BMP6 and BMP4 expression in patients with cancer-related anemia and its relationship with hepcidin and s-HJV

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ABSTRACT. In the present study, we investigated BMP6 and BMP4 expression in patients with cancer-related anemia (CRA) as well as its relationship with hepcidin and s-HJV. The avidin-biotin system enzyme-linked immunosorbent assay was used to test serum levels of BMP6, BMP4, s-HJV, and hepcidin in 53 cancer patients with anemia and 52 control cancer patients without anemia. Serum levels of BMP6 and hepcidin in the anemia group were 434.53 ± 212.11 ng/mL and 5.68 ± 3.89 µg/L, respectively. In the non-anemia cancer group, serum BMP6 and hepcidin levels were 334.37 ± 171.32 ng/mL and 4.60 ± 2.28 µg/L, which were significantly lower than the levels for the CRA group (P < 0.05). In addition, the serum level of s-HJV was 0.69 ± 0.28 ng/mL in the CRA group, which was significantly lower compared to that for the non-anemia group (1.07 ± 1.00 ng/mL, P < 0.01). There were no significant differences in BMP4 expression between the two groups. BMP6 was negatively correlated with s-HJV and Hb (r = -0.2536 and -0.2949, P < 0.01), but was not correlated with hepcidin. Similarly, BMP4 expression was not correlated with Hb, s-HJV, or hepcidin. Our study shows that patients with CRA had high expression of BMP6 and hepcidin and low
expression of s-HJV. BMP6 was found to be negatively correlated with s-HJV; both regulate hepcidin expression and play important roles in the development of anemia.

**Key words:** BMP6; BMP4; Hepcidin; s-HJV; Hb; Cancer-related anemia