

STUDY OF BLOOD PROTEIN EXPRESSION AND ITS ASSOCIATION WITH THE PATHOPHYSIOLOGICAL MECHANISM OF CANCER IN FARMERS

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Introduction: Chronic exposure to agrochemicals is a reality faced by rural workers and continuous exposure to these substances can trigger significant immunological alterations, contributing to the activation of inflammatory pathways and immune escape mechanisms associated with the development of chronic non-communicable diseases (CNCDs), especially cancer. In this context, co-stimulatory and co-inhibitory molecules play a crucial role in modulating the immune response to these diseases. **Objective:** Evaluation of protein expression profile in blood of the farmers exposed to agrochemicals. **Material and Methods:** (a) farmers from crop grain (n=40), (b) cattle ranchers (n=40) and (c) rural agroecology workers (n=40) were included. This study was approved by the Research Ethics Committee of UFRGS/RS (CAAE: 69865417.1.3003.5346) and all participants signed an informed consent form and had whole blood samples (EDTA) collected. For quantification of protein expression, whole blood was incubated with specific monoclonal antibodies. Then, erythrocytes were lysed to avoid interference in the analysis. After the washing steps, the samples were acquired by flow cytometry in the BD FACSCanto™ II equipment. The results were expressed as the relative frequency (%) of the analyzed markers in lymphocytes. **Results and Conclusion:** The signaling molecules CD80 and CD86 showed significantly lower expression in exposed farmers in crop grain ($p<0.0001$). For cattle ranchers, only CD80 presented decreased expression ($p<0.0001$), both compared with agroecology group. Regarding the silencing molecules, there was no difference between the groups. This variation between the groups may be related to the particularities of the predominant pesticides uses, because, crops focused mainly on soybean and corn cultivation and glyphosate and 2,4 D are widely used and, cattle raising are used immersion bath. However, the expression of these markers has been widely associated with tumor immunosuppression processes and the failure of the immune system to recognize and eliminate transformed cells. Therefore, evaluating the expression of these molecules in farmers exposed to agrochemicals may offer important insights into the immuno-oncological risks associated with this vulnerable population.

Keywords: Protein expression, pesticides and chronic non-communicable diseases.