J Neurogastroenterol Motil, Vol. 20 No. 4 October, 2014
pISSN: 2093-0879 eISSN: 2093-0887
http://dx.doi.org/10.5056/jnm14098
Journal of Neurogastroenterology and Motility

Journal Club

Circulating Inflammatory Cytokines Are Associated With the Risk of Barrett's Esophagus in Western Persons

(Clin Gastroenterol Hepatol 2014;12:229-238, e3)

Su Youn Nam
Department of Internal Medicine, Center for Cancer Prevention & Detection, National Cancer Center, Goyang, Gyeonggi-do, Korea

Summary

Obesity is a definite risk factor of Barrett's esophagus (BE) and is associated with circulating levels of adipokines and inflammatory cytokines. Several studies suggested the association between BE and inflammatory cytokines or adipokines, but, their association is controversial.

Recently, Garcia et al[1] performed the case-control study to investigate the relationship of BE with inflammatory cytokines and adipokines. The study included 141 patients with BE and 139 controls who underwent screening colonoscopy and esophagogastroduodenoscopy. They evaluated the association between BE and circulating levels of adipokines and cytokines (IL-1β, IL-6, IL-8, IL-10 and IL-12p70; tumor necrosis factor-α; and interferon-γ). BE had a positive association with high circulating level of IL-12p70, IL-8 and leptin, but had no association with IL-6. BE had a negative association with IL-10 and IL-1β. There were no differences between cases and controls in levels of interferon-γ, tumor necrosis factor-α, adiponectin or insulin.

Comments

Obesity, especially abdominal obesity is associated with BE and esophageal adenocarcinoma.[2,3] Abdominal adipose tissue derived inflammatory cytokines and adipokines have been suggested as one of the plausible mechanisms, but their association has been controversial in previous studies. A well designed and large number of case-control study by Garcia et al[1] showed the strong association between BE and inflammatory cytokines. BE was associated with an increase in inflammatory cytokines (IL-12p70, IL-6 and IL-8) and leptin and a decrease in anti-inflammatory cytokine (IL-10). Most of these associations remained significant after adjusting for age, sex, race, waist to hip ratio, *Helicobacter pylori* status and use of proton pump inhibitor, suggesting an important role of cytokines and inflammation in the development of BE.

Leptin is secreted proportionally to the amount of fat. A previous study showed an association between BE and leptin levels in women but not in men,[4] whereas others have reported this association in men but not in women.[5] Garcia et al[1] showed a clear

Received: August 29, 2014 Revised: September 15, 2014 Accepted: September 16, 2014

*Correspondence: Su Youn Nam, MD
Department of Internal Medicine, Center for Cancer Prevention & Detection, National Cancer Center, 323 Ilsan-ro, Ilsandong-gu, Goyang, Gyeonggi-do 411-769, Korea
Tel: +82-31-920-1608, Fax: +82-31-920-0451, E-mail: mascha@medimail.co.kr
Financial support: None.
Conflicts of interest: None.

association of higher circulating levels of leptin with BE that was independent of gender, race and abdominal obesity, suggesting a role of leptin in the setting of BE. The leptin receptor is known to be a member of the cytokine receptor superfamily to activate several pathways that are normally activated by cytokines.[6] Garcia's study suggested that leptin may be one of the links between obesity and inflammation.

Garcia's study is the largest study to examine the relationship of BE with cytokines and leptin, adjusted for several confounding factors such as gender, race and adiposity. Although these markers may predict the presence of BE, the cross-sectional study has a limitation to determine the causality of their associations and the effect on the progression of BE. Longitudinal studies can help clarify these questions. Also direct measurement of visceral fat instead of waist to hip ratio is more exact to adjust for the effect of adiposity. Even if there are several limitations, this study shows a strong association between high circulating inflammatory cytokines and leptin levels and BE. This provides the evidence supporting a role of inflammation in the development of BE and may help the treatment strategies for BE.

References

1. Garcia JM, Splenser AE, Kramer J, et al. Circulating inflammatory cytokines and adipokines are associated with increased risk of Barrett's esophagus: a case-control study. Clin Gastroenterol Hepatol 2014;12:229-238, e3.
2. Singh S, Sharma AN, Murad MH, et al. Central adiposity is associated with increased risk of esophageal inflammation, metaplasia, and adenocarcinoma: a systematic review and meta-analysis. Clin Gastroenterol Hepatol 2013;11:1399-1412, e7.
3. Duggan C, Onstad L, Hardikar S, Blount PL, Reid BJ, Vaughan TL. Association between markers of obesity and progression from Barrett's esophagus to esophageal adenocarcinoma. Clin Gastroenterol Hepatol 2013;11:934-943.
4. Thompson OM, Beresford SA, Kirk EA, Bronner MP, Vaughan TL. Serum leptin and adiponectin levels and risk of Barrett's esophagus and intestinal metaplasia of the gastroesophageal junction. Obesity (Silver Spring) 2010;18:2204-2211.
5. Kendall BJ, Macdonald GA, Hayward NK, et al. Leptin and the risk of Barrett's oesophagus. Gut 2008;57:448-454.
6. Wang Y, Kuropatwinski KK, White DW, et al. Leptin receptor action in hepatic cells. J Biol Chem 1997;272:16216-16223.