


Research Article

Assessment of Complete Blood Count in the Breast Cancer Patients of Arsenic Exposed Population of Bihar

Yerravarapu Vamsi Krishna¹, Chandrajeet Kumar¹ and Arun Kumar^{2*}

Abstract

Arsenic contamination of groundwater has recently been recognized as a major threat to human health. They developed cancer after being exposed to arsenic for a long time. Among women, breast cancer is a rapidly expanding health problem in the modern era. Arsenic exposure leads to hormonal imbalance and breast cancer in the exposed population.

Blood samples from n=203 breast cancer study participants and n=100 control female individuals were taken for analysis of complete blood count in this present research. The study reveals that there is significant elevation in the WBC counts and decrease in the RBC counts, platelets counts and haemoglobin percentage in the breast cancer patients. Out of n=203, female breast cancer patients, n=174 subject's blood had significant changes in the haematological parameters in comparison to the control patient's blood samples. Women who have been exposed to arsenic for an extended period of time in the state of Bihar have hormonal imbalances in their bodies as a result of the poisoning. In the present study, there was significant decrease ($p < 0.05$) in the RBC counts in 92% of breast cancer patients in comparison to the control patients. Moreover, RBC indices were significantly fluctuated ($p < 0.05$) in PCV%, MCV, MCH and MCHC levels in breast cancer patients in comparison to the control patients. The haemoglobin percentage in 94% in breast cancer patients had significant less levels ($p < 0.05$) in comparison to the control patients. Finally, there was significant increase ($p < 0.05$) in the WBC counts in 85% of the breast cancer patients in comparison to the control patients. This denotes that there haematological parameters are highly affected. Moreover, these breast cancer patients were from the arsenic hotspot areas, where in the recent times the breast cancer disease burden has increased many folds. Hence, there is need to make strategies to control the disease burden in these arsenic hotspot regions.

Keywords: Breast Cancer; Complete Blood Counts; Gangetic plains.

Introduction

It is estimated that about 300 million people throughout the globe are at risk of arsenic poisoning. As a result, approximately 70 million people in India are at risk. Around ten million people in the state of Bihar are now at risk of getting arsenic poisoning as a result of drinking water that has been tainted with the element. Arsenic has generated major health concerns for the people of Bihar that live in the Gangetic plains, and these dangers have been induced by arsenic. In addition to this, arsenic is often referred to as the "king of poison" or "the poison of kings." Because of the potentially lethal characteristics of the trivalent form of arsenic, it has been given a particular

Affiliation:

¹Department of Biochemistry, YBN University, Ranchi, Jharkhand, India

²Mahavir Cancer Sansthan and Research Centre, Patna, Bihar, India

*Corresponding author:

Arun Kumar, Mahavir Cancer Sansthan & Research Centre, Patna, Bihar- 801505 India.

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Data availability

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