Introduction: Mortality indexes of breast cancer being still high make it reasonable to explore further prognostic factors. Aim: This retrospective study aimed to investigate the role of tumor volumetry and tumor/breast volume ratio based on MRI in surgical treatment of breast cancer. Methods: First, tumor volumetry and tumor/breast volume ratio measurements were performed on preoperative MR-imaging of 63 patients. Volumetries were carried out via a software (3DSlicer). Correspondence was searched between tumor volume and presence of axillary nodal metastasis and then between tumor/breast volume ratio and probability of mastectomy or positive resection margins. In the second study, tumor volume was measured on MRI-series taken before and after neoadjuvant chemotherapy in 20 cases in order to find connection between MRI-based and histopathologically assessed regression. Independent samples t-test and one-way analysis of variance were applied for statistic analysis. Results: Between the cases of positive axillary nodes and tumor volume, a significant correlation was found (p=0.017; p=0.001). Between the probability of mastectomy or positive resection margins and tumor/breast volume ratios, there was no significant connection demonstrable (p=0.061 and p=0.07). There was no correspondence between the MRI-based and histopathologically assessed regression (p=0.442). Conclusions: Tumor volume and tumor/breast volume ratio mean an aid in surgical management of breast cancer. With these results found, we can design a study, wherein the prognostic value of tumor volumetry can be assessed more precisely.