Optical Coherencetomography for Bladder Cancer–Ready as a Surrogate for Optical Biopsy? Results of a Prospective Mono-Centre Study

Karl, H. Stepp, E. Willmann, et al.

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EDITORIAL COMMENT

Nowadays, there is no perfect noninvasive diagnostic technique for bladder cancer. Cystoscopy and transurethral resection (TUR) are stil gold standard for the diagnosis of muscle invasive bladder cancer. On the other hand, Optical CoherenceTomography (OCT) can be alternative in the future. OCT was the first applied for opthalmology. OCT provides layer by layer images from target tissues with high-resolution, optical cross-sectional tomographic imaging. OCT's concept is similar to ultrasound, differently it use light for detection. OCT's resolution may vary from 20 microns (µm) up to 1 µm that depends on optical system and lightsource. The image penetration depth of OCT can reach to 2-3 mm. Recently, there are many research about OCT for the diagnosis of urogenital tumors in the literature. In this study, A.Karl reported sensitivity and specificty of OCT for detecting the presence of malignant lession as 100% and %65. But, this small study includes only 52 patients who have 166 suspicious lesions. Specifity of OCT was inadequate due to false positive images, in this report. Contrary, there were no false negative lesions and its sensitivity was 100% depend on all invasive tumors detected and staged correctly beyond the lamina propria. False positive results were associated with edema, inflammation and scar. The overall OCT sensitivity, specificity, accuracy, negative and positive predictive values are reported as 75-100%, 65-98%, 92%, 75% and 100% in the literature. We need more large-scale studies about this topic. It will be promissing technique for diagnostics of urogenital malignant lesions. OCT (optical biopsy) will progress with tecnical development and it will be alternative method for staging of bladder cancer.

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Prevalence of Circulating Tumor Cells in Localized Prostate Cancer

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EDITORIAL COMMENT

The circulation of cancer cells was described by Ashworth in 1869. After many years, circulating tumor cells (CTCs) have been detected and isolated from peripheral circulation with high-tech methods as a 'liquid biopsy'. CTCs isolation techniques are based on immune-affinity or size-based. The development of metastases involves sequential steps including tethering, rolling, adhesion, transmigration from endothelium as inflammation. In metastatic cancer, approximately one CTC are found per every billion normal cells. One of the metastasis development theories is epithelial mesenchymal transition (EMT). Migration, adhesion and invasion are main steps in this process. Major limitations of these techniques are depended on changing cell surface markers. CTCs analyses have been studied in prostate cancer, especially in the metastatic disease. CTCs (CellSearch®-approved by FDA) were detected >2 cells per 7.5 mL blood in %57 metastatic prostate cancer (PCa) patients. Especially in the castrate resistant prostate cancer (CRPC), it can be important as a prognostic tool. In many studies, cut off value of CTC is 5 cell count/per 7.5 ml that determine survival statistics. Moreover, CTC count was superior to PSA in predicting survival in some researches. CTCs are very rare in the localized PCa and have low predictive value. K.Khurana studied prevalence of CTC in localized prostate cancer. They detected only one CTC positive patient in their research in localized prostate cancer. Additionally, they accepted cut off value of CTC is 1 cell count/per 7.5 ml. Finally, this pilot study showed that CTCs were rarely detected in patients with clinically localized disease. CTCs counting methods are more sensitive for metastatic prostate cancer depend on destruction of basement membrane. CTCs detecting technologies will progress and it can be an effective method monitoring and therapy for advanced malignancies, in the future.

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