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To Study of Serum Lactate Dehydrogenase in Chronic Obstructive Pulmonary Disease Patients.

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Abstract
Background: To Study of serum lactate dehydrogenase in Chronic Obstructive Pulmonary Disease Patients
Methods: It is a prospective study of 100 subjects divided into two groups including 50 healthy controls and 50 cases of COPD.
Results: The statistically significant increased value of serum lactate dehydrogenase in cases as compared to control group.
Conclusion: LDH level was significantly higher in COPD patients as compare to healthy control.
Keywords: COPD, Lactate dehydrogenase, Pulmonary.

Introduction

Chronic obstructive pulmonary disease, usually referred to as COPD (Chronic obstructive pulmonary disease), is a group of progressive lung diseases. The most common are emphysema and chronic bronchitis. Many people with COPD have both of these conditions. Emphysema slowly destroys air sacs in the lungs, which interferes with outward air flow while, Bronchitis causes inflammation and narrowing of the bronchial tubes, which allows mucus to build up. Both the condition cause obstruction of air flow in the respiratory system and develops respiratory problems. [2]COPD is a preventable and treatable respiratory disorder largely caused by smoking and long term exposure to chemical irritants. It is characterized by progressive, partially reversible airflow obstruction and lung hyperinflation with significant extra pulmonary (systemic) manifestations and comorbid conditions all of which may contribute to the severity of the disease in individual patients[3].

Lactate dehydrogenase (LDH) is an intracellular cytoplasmic enzyme found in all tissues of the human body. There are five LDH isoenzymes present in blood, which are classified according to their electrophoretic movement. LDH-1 moves faster while LDH-5 is the slowest one. Elevated LDH isoenzymes levels indicate the organ specific origin of disease such as LDH-1, LDH-2 in heart, kidneys, erythrocytes and brain; LDH-3 in lungs, thyroid, pancreas, adrenals, spleen, thymus, lymph nodes and leukocytes; LDH-4 in skeletal muscles and the LDH-5 in hepatic system.[4]

Normal concentration LDH in the serum is due to normal tissue breakdown which increases significantly after tissue damage. LDH being a cytoplasmic cellular enzyme if increased in serum serve as indicator suggestive of disturbance of cellular integrity induced by pathological conditions.[5] LDH is raised in number of pathological conditions like hematological disorders acute myocardial infarction, liver diseases and several respiratory conditions. Respiratory conditions include bronchial asthma, bronchopneumonia, pulmonary tuberculosis, chronic obstructive

pulmonary disease (COPD). All these conditions have inflammation, cell damage or both as underlying pathological mechanism.[6]

Material and Methods

It is a prospective study of 100 subjects divided into two groups including 50 healthy controls and 50 cases of COPD. Patients with history of respiratory infection, pneumonia, coronary heart disease, heart failure, and neuromuscular disease, renal and hepatic dysfunction were excluded.

Overnight fasting blood samples were taken by venipuncture in plain vaccutainer. Grossly hemolysed and lipemic samples were excluded.

Results

Table 1: Comparison of biochemical parameters in case and controls.

Parameters	Case	Control	p-value
Age in yrs	35.02 ± 9.23 years	35.12 ± 8.32 years	>0.05
Male : Female	35:15	34:16	>0.05
Serum LDH(U/L)	362.01± 71.23	290.23± 78.32	<0.05

The statistically significant increased value of serum lactate dehydrogenase in cases as compared to control group with p value<0.05.

Discussion

Pulmonary system related disorders as possible sources of serum LDH abnormalities have been underreported, and isoenzyme patterns are seldom measured. This is the first study of its own kind in India to assess serum LDH level and lipid profile in patients with COPD. We found significant increase in Serum LDH level in the patients with COPD. This elevation is because of a predominant increase in serum LDH 3 isoenzymes which is released from cells of lung and airway origin.[7] Airway mucosal changes consisting of increased broncho-alveolar mast cells, mononuclear phagocytic cells and epithelial shedding have been observed in chronic cough. In patients with chronic cough, a homogenous rise in cellular markers of inflammation has been observed in the bronchoalveolar lavage fluid[8].

It is possible that persistent coughing may itself induce a degree of inflammation because of the trauma of the lining epithelium of the respiratory tract as well as that of the lung parenchyma. It is likely that the inflammatory process in patients with chronic cough is the cause of the increase in LDH.

Conclusion

LDH level increased in COPD patients.

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