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Impact of Cholecystectomy in Breast Cancer Recurrence

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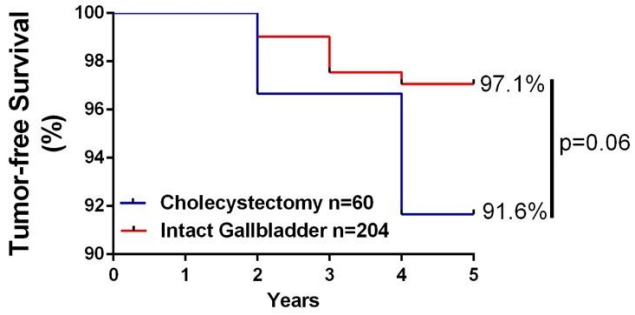
There have been published findings that bile acids may influence the growth of breast cancer in vitro. In murine and bench experiments, we have found statistically significant lower concentrations of cholic acid and chenodeoxycholic acid (primary bile acids) and deoxycholic acid and lithocholic acid (secondary bile acids) in mice with tumor recurrence. In patients with prior cholecystectomy, changes in bile acid metabolites may contribute to breast cancer tumorigenesis and recurrence. This study investigates our institutional rate of cholecystectomy in women diagnosed with breast cancer and its impact on breast cancer recurrence. A retrospective review of patients with an invasive breast cancer diagnosis between 2014-2015 was conducted. Demographics, preoperative variables, surgical history and clinical outcome data was collected. The study included 264 patients with mean age of 60.9. Most were Caucasian (83.5%). The majority were diagnosed at Stage II or lower (80.3%) and had hormone receptor positive, HER2 negative breast cancer (72.9%). 22.7% of patients had cholecystectomy surgery. The only statistically significant heterogeneity in demographic data between patients with and without cholecystectomy was body mass index (BMI). Patients with cholecystectomy had a mean BMI of 33.3, versus 29.1 in patients with intact gallbladders. The 5-year disease free survival (DFS) in breast cancer patients with cholecystectomy was 91.6%, versus 97.1% in patients with intact gallbladders (p=0.06). Women with breast cancer who had a history of cholecystectomy had increased rates of breast cancer recurrence over a 5-year period compared to women with breast cancer with intact gallbladders. Although this result was not statistically significant, a trend was seen. Future study of a larger patient sample size sample may lead to a statistical significant difference. The statistically significant difference in BMI between the two patient groups is likely a confounding factor, given increased BMI is a known risk factor for developing cholecystitis and breast cancer. This data supports existing in vitro studies that bile acids may influence the growth of breast cancer cells. There may be utility in closer follow-up of women with breast cancer and a history of cholecystectomy given the increased rate of breast cancer recurrence in this population.



Graph 1. Tumor-free Survival (%) in Breast Cancer Patients with Cholecystectomy versus Intact Gallbladders

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