was performed in the East or West. It is still controversial why males were found to be at higher risk of developing EE on physical examination, whereas females were found to be at higher risk of developing GERD in community-based studies.

During the initial univariate analysis, the authors indicated that presenting with diabetes and hyperglycemia (fasting blood glucose level >110 mg/dL) were a couple of the risk factors associated with EE; however, the impacts of these two conditions were removed after subsequent multivariate analyses. Alternatively, both hyperglycemia and increased insulin resistance have been reported as risk factors that lead to the development of EE, particularly among the obese population. The World Health Organization (WHO) defines diabetes as a single raised blood glucose level with symptoms or two raised blood glucose levels on two separate occasions; a raised level is defined as either a fasting blood glucose level ≥ 126 mg/dL or a positive glucose tolerance test within 2 hours after the administration of an oral dose and a plasma
glucose level \( \geq 200 \text{ mg/dL} \). \(^{14}\) In surveys of two separate cohorts (1993–1996 and 2004–2008), the prevalence of diabetes in Taiwan increased significantly in men from 4.6% to 9.3%, whereas the prevalence of diabetic women decreased slightly from 7.9% to 6.4%. \(^{15}\) Interestingly, the authors also illustrated that the prevalence of diabetes and hyperglycemia among 2040 enrolled subjects were 6.6% and 12.2%, respectively. These values correlate very well with what is currently believed to be the actual prevalence of diabetes in Taiwan, especially because type II diabetes is characterized by insulin resistance which may be in combination with reduced secretion of insulin. \(^{14}\) Based on their initial univariate observations and other Taiwanese studies that address the impact of diabetes and insulin resistance, the authors recommend further study of the subgroups of type II diabetes that would definitely be at risk of developing EE, otherwise their reports just confirm the already known risk factors without any novel contributions.

In conclusion, GERD is not rare in Taiwan, however its prevalence is usually determined by the used definitions, enrolled patients, and acknowledgment by the investigators. In contrast to GERD, EE is easily identified via endoscopy although it constitutes less than half of all GERD subjects. Finally, the well-known risk factors that lead to the development of GERD, including EE, were repeatedly confirmed here, while the diabetic impact of GERD remains controversial and needs to be resolved in the future.

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