

---

## **Estimation of Catalase in Serum as a Biomarker for Antioxidative Stress in Patients with Esophageal Cancer**

Farideh Manafi<sup>1</sup>, Zahra Farzaneh sheikhahmad<sup>2</sup>, Arash Mehri piryvatlo and

Reza Alipanah Moghadam

### **Abstract**

Esophageal cancer (EC) is one of the six most common malignancies in the world. It is important to measure Catalase levels because oxidative stress is inherent in pathological conditions such as cancer, diabetes, cataracts, atherosclerosis, neurodegenerative disease, aging, and nutritional deficiencies. Catalase is an important cellular antioxidant enzyme that defends against oxidative stress. It is found in the peroxisomes of most aerobic cells. Therefore, the aim of the study was to estimate serum Catalase level in esophageal cancer. During this case control study, 25 patients with esophageal cancer and 25 normal subjects were selected (considering the inclusion and exclusion criteria) by simple sampling. After obtaining written consent from them, blood samples were prepared. The Catalase activity (CAT) was measured using the Catalase assay kit according to the manufacturer's protocol. Finally data were compared with t-test between two groups. SPSS v15 was used for data analysis. Blood serum samples from 25 newly diagnosed Esophageal cancer (EC) patients and healthy volunteers have been analyzed, CAT activity have been measured. Cancer patients showed significantly lower CAT activity compared to a control group. Decreased serum Catalase in esophageal cancer can serve as a valuable marker for both preventive and clinical intervention, and may deserve further investigation for the early diagnosis, treatment, and prognosis. The present data support that serum Catalase may be a potential biomarker for anti-oxidative stress.

**Keywords:** Catalase, Antioxidative, Esophageal cancer.

---

<sup>1</sup>Student Research Committee, Ardabil University of Medical Sciences, Ardabil, Iran

<sup>2</sup>Department of Biochemistry, School of Medicine, Ardabil University of Medical Sciences, Ardabil, Iran manafi.farideh@yahoo.com