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LETTER TO THE EDITOR

Safety of platelet-rich plasma application in abdominal operations

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Dear Editor,

we read with great interest the article by Kaya et al (1) titled "Can platelet-rich plasma be used safely in intra-abdominal operations?" Bratisl Lek Listy. 2016; 117 (9): 525 – 529.

The results of this study demonstrated that platelet-rich plasma (PRP) neither reduced nor exacerbated postoperative adhesions. Thus, according to the Authors, PRP can be used safely in experimental and clinical studies where it will be applied intra-abdominally.

But is this enough in order to consider PRP as a potentially safe concentrate that could be applied without concern in any abdominal operation?

In humans, malignancy is one of the main causes that lead to abdominal operations. Several studies on cancer growth, progression, recurrence and postoperative survival rate, focus on the tumor stroma, which represents a crucial parameter in tumor development (2). Much research is now devoted to determining the impact of platelet-derived growth factors on tumor development and progression, and the reciprocal influences of tumor products on the stromal microenvironment. A more detailed understanding of the complex parameters that govern the interactions between the tumor and surrounding compartments has already helped to improve anti-cancer strategies, not only for treatment, but also for preventing recurrence (3).

The secretory proteins contained in the α-granules of platelets include platelet-derived growth factor (PDGF-AA, BB, and AB isomers), transforming growth factor- β (TGF-β), vascular endothelial growth factor (VEGF), epidermal growth factor (EGF), platelet-derived endothelial growth factor (PDEGF), and many others (4).

The release of these growth factors stimulates angiogenesis, induces tumor lymphangiogenesis, enhances nodal metastasis rate, regulates several cell biology processes, including tumorigenesis, proliferation and survival, and many others such as cell differentiation, migration, and apoptosis (5).

So, can we safely proceed to clinical application of PRP on tumor excision sites during abdominal operations? We strongly believe that the role of PRP in abdominal surgery deserves further experimental investigation and large-scale prospective randomized clinical trials.

The use of novel reversibly switchable in vivo tumor models can elucidate the cause-and-effect chain of processes triggered by acu+te oncogene activation, providing an indication of the extent to which the tumor cell instructs its microenvironment versus the microenvironment instructing the tumor.

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