

Letter

Preoperative Serum and Intra-platelet Serotonin in Prognosis: Useful or Useless?

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We read the recent Journal of Cancer article published by Aryal et al with great interest [1]. The author demonstrated that lower serum and intra-platelet (IP) 5-HT were closely related with higher recurrence rate after four weeks of operation. Additionally, serum and IP 5-HT could be used as the independent factors to predict the recurrence of hepatocellular carcinoma. However, the preoperative serum and IP 5-HT did not affect the recurrence in their study. The serum and IP 5-HT were even higher in non-recurrence patients before operation.

We want to point out in contrary to the results which obtained by Aryal et al. High serum and IP 5-HT before liver resection both were closely related with poor prognosis including poor overall survival and poor recurrence-free survival. A study conducted by us demonstrated that high serum 5-HT, high IP 5-HT and high IP 5-HT per platelet were all associated with poor overall survival and recurrence-free survival via survival analysis among 113 HCC patients [2]. Additionally, Padickakudy et al study also indicated that patients with excessively high IP 5-HT (>134 ng/ml) suffered an earlier recurrence [3]. A study conducted by Xia et al found that a preoperative elevated 5-HT was related with advanced tumor node metastasis and poor recurrence-free survival and overall survival via multivariate analysis [4]. Additionally, high 5-HT was proved to be a marker for predicting the recurrence of breast cancer by Frobe et al [5]. The peripheral 5-HT was mainly restored in the dense granules of platelets and was released after platelet activation. Thus,

studies exploring the relationship between platelet and cancer recurrence could indirectly indicated the effects of 5-HT on cancer recurrence. Lee et al study showed that pretreatment platelet count was closely associated with extrahepatic metastasis of liver cancer and the Pang et al letter proposed that the platelet affected on extrahepatic metastasis of via platelet-derived serotonin [6, 7]. Additionally, our previous study demonstrated that platelet count had the ability to predict postoperative recurrence of hepatocellular carcinoma [8].

Moreover, 5-HT was proved to promote proliferation of hepatoma cell via basic research. Our previous study found that 5-HT promoted hepatoma cell proliferation via 5-HT-5-HT_{2B}R-pERK-Yap axis [9]. Besides, studies conducted by Soll et al and Liang et al were proved the serum-like and promotion effect of 5-HT on hepatoma cell [10-12].

In conclusion, the preoperative level of 5-HT and IP 5-HT were higher in HCC patients. Furtherly, higher 5-HT and IP 5-HT level before treatment were both closely associated with poorer overall survival and recurrence-free survival. Thereby, 5-HT might be a potential therapeutic target. Because of the discrepancy with Aryal's results, more clinical researchers are needed to explore the level and effect of 5-HT and IP 5-HT on prognosis of HCC patients.

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