Editorial

Circulating Tumor Cells in Oral Cancer

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Oral cancer consistently ranks as one of the top 10 cancers worldwide, with broad differences in geographic distribution. In India, oral cancer ranks first among all cancer cases in males and is the third most common cancer among females in many regions. The 5-year disease-free survival rate for intraoral carcinoma is 76% if metastasis has not occurred. While it is 41% when the cervical nodes are involved and only 9% when metastasis below the clavicle is present.[1]

A significant attributable factor for poor prognosis is metastasis. The seeds for metastasis are sown by circulating tumor cells (CTCs), which trigger a cascade that is responsible for oral cancer-related deaths. CTCs are cells that are shed by a primary tumor into the vasculature and remain in circulation until they deposit at distant sites.[2] Recent developments in cancer research have shown that CTCs are derived from the primary tumor clones.

The detection of CTCs has prognostic and therapeutic implications. In oral cancer patients, biopsies cannot be repeatedly performed, they are of little importance in understanding metastatic potential, disease progression and effectiveness of treatment. Evaluation of CTCs can thus be considered as an innovative procedure, which reveals metastasis in action, providing real time information about the disease status of the patient. Disease progression has been strongly associated with CTCs detection.[3] Hematological analysis is easy to perform, and samples can be obtained frequently unlike a biopsy. Analysis of solid tumors demands the use of invasive procedures that might limit patient cooperation. The ability to monitor disease progression in oral cancer can be used to facilitate necessary modification to a patient's treatment protocol, potentially improving prognosis and quality of life.

A set of promising techniques such as magnetic activated micro-cell sorters, size-based cancer cell capture and separation, dielectrophoresis for the detection of CTCs has been developed proving their usefulness in solid cancers with predominantly hematogenous dissemination.[4]

Repeated CTC assessments might offer treatment surveillance in individual patients prospectively and might predict local and systemic relapse with a higher sensitivity at various disease stages compared to routine staging procedures in oral squamous cell carcinoma.

The results of recent studies[5] indicate that the detection of CTCs in oral squamous cell carcinoma patients could help to predict recurrence with higher sensitivity than conventional staging. Besides further upgradation of technology in the detection of CTCs and their bio molecular characterization offers new perspectives to identify potential targets for tailor made therapies. Therefore, detecting tumor cell dissemination early and understanding the underlying mechanisms are crucial for predicting prognosis, relapse and survival.

Despite encouraging results, investigations of the clinical relevance of CTCs in oral cancer are needed in the form of large multi-center trials for better validation.

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