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Intratumor stromal proportion confers aggressive phenotype of gastric signet ring cell carcinomas

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Background & Aim: Cancer stromal as exemplified by cancer-associated fibroblasts (CAFs) plays critical roles in cancer proliferation, invasion, and metastasis. In this context, intratumor stromal proportion recently has received great attention. The aim of the study is to evaluate the prognostic significance of intratumor stromal proportion in gastric signet ring cell carcinomas (SRCs).

Methods: 175 SRC cases were classified according to the intratumor desmoplastic stromal proportion, and the clinicopathologic characteristics of stroma-rich cases were analyzed. We also investigated the impact of CAF on the migration as well as on the phenotypic changes of gastric SRC cells in vitro. Furthermore, we examined the cancer-promoting role of CAF using a xenograft model.

Results: Stroma-rich SRCs (64/175 cases, 36.5%) were associated with female patients (P= 0.045), large tumor size (P=0.007), advanced T stage (P<0.001), and presence of perineural invasion (P=0.018). The patients with stroma-rich SRC showed a significantly shorter disease-free survival (DFS; P<0.001) and overall survival (OS; P<0.001). In subgroup analysis, however, the prognostic significance of stromal proportion only resided in patients with T3/4. In multivariate analysis, high stromal proportion is an independent prognostic factor predicting worse DFS (hazard ratio (HR), 2.288; P = 0.001) and OS (HR, 2.503; P=0.001). We found that CAFs enhanced the migratory abilities of cancer cells through epithelial-mesenchymal transition and facilitated the tumor growth in peritoneal seeding xenograft model.

Conclusion: Intratumor stromal proportion would be a useful prognostic biomarker and a potential therapeutic target in gastric SRCs.

Biography

Dakeun Lee is an Assistant Professor of Ajou University Hospital, Department of Pathology. He has done his Major in Gastrointestinal Tract Disease. Currently, he is focusing on the Gastric Cancer as his major research field.

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