Proteomics analysis reveals the Serpin family proteins differentially abundant in women with high-grade cervical lesions and HIV-positive

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Introduction: Cervical cancer (CC) is one of the most common tumors in the female population worldwide. It is also the most common occurrence in Amazonas, representing a major health problem for women residing in the state. This cancer is preceded by cervical lesions, including high-grade lesions (HSIL), which, when not detected and treated early, can progress to CC. Additionally, a risk factor is infection with the human immunodeficiency virus (HIV), which increases the chances of developing this cancer by 6 times. In this context, Shotgun proteomics is an approach that can help understand relevant mechanisms regarding the development of cancer in patients with precursor lesions as well as the interaction between pathogens and the human host. So, this study aimed to characterize the protein profile in samples from women with HSIL and HIV-positive. **Material and Methods:** This study was approved by the Ethics Committee with CAAE number: 39556220.2.0000.0004. For this, 9 tissue samples were collected from high-grade cervical lesions from HIV-positive women. For proteomic analysis, samples were prepared using the shotgun proteomics approach, where peptides were analyzed by liquid chromatography coupled to mass spectrometry. Proteins were analyzed using the PatternLab for proteomics V software. Identification was by PSM and quantification by spectral count. **Results and discussion:** The selected women had an average age of 36.6 years, 50% were married, had an average family income of one minimum wage and 66.6% had more than 3 children. In the 9 tissue samples, proteins with at least 2 unique peptides were considered. As a result, 732 proteins were selected. In more detailed, it was observed that proteins from the Serpin family called attention, with 13 representatives of this family, which SerpinA1 and SerpinA3 being the most abundant. In particular, these two proteins have already been identified in patients with cervical cancer, demonstrating high expression and an immunosuppressive role for SerpinA1 has already been reported. The SerpinC1 protein was also abundant in our findings, and it has already been described with significant changes in studies of patients with precursor lesions to cervical cancer, when compared to healthy patients. In addition, the expression of these three proteins is related to the invasive and metastatic capacity of tumor cells of this type of cancer. **Conclusion:** Therefore, the data obtained in this study can contribute to a better understanding of molecular aspects in patients affected by such lesions and infected by HIV. Finally, Serpins are correlated with different types of cancer, therefore, more studies are needed to investigate their mechanism of action in the development and progression of cervical cancer.

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