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**The relationship between asthma
and gastro-oesophageal reflux disease (GORD)
in a Sri Lankan population**



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ABSTRACT

Gastro-oesophageal Reflux Disease (GORD) predisposes to asthma-like respiratory disease through several mechanisms all of which are thought to be vagally mediated. This study attempted to extend the current understanding of the relationship between GORD and asthma by investigating the prevalence of GORD symptoms, prevalence of upper gastrointestinal motility abnormalities and possible mechanisms of GORD-induced asthma in a group of adults with mild clinically stable asthma in Sri Lanka.

The prevalence of GOR symptoms using an interviewer administered GORD questionnaire was 59.4 % in Sri Lankan adult asthmatics. The frequency and severity of GOR symptoms were higher and reflux associated respiratory symptoms were more prevalent in asthmatics when compared to non asthmatics. The severity of asthma showed a strong dose-response effect on the presence of GORD symptoms in asthmatics, though the use of asthma medication did not significantly influence the presence of GORD symptoms.

This study reports the development and validation of the first interviewer administered GORD-specific questionnaire in Sri Lanka. This could be used as a case-finding tool in epidemiological studies and be used to assess the response of individuals to treatment. A GORD symptom score using both symptom frequency and severity was found to correlate better with an objective measure of GORD.

Using stationary oesophageal manometry and twenty four hour ambulatory pH monitoring, this study demonstrated that asthmatics have abnormal oesophageal motility and increased gastro-oesophageal reflux compared to non-asthmatic healthy

volunteers. Asthmatics were seen to have more proximal oesophageal reflux and experience reflux-associated respiratory symptoms, and in most instances, reflux episodes preceded the respiratory symptoms. The presence or severity of GORD symptoms or oesophagitis did not influence the abnormal oesophageal function parameters.

Using cutaneous electrogastrography and real-time ultrasonography, this study gives the first report on gastric myoelectrical activity and gastric emptying in asthmatics. Asthmatics have more gastric myoelectrical abnormalities, a significantly lower percentage of gastric emptying and impaired antral motility in response to both solid and liquid meals compared to non-asthmatic healthy volunteers. The antral motility index and gastric emptying rate of a liquid meal was positively correlated with lower oesophageal sphincter tone in asthmatics supporting the theory that delayed gastric emptying and impaired antral motility induces reflux. Asthmatics with higher GORD symptom scores had lower gastric emptying rates and more abnormal motility in response to the solid meal.

Finally, this study reports the first demonstration of vagal function following intra-oesophageal acid infusion in asthmatics. Asthmatics demonstrated a higher vagal response and a concomitant bronchoconstrictive response to artificially infused oesophageal acid when compared to infusion of normal saline, irrespective of reflux state.