GLYCOPROTEIN PANEL AS A BIOMARKER CANDIDATE FOR EARLY DIAGNOSIS AND EVALUATION OF THE TREATMENT OF B-CELL ACUTE LYMPHOBLASTIC LEUKEMIAS

Cavalcante, M.S.¹; Torres-Romero, C.²; Lobo, M.D.P.²; Moreno, F.B.M.B.²; Bezerra, L.P.²; Lima, D.S.³; Moreira, R.A.²; Monteiro-Moreira, A.C.O.².

¹Rede Nordeste de Biotecnologia (RENORBIO), Universidade Estadual do Ceará, Ceará, Brazil; ²Núcleo de Biologia Experimental (NUBEX), Universidade de Fortaleza, Ceará, Brazil; ³Programa de Desenvolvimento e Inovação Tecnológica em Medicamentos, Universidade Federal do Ceará, Ceará, Brazil.

Introduction and Objectives: Acute lymphoblastic leukemia (ALL) is the most common malignant cancer in childhood. It is known that recognition of the signs and symptoms of childhood cancer is very difficult, as it will not be the first possibility considered with nonspecific complaints, thereby leading to possible uncertainty in diagnosis. The aim of this study was to perform proteomic analysis of serum from pediatric patients with B-cell acute lymphoblastic leukemia (B-ALL) in order to identify proteins that are potential biomarker candidates, which would aid in early diagnosis and in the evaluation of disease treatment. Materials and Methods: Serum samples from 10 patients were obtained at the time of diagnosis (B-ALL group) and after induction therapy (AIT group). Sera of healthy children were used as controls (Control group). The samples were subjected to immunodepletion, affinity chromatography with α-D-galactose-binding lectin (from Artocarpus incisa seeds) immobilized on Sepharose™ 4B, concentration, and digestion for subsequent analysis with nanoUPLC tandem nanoESI-MS². The program Expression² was used to calculate the ratio of the selected groups based on the expression levels of the proteins. Results and Conclusions: A total of 96 proteins were identified in the 3 groups studied. The proteins LRG1, CLU, F2, SERPIND1, A2M, SERPINF2, SERPINA1, CFB, and C3 were selected to form a panel of potential biomarker candidates for early diagnosis of B-ALL group, as they were upregulated as compared to the control group and the AIT group. The last group, as compared to the control, did not show any significant change in the level of expression of these proteins, providing further evidence for the presence of these potential biomarkers in the disease state, as all patients achieved complete remission after treatment. This analysis allowed for the development of a panel of protein biomarker candidates for the pre-diagnosis of B-ALL and also provided information that would indicate a favorable response to treatment after induction therapy.

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