**imaging (preclinical and clinical)**

**Examination of the sentinel lymph node identification in breast cancer combining contrast-enhanced ultrasonography and the blue dye method without radioisotope**

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**Background:** The utility of sentinel lymph node (SLN) biopsy is clear, therefore the axillary lymph node dissection is omitted. At present, the SLN identification method uses the technique of radioisotope and the blue dye method, and a combination method or independent method is performed. In the blue dye method, we have experienced that identification of SLN can be difficult. We reported the technique using the contrast-enhanced ultrasonography with Sonazoid (CEUS). The combination of radioisotope and blue dye method method is performed at many hospitals and has a high identification rate. However, this method has a problem, in that the radioisotope method can expose medical staff and patients to radiation. Therefore, we examined the SLN identification method using a combination with CEUS and blue dye, and the SLN metastasis by the situation of CEUS method and materials 157 patients with primary breast cancer without clinical axilla lymph node metastasis were recruited. The day before surgery, Sonazoid 1ml was injected at the subareolar intradermally. Indigo carmine 1-2ml intradermally injected at the subareolar during an operation, and SLN biopsy is performed. We were determined that heterogeneous or contrast failure findings in CEUS have the potential for metastasis.

**Result:**
Patient age is 29-80 (60.8) year old. The identification number of SLN by CEUS is 0-3(1.248), and identification rate of CEUS is 96.2%. The identification number of SLN by blue dye is 0-5(1.669), and identification rate of blue dye is 97.5%. The number of non SLN was 0-9 (2.185). There are 14 metastatic cases in 34 cases of suspected in CEUS. Sensitivity is 58%, specificity is 85%, accuracy is 80.9%.

**Conclusion:**
SLN method by CEUS is fully acceptable identified rate without radiation exposure. We can be identified at the same position of surgery. However, the status of CEUS becomes poor contrast in variety of factors, therefore, we could not determine to be significantly SLN metastasis. CEUS has the possibility to determine the SLN metastasis. Additional utility of CEUS is expected in the future.

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