

SF Community Medicine and Health

The Effects of COVID-19 on Cancer Progression and Metastasis in Bone

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Dear Editor,

The outbreak of coronavirus disease 2019 (Covid-19) that began in China in late 2019 has been of global concern. In fact, the Covid-19 pandemic has affected many countries with repercussions beyond the healthcare systems. In the context of cancer, although analytical data will be required, numerous studies have identified that the cancer patients immunocompromised are likely to be more susceptible to Coronavirus infection than non-cancer individuals immunosuppressed [1-3]. A recent meta-analysis confirmed a high rate of mortality in cancer patients associated with Covid-19 [4], and with a worse prognosis [4]. Besides, it is tricky to conduct clinical trials during uncontrollable period of Covid-19 pandemic [5].

A recent study has elucidated the profound effects of Covid-19-triggered inflammatory reactions on tumor microenvironment (TME), which (1) enables cancer cells to metastasize and (2) reawakens dormant cancer cells (DCCs) that reside in pre-metastatic niches, thereby resulting in metastatic outgrowth. For instance, Notably, Covid-19 induced inflammation could be directly or indirectly associated with uncontrolled production of pro-inflammatory cytokines such as interleukin-1 β (IL-1 β), IL-6,7,8,9 and 10, tumor necrosis factor α (TNF α), granulocyte colony stimulating factor (G-CSF), granulocyte-macrophage colony-stimulating factor (GM-CSF), interferon γ (IFN- γ), monocyte chemoattractant protein-1 (CCL2), macrophage inflammatory proteins (MIP)-1 α and β , etc., in the peripheral blood of patients with Covid-19 [6], there by possibly promoting invasion and metastasis.

In bone milieu, progression of bone metastasis mainly originates from the pro-inflammatory-mediated interaction amongst metastatic cancer cells and bone cells (osteoblasts-OBs, osteoclasts-OCs and local immune cells). Therefore, I suggest two specific issues as follow:

1. To evaluate whether the effects of Covid-19 on cancer progression is local or global.
2. To investigate whether Covid-19 promotes certain cancer cells mainly derived from lung, prostate or breast to metastasize in bone.

I hope that two abovementioned issues could be fulfilled in future in order to further expand our current knowledge of the relationship between Covid-19 and cancer metastasis, especially in bone. Also, it will probably provide appropriate solutions to treat and care about cancer patients with corona virus infection.

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