APOA2 May Serve as a New Biomarker for Gastric Cancer

Dawn Elliott Knapp, PA-C

April 25, 2022

The study featured in this summary was published on ResearchSquare.com as a preprint and has not yet been peer reviewed.

Key Takeaways

- *APOA2* is overexpressed in gastric adenocarcinoma compared with normal gastric tissue samples. It appears to be involved in carcinogenesis by affecting DNA replication and the cancer cell cycle.
- Patients with high *APOA2* expression have significantly lower overall survival and recurrence-free survival within 6 years than those with low *APOA2* expression.
- The microRNA miR-27b-3p, which is known to target regulatory genes to inhibit other cancers, regulates *APOA2*. Study of the interaction of these two entities could be used as therapeutic targets, and *APOA2* can serve as a prognostic biomarker.

Why This Matters

- Gastric cancer is one of the most common malignancies worldwide and while its incidence has dropped in recent years, it is currently the fourth leading cause of cancer-related death worldwide.
- Treatment is generally limited to surgery with adjuvant or neoadjuvant chemotherapy. Few targeted therapies exist, which is why finding potential new biomarkers like *APOA2* is important.
- *APOA2* overexpression is correlated with TNM stage and histological grade, which suggests that *APOA2* may be used as a prognostic indicator in clinical practice.

Study Design

- The expression levels of the target gene *APOA2* in normal and tumor tissues in various parts of the human body were searched from the GEPIA database. Gastric carcinoma (STAD) miRNA expression data were downloaded from the TCGA (The Cancer Genome Atlas) database and compared with normal tissues to analyze their differential expression and select the up-regulated miRNAs.
- Gene set enrichment analysis (GSEA) by using TCGA-STAD data was performed to explore the pathways by which *APOA2* gene expression influences disease progression, and statistical analysis was performed.
- *APOA2* expression was compared between cancerous tissues and normal gastric tissues via qPCR analysis of tissue wax block sections from the institution's pathology department.

Key Results

- *APOA2* expression is found to be significantly elevated ($P < .05$) in tumor samples (n = 373) compared with normal tissue samples (n = 32), and this overexpression is significantly different among TNM stages, histological grades, survival status, and disease status.
- Smaller Cq value of *APOA2* in gastric cancer tissues vs normal gastric tissues, determined via qPCR experiments, correlates with higher *APOA2* expression in cancerous tissues.
- *APOA2* is upregulated in STAD by miR-27b-3p downregulation; low miR-27b-3p expression causes high *APOA2* expression, which in turn decreases overall survival and recurrence-free survival.

Limitations

- This study confirms the differential expression of *APOA2* in gastric cancer, its regulation by specific miRNAs, and its potential use as a clinical indicator, but its exact mechanism is as of yet unknown.

Disclosures

- The study received no funding. The authors declared no conflicts of interest.

This is a summary of a preprint research study, "Overexpression of APOA2 is Associated with Progression and Poor Prognosis in Gastric Cancer," by Machicheng Bao from Kunming Medical University, Kunming, China, and colleagues. It was published on ResearchSquare.com and is provided to you by Medscape. This study has not yet been peer reviewed. The full text of the study can be found on ResearchSquare.com.

For more from Medscape Oncology, join us on Twitter and Facebook

Credit:
Lead Image: Dreamstime

Send news tips to news@medscape.net.

Cite this: APOA2 May Serve as a New Biomarker for Gastric Cancer - *Medscape* - Apr 25, 2022.