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- ABSTRACTS

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## The effect of prostatic stones on the immunophenotype of prostate cancer cells

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**Background.** Prostate cancer (PGC) is leading the way in the structure of cancer morbidity around the world. The presence of prostatic concretions (PC) and skeletal metastases significantly reduces the patients' life quality and worsens the prognosis of the disease. However, the phenomenon of osteotropic tumor metastases is not sufficiently studied.

**Aim.** To define the impact of PC on the development of prostate cancer metastasis to the bones.

**Methods.** 10 samples of PGC with PC, 10 intact PGC specimens, and PGC metastasis tissue to lymph node were analysed. Histology (staining with hematoxylin-eosin), histochemistry (von Kossa reaction, alizarin red), immunohistochemistry (OSN, Col I, Col II, Bax, Casp3, MPO, CD68), SEM, EDS.

**Results.** All PC samples had the calcium hydroxyapatite origin with a slight deviation from the stoichiometric composition and admixture of extraneous elements. Assessment of apoptotic potential (Bax and Casp3) and inflammatory infiltration (MPO and CD68) revealed the significantly higher rates of these processes in PGC tissue with PC ( $p < 0.01$ ). We suggest that the combined effect of these factors predetermines the development of a specific phenotype of cancer cells. This phenomena is manifested by the significantly higher OSN and Col I osteoblastic markers expression in PGC with PC and metastatic tissue ( $p < 0.05$ ).

**Conclusions.** The determination of osteoblastic markers expression in PGC can be used as criterion for evaluation of probability of bone metastases development. The presence of PC in PGC tissue can be an important prognostic information for clinicians.

The presence of these pathological inclusions, namely the PC, promotes the expression of osteoblastic markers in PGC tissue, which helps the tumor cells to recognize a favorable microenvironment.

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