

CIRCULATING DNA AS A NON-INVASIVE DIAGNOSTIC AND PROGNOSTIC TOOL IN PANCREATIC CANCER MANAGEMENT: OUR INITIAL EXPERIENCE

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Background : Circulating DNA as a non-invasive diagnostic and prognostic tool in pancreatic cancer management: our initial experience

Methods : This was an IRB-approved retrospective cohort study of cfDNA profiling using CRISPincette™ among patients with pancreatic cancer at Korea University Anam Hospital between August 2022 and July 2024. Blood samples from 20 patients were used and cfDNA was extracted and quantified, with fragment analysis and genomic profiling performed. Patients received cfDNA testing at various treatment time points and average cfDNA level and were calculated for each group.

Results : Ten patients underwent distal pancreatectomy and 9 patients received pancreaticoduodenectomy for pancreatic cancer. One patient underwent palliative bypass surgery. Patients with constant detection of the G12D or G12V variant of the KRAS gene were frequently associated with lymph node metastasis and revealed early recurrence and worse prognosis. Also patients with combined detection of KRAS and TP53 variant almost always showed poor prognosis.

Conclusions : Our findings demonstrate that cfDNA concentrations were significantly elevated in patients with advanced pancreatic cancer compared to early-stage cases, suggesting a potential role for cfDNA as a marker of tumor burden. The study emphasizes the potential of circulating DNA as a non-invasive diagnostic and prognostic tool in pancreatic cancer management, paving the way for larger-scale studies to validate these findings and refine clinical applications.

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