LETTER TO THE EDITOR

Antitumor actions of human mast cells

Dear Editor,

We have read the article titled "Mast cells and cancer: enemies or allies?" by Dyduch *et al*. with a great interest [1]. Because of this opportunity, we want to share our in vitro experience on the anti-tumor actions of human mast cell (MC) through direct cell-mediated cytotoxicity [2]. We have also recently gotten in vivo experience on the role of tryptase-/chymase-positive MCs by working their role in the benign and malignant uterus (endometrial and cervix) carcinomas [3].

Ambiguous mounting evidence also indicates that MCs accumulate around tumors and could either promote or inhibit tumor growth probably depending on environmental conditions. First in vivo observations in the 1950s suggested their possible role as anti-tumor cells around certain solid tumors. Later, in vitro murine MC cytotoxicity (MCC) against murine tumor cells was described in 1981. Presently; believers in the inhibitory role of MCs assume them as inhibitors of tumor development through their cytotoxic pro-necrolytic/-apoptotic granules. Except for perforin, MCs indeed have been proven to have all components of cell-mediated cytotoxicity. Our recently published in vitro experiences demonstrated human MCC against human tumor cells [2]. Consistently, our in vivo experiences also showed that MCs do not account for the angiogenic process which facilitates tumor growth [3]. Our correspondences against supporters for the tumor-promoting role of MCs have also been well-documented in recent literature [4].

MC availability in tumor stroma has still been controversial, too. The important point here is whether increased tissue MC density (MCD) could be primary/secondary since MCs are also found to be increased physiologically around healing tissue. MCs might be just a reflection of generalized inflammatory reaction as well [4]. MCs also accumulate at sites of tumor growth in response to numerous chemoattractants. Such as CCL5/CXCR3 chemokines in lymphoma, and tumor-derived stem cell factor and CD30 expressions lead to tumor growth and MCD in tumor tissues [5]. Hence, it is important to find an answer to the following question: May the increased MCD be a result or a cause of tumor progression? Then, the next question is whether the MC really is an active player or an innocent passer-by in a tumor stroma.

Although it is hard to explain these conflicting results in the literature, they may be firstly associated with different methodologies used in studies such as timing of biopsy, the tumor type as well as environmental factors surrounding that tumor. Only observing increased MCD in various tumors with bad/good prognosis on pathological specimens seems to be far behind to explain the real role of MCs. The next effect of MCs on tumor growth, therefore, is likely to be a result of multiple interactions between MC, tumor, associated inflammatory cells and adjacent stromal cells such as vascular endothelium and fibroblasts [4].

MCs have been thought as a new target for the adjuvant treatment of tumors through the selective inhibition of angiogenesis, tissue remodeling and tumor promoting molecules. Anti-angiogenic strategies have recently become an important therapeutic modality for solid tumors [4]. Nevertheless, beside MCs, myeloid cells, monocytes and vascular leukocytes have recently been shown as new targets in the regulation of tumor-associated angiogenesis. In the age of targeted therapy, studies of the targeting MCs' role in cancer might have direct clinical consequences and should be further elucidated via utilizing histopathological and complex biological models [6].

References

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