ABSTRACT

Breast cancer is one of the most common cancers in women and is often detected at an advanced stage. This study aims to analyze the levels of heavy metals such as iron (Fe), potassium (K), copper (Cu), and zinc (Zn) in the hair of breast cancer patients using the Atomic Absorption Spectrometer (AAS) method. The samples consisted of hair from 29 breast cancer patients and 10 healthy individuals as controls. The results showed that healthy hair had median levels of Fe at 7,54 (2,6;27,18) ppm, K 121,6 (74,98;160,89) ppm, Cu 19,93 (17,51;23,01) ppm, dan Zn 211,63 (148,19;271,12) ppm Hair from breast cancer patients had median levels of Fe at 11,97 (4,07;31,53) ppm, K 179,03 (142,28;252,31) ppm, Cu 19,79 (17,62;24,38) ppm, dan Zn 197,25 (135,09;328,05) ppm The median Fe levels in the hair of breast cancer patients was lower than that in healthy hair and the IAEA standard. The median K levels in the hair of breast cancer patients was higher than in healthy hair. The median Cu level in the hair of breast cancer patients was not different from that in healthy hair and slightly higher than IAEA standard. The median Zn levels in the hair of breast cancer patients were slightly higher than in healthy hair and the IAEA standard. However, the Mann-Whitney statistical test showed that only the K element exhibited a significant differences (p-value = 0,058) between the hair of breast cancer patient and healthy groups.

Keywords*: breast cancer, heavy metals, hair, Atomic Absorption Spectrometer (AAS)*