

Article 2

Abstract:

BACKGROUND: LncRNA MEG3 rs7158663 has been shown to confer cancer susceptibility, maybe through altering its gene expression level. **OBJECTIVE:** We aimed to weigh the effect of rs7158663 on MEG3 serum level and breast cancer susceptibility. **METHODS:** We genotyped rs7158663 G > A and measured serum MEG3 in 150 breast cancer, 95 fibroadenoma , and 154 controls by the TaqMan method. **RESULTS:** The presence of rs7158663 G > A is a risk factor for breast cancer among fibroadenoma patients and controls, AA vs. GG genotypes (OR = 6.320, 95% CI = 2.587–15.439, P < 0.0001 when compared to controls and OR = 10.825, 95% CI = 1.929–60.742, P = 0.007 when compared to fibroadenoma). Decreased serum MEG3 was observed in breast cancer group when compared with fibroadenoma and/or controls [median (IQR) = 0.43 (0.27–0.55)] (P < 0.0001). However, increased serum MEG3 was noted in fibroadenoma group when compared with controls (P < 0.0001). A significance decreased serum MEG3 was found to be associated with mutant A allele than with wild G allele (P < 0.0001). The results showed that rs7158663 and lower MEG3 were significantly associated with patients with higher TNM staging and larger tumor size > 5 cm. **CONCLUSION:** The presence of both rs7158663 and low MEG3 are diagnostic and unfavorable prognostic factors for BC patients. **Keywords:** MEG3, polymorphism, rs7158663, breast cancer, fibroadenoma