

液態切片在腫瘤之臨床運用

Clinical application of liquid biopsy in tumor cancer

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Cancer is the leading cause of deaths in Taiwan. Many cancer patients develop local recurrence or distant metastasis. Although traditional tissue biopsies and imaging studies remain the gold standard in metastatic cancer care, the spatiotemporal dynamic heterogeneity of cancer limits their utility. The idea of a minimally invasive way to obtain accurate information from a blood sample has gained increasing attention in cancer diagnosis, risk stratification, and monitoring treatment response. Malignant tumors release tumor cells and fragments of nucleic acids into the bloodstream. Liquid biopsies are non-invasive blood tests that detect circulating tumor cells (CTC) and circulating nucleic acids such as mRNA, microRNA, and cell-free circulating tumor DNA, also known as ctDNA. The presence of ctDNA or CTCs in the plasma has prognostic impact. Since ctDNA contains tumor-specific mutations, its detection in the blood or other body fluids can predict response to treatment and relapse. Moreover, repeated analysis and quantitation of ctDNA can inform about changes in clonal composition over time and thus allow dynamic treatment stratification. In this talk, we are going to explore recent advances in CTC and ctDNA-related technologies and their translational applications in the diagnosis and management of cancer, as well as the pros and cons of these approaches.