

Clinical Utility of Combined Circulating Tumor Cell and Circulating Tumor DNA Assays for Diagnosis of Primary Lung Cancer

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Study Aim: To evaluate the clinical utility of combined circulating tumor cell (CTC) and circulating tumor DNA (ctDNA) assays for diagnosing primary lung cancer.

Methods:

- Prospective study of 111 patients with suspected lung cancer
- Compared diagnostic performance of CTC and ctDNA assays individually and combined
- Analyzed sensitivity, specificity, and accuracy against conventional tumor markers

Key Findings:

- Diagnostic sensitivity:
 - Combined CTC/ctDNA: 95.0%
 - CTC alone: 65.7%
 - ctDNA alone: 72.7%
 - Conventional tumor markers: 66.7%
- The combined assay showed significantly higher sensitivity across all cancer stages and histology types.
- Specificity was lower for the combined assay (16.7%) compared to individual tests.
- to individual assays or tumor markers.

Conclusions:

- The combination CTC/ctDNA assay achieved significantly higher diagnostic sensitivity for primary lung cancer compared to individual assays.
- This combined liquid biopsy approach may be clinically useful for enhancing early detection of lung cancer.
- The improved sensitivity was consistent across different tumor stages and histological types.

The authors suggest that this combined approach shows promise for improving lung cancer diagnosis, potentially leading to earlier detection and better patient outcomes.