Electrical impedance scanning-application of this new technique for lymph node evaluation in children.


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Abstract
BACKGROUND: Precise assessment of lymph nodes is crucial to the choice of therapy and prediction of outcome in cases of malignancy. Electrical impedance scanning (EIS) is being experimentally investigated for potential use as a diagnostic tool for differentiation of malignant lesions. Malignancies show different electrical properties with changes in conductivity and capacitance that can be analysed by EIS. Using a TransScan TS-2000 (TransScan Medical, Migdal Ha’Emek, Israel, distributed by Siemens-Elema AB, Solna, Sweden), EIS has been used in various studies for the identification of breast cancer as well as for characterisation of superficial lesions.

OBJECTIVE: To evaluate the reliability of EIS for classifying lymph nodes in a pediatric population with sonographically suspicious lesions and to prove its accuracy.

MATERIALS AND METHODS: The study population consisted of 77 children (42 boys, 35 girls) aged 1.1-17.1 years. All EIS results were compared to either histopathological findings or long-term follow-up investigations.

RESULTS: Sensitivity for malignancies using EIS was 75% and specificity was 87%. The negative predictive value was 93% and the positive predictive value was 60%.

CONCLUSIONS: This study suggests the potential usefulness of EIS as an additional imaging modality for the differentiation of lymph-node diseases in children. The histopathological spectrum of malignant lymph node transformation in children compared to studies in adults, and the characteristic meltdown in inflammatory or granulomatous transformed nodes, pose challenges to differentiation based on sonographic evaluation, and also to EIS classification.

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MeSH Terms

LinkOut - more resources