

## Reflux symptoms and obesity

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In the paper titled “Assessment of the relationship between reflux and body mass index with different regression models” Pourhoseingholi et al (1), report the results of a population based cross sectional case controlled study (1). The study investigates the relationship between body mass index (BMI) and reflux symptoms. The authors report that they found no correlation between BMI and reflux symptoms using 3 different statistical tools. On initial reflection this study appears to be contradicting the widely accepted belief that reflux is more prevalent in people with high BMI (2).

Western population are aging and facing a relentless increase in the prevalence of obesity. Population studies from the United States suggest 15% of adults aged between 20 and 75 years are obese. Furthermore the incidence of obesity increased at an amazing 5 % per year between the early 1992 and 2005. It is anticipated that by 2020, as a result of increased food intake and reduced physical activity, approximately 40% of adults will be obese. Coinciding with this temporal increase in obesity there has been an increase in the prevalence of gastro-oesophageal reflux disease (GORD) and oesophageal cancer (3). It is only natural that investigators would wonder if the increasing prevalence of obesity is contributing to the increasing prevalence of these two conditions.

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The pathophysiology of GORD has been extensively studied. Any condition that compromises integrity of the lower oesophageal sphincter will predispose to the reflux of gastric contents into the oesophagus and the development of GORD. GORD is associated with the presence of a hiatus hernia, increased frequency of transient lower oesophageal sphincter relaxation and a weak lower oesophageal sphincter basal tone. GORD can be diagnosed by questionnaires, endoscopy and oesophageal manometry and pH studies. Oesophageal manometry and pH studies have shown that obesity is associated with increased exposure of the oesophagus to gastric acid reflux (4). Studies have also shown that obese patients have an increased frequency of transient lower oesophageal relaxations and a weaker lower oesophageal sphincter compared to non-obese individuals. It thus seems very plausible that obesity predisposes to GORD. These clinical studies have been supported by epidemiological studies. These have confirmed an association between obesity and GORD in a white population, with a progressive increase in the proportion of subjects reporting GORD symptoms as BMI increased (5).

GORD symptoms are associated with the presence of Barrett's oesophagus (BO) and the development of oesophageal adenocarcinoma (OA). The incidence of oesophageal adenocarcinoma has been progressively increasing in Western populations. Studies have investigated obesity as a

risk factor for both BO and OA. Studies have suggested that obesity predisposes to both BO and OA in North American populations but the results of similar studies investigating adenocarcinoma of the gastric cardia have been conflicting (3).

Before we consider the conclusions from this study, we must first look at the differences between this study and many of the studies that have previously been reported from Western populations. The study used a survey in the general population - subjects were not recruited from hospital clinics. The population surveyed was also young. Lastly we know that obesity is less prevalent in Iranian populations than in many Western populations.

We may conclude that in a young population, with a low prevalence of obesity, as reported in this study, obesity is not a major risk factor for reflux symptoms. Had the authors surveyed an older population, with reflux symptoms and predisposing factors, such as a hiatus hernia, there findings may well have been different.

The reader can conclude that there are many risk factors for GORD and that as populations become 'Westernised' that the aetiology of GORD in their aging society will change.

In 10 years time we may predict that the Iranian population will be older and, perhaps, suffering from the Western obesity epidemic. It will then be interesting to compare the results of this study, current studies in Western populations and Iranian studies performed in an older society.

## References

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