Aim: SPARC (secreted protein acidic and rich in cysteine) is a member of matricellular glycoproteins, which modulate interactions between tumoral cells and the peri-tumoral stroma. It was demonstrated that SPARC not only induced proliferation and invasion in vitro, but also became a poor prognostic marker in different cancers, including three gastrointestinal cancers; stomach, colon, and pancreas. Herein, we evaluated the prognostic significance of tumor and peri-tumoral SPARC expression in patients with biliary tract cancer (BTC) after surgery.

Methods: We examined immunohistochemical patterns of SPARC expression in 110 resected specimens and evaluated the prognostic significance using a prospectively collected database.

Results: 93 patients underwent R0 resection, and 54 patients suffered from lymph node metastasis. Overall survival at 5-year after surgery was 34.2%. SPARC expressed at 46 tumoral cells (42%) and at 65 peri-tumoral stroma (59%). Tumoral SPARC did not relate to major patients characteristics; however, peri-tumoral stromal SPARC expressed highly, related to lymph node metastasis, stage, and tumor location. Patients whose peri-tumoral stroma expressed SPARC (MST, 24.5 months) had a significantly worse prognosis than patients whose peri-tumoral stroma did not express SPARC (MST, 69.2 months; p = 0.0081). Moreover, the expression of SPARC in tumoral cells was also associated with a poor prognosis and was a less significantly predictor of prognosis than the positive SPARC expression in peri-tumoral stroma (p = 0.0487). In multivariate analysis, controlling for other prognostic factors (UICC stage, pathological type, lymph nodes metastasis, margin status, perineural invasion and vascular invasion), the hazard ratio for patients whose peri-tumoral stroma expressed SPARC compared with those whose peri-tumoral stroma did not was 2.74 (95% CI, 1.64 to 4.76). The expression of tumoral SPARC was unrelated to an independent predictor of poor prognosis (HR, 1.45; 95% CI, 0.89 to 2.37).

Conclusions: The expression of SPARC at peri-tumoral stroma portends a poor prognosis for patients with BTC after surgery.

Disclosure: All authors have declared no conflicts of interest.