Incremental Expression of Serum S100A6 Is Associated with the Detection and Pathologic Feature of Urothelial Carcinoma in the Urinary Bladder

Introduction and Objective: Although pathologic findings are the most common primary prognostic factors, remarkable difference in biologic behavior within each stage and grade category has led to an extensive search for more-reliable and powerful molecular markers in bladder cancer. S100 proteins have been shown to be involved in a variety of intracellular and extracellular functions including cell growth, cell-to-cell communication, energy metabolism, and intracellular signal transduction. This study detected preoperative levels of S100A6 in the serum of patients with urothelial carcinoma of the urinary bladder, and examined whether the expression of this protein could predict disease progression and survival.
Materials and Methods: S100A6 expression was measured in the serum of 50 patients with urothelial carcinoma of the urinary bladder, 13 patients with pyelonephritis and 30 healthy volunteers. The expression of S100A6 was examined association with the pathologic features, clinical outcomes and C-reactive protein (CRP) levels. Anti-S100A6 antibody was detected in the serum using the automated dot blot system and a micro-dot blot array with a 256 solid-pin system.
Results: S100A6 expression was significantly increased in bladder cancer patients compared with healthy volunteers (p=0.001). The expression levels of S100A6 and CRP in patients with pyelonephritis were higher than that in patients with bladder cancer, respectively. Increased S100A6 expression was associated with muscle-invasive cancer (p=0.004). There were no associations of pathologic features with CRP levels. After adjusting for the effects of standard pathologic features, only muscle-invasive cancer was found to be associated with bladder cancer progression (p=0.002) and mortality (p=0.005).
Conclusion: Serum S100A6 expression was significantly higher in patients with bladder cancer than in healthy volunteers. Incremental S100A6 expression was also associated with established features of biologically aggressive bladder cancer such as pathologic stage. Although S100A6 has limited prognostic value, its expression in serum could be a valuable marker for the detection of muscle invasive bladder cancer.