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Genetic variability of GSTM1 and GSTT1 and risk of childhood acute lymphoblastic leukemia

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Glutathione S transferases (GSTs) are the detoxifying enzymes of xenobiotic metabolism. Null polymorphism of glutathione transferase M1 and T1 genes leads to the absence of respective enzymes thus disrupting the normal metabolism of xenobiotics. Therefore, individuals carrying genetic variants of GSTs may influence an individual's susceptibility to acute lymphoblastic leukemia (ALL). The present study investigated the role of null polymorphisms of GSTM1 and GSTT1 as a predisposition factor in ALL development. One hundred and fifty ALL patients younger than 15 years of age and 150 age and gender-matched healthy individuals participated in the current case-control study. Genomic DNA was extracted from whole blood samples using the conventional phenol-chloroform method. Multiplex PCR was performed that led to the co-identification of GSTM1 and GSTT1 deletions. The percentage of GSTM1 null was lower in cases (38%) as compared to controls (44%) while the percentage for GSTT1 deletion was the same among cases and controls (16%). Chi-square test revealed no association of GSTM1 and GSTT1 deletion with the development of ALL in children ($p>0.1$). The results of the current study may be relevant to cancer biomarker research. However, studies with larger sample size and ethnic backgrounds may further improve understanding of ALL etiology.

Biography

Sitwat Zehra, Assistant Professor, at "The Karachi Institute of Biotechnology and Genetic Engineering (KIBGE), University of Karachi". She has spent more than 10 years in teaching and research. She has received PhD in Physiology from the University of Karachi. Her research activities encompass Endocrinology, Molecular Biology, And Genetic Engineering. She has been involved in teaching Human Molecular Genetics, Cancer Genetics, Biosafety and Bioethics, Current Advances in Biotechnology, Cell Biology, Research Communication and Presentation Skills to MPhil and PhD students from last 10 years. She is the member of various National and International societies and learning bodies like Pakistan Biological Safety Association (PBSA), Pakistan Physiological Society (PPS), Pakistan Society of Biochemistry and Molecular Biology (PSBMB), International Union of Physiological Sciences (IUPS), Organization for Women in Science for Developing World (OWSD). A number of national and international publications of her research are on her credit, published in journals of high impact.

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