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Summary

DEVELOPMENT AND FUTURE PERSPECTIVES OF AN AI-BASED IMAGING SUPPORT SYSTEM FOR EARLY DETECTION OF PANCREATIC CANCER

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An AI-based system developed with Fujifilm Corporation achieved 98.9% sensitivity and 93.0% specificity for pancreatic cancer detection on contrast-enhanced CT by identifying both masses and indirect findings such as atrophy and ductal abnormalities.

KEY POINTS

- The AI system detected pancreatic cancer with 98.9% sensitivity and 93.0% specificity on contrast-enhanced CT, and 83.9% sensitivity and 92.0% specificity on non-contrast CT, in an external validation cohort of 90 pancreatic cancer cases (one-third early-stage Tis/T1) and 100 controls.
- The system successfully identified early-stage cancers including Tis and T1 by detecting indirect imaging findings such as pancreatic atrophy, ductal dilation, and ductal stenosis.
- AI sensitivity was higher than physicians (mean 88.9% on contrast-enhanced CT, 53.4% on non-contrast CT), though AI specificity was somewhat lower than physicians (99.3% and 99.5% respectively).
- Mean reading time per case was significantly shorter for AI: 22 seconds versus 63 seconds for physicians on contrast-enhanced CT, and 20 seconds versus 78 seconds on non-contrast CT.
- The authors conclude the system may be best applied as a second-reader support tool in radiological interpretation, with further refinement potentially expanding its role in early detection and screening.
- The study was conducted in collaboration with Fujifilm Corporation, and several authors disclosed employment or financial conflicts of interest with the company.

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