

Hypothesis

The One-Step Nucleic Acid Amplification method could represent an effective intraoperative tool for detection of metastatic involvement of lymphatic nodes on the level of ultrastaging in endometrial cancer patients.

Objective

Utilization of the One-Step Nucleic Acid Amplification (OSNA) molecular biology method for the detection of the micrometastatic and macrometastatic involvement of sentinel lymph nodes in endometrial cancer patients. The objective is a comparison with the conclusion of the histopathological ultrastaging of sentinel lymph nodes and a description of the clinical consequences of this method.

Methods

Patients indicated for the surgical treatment of endometrial cancer underwent the detection of sentinel lymph nodes that was executed using the intracervical application of a tracer. Nodes larger than 5 mm were cut into sections 2 mm thick parallel to the short axis of the node. Odd sections were examined using the OSNA method, while even ones were examined by hematoxylin and eosin (H&E) and immunohistochemical examination to detect cytokeratin 19 antibody (IHC CK19) based on an ultrastaging-relevant protocol. Nodes of the size of 5 mm and smaller were divided into halves along the longitudinal axis with one half being examined using the OSNA method and the other half by ultrastaging. Conclusions of the OSNA method were compared to results of ultrastaging.

Results:

In total 58 patients were included in the study and a total of 135 sentinel lymph nodes were acquired. Both ultrastaging and OSNA agreed on 107 negative and 10 positive results.

In addition, OSNA detected micrometastatic involvement in 18 sentinel lymph nodes while histopathological ultrastaging evaluated these nodes as negative. In one node a false negative result using the OSNA method was recorded.

When comparing the results of the OSNA method to the conclusions of H&E and IHC CK19 as a reference method, the sensitivity of 90.9%, the specificity of 85.5%, and the concordance of 85.9% was attained. Thanks to the OSNA method, by 20.69% more patients could be included into the FIGO stage III. The expression of cytokeratin 19 was

immunohistochemically confirmed in all primary tumours.

Conclusions

The results of the OSNA method show a high level of consistency with histopathological ultrastaging examination. In addition, the OSNA method has shown a higher frequency of the detection of micrometastases and included 20.69% more patients into the FIGO stage III.

Highlights

- The OSNA molecular biology method was employed to detect micro- and macrometastases in sentinel lymph nodes of endometrial cancer patients
- Compared to ultrastaging, the OSNA method showed the sensitivity of 90.9%, the specificity of 85.5%, and the concordance of 85.9%
- In our group, the OSNA method shows a higher detection of the micrometastatic involvement of sentinel lymph nodes
- The OSNA method included by 20.69% more patients into the FIGO stage III