Comparison of Real-time endobronchial ultrasound-guided transbronchial needle aspiration (EBUS-TBNA) and PET/CT in mediastinal staging of NSCLC: focus on histologic types. (preliminary report)

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Background: EBUS-TBNA was reported to have higher diagnostic accuracy in lymph node (LN) staging of lung cancer compared to CT and PET. We conducted a prospective study to compare EBUS-TBNA with PET/CT in mediastinal LN staging, especially focused on histologic types of NSCLC.

Methods: EBUS-TBNA was performed in 73 potentially operable NSCLC patients (pts) (M/F 60/13, median age 64 yrs). Chest CT and PET/CT were done before EBUS-TBNA. In case mediastinal LN metastasis was not proved by EBUS-TBNA, surgery was performed.

Results: Out of 73 pts, 34 had adenocarcinoma (ADC) and 32 had squamous cell ca (SCC)(large cell ca n=4, non-small cell ca unspecified, n=3). One hundred twenty-six mediastinal LNs (2R = 6, 2L=1, 4R=44, 4L=26, 7N=49) were sampled by EBUS-TBNA in 73 pts. EBUS-TBNA demonstrated metastasis in 34 LN stations in 23pts and missed 1 N2(+) patient (station 7, SCC). Overall, EBUS-TBNA showed higher diagnostic accuracy than PET/CT in mediastinal LN staging (Table, p=0.0075). EBUS-TBNA demonstrated LN metastasis in 3 PET (-) patients. All 3 pts had ADC. In ADC, positive predictive value (PPV) and negative predictive value (NPV) of PET/CT were 81.3% and 83.3% respectively. In SCC, PPV of PET/CT was very low (33.3%) and NPV was high (94.1%).

Conclusion: EBUS-TBNA is useful in mediastinal LN staging especially for the pts with mediastinal PET (-) adenocarcinoma and PET (+) NSCLC.

<table>
<thead>
<tr>
<th>Total, n=73</th>
<th>Sensitivity</th>
<th>Specificity</th>
<th>PPV</th>
<th>NPV</th>
<th>Accuracy</th>
</tr>
</thead>
<tbody>
<tr>
<td>PET/CT 83.3(20/24)</td>
<td>69.3(34/49)</td>
<td>57.1(20/35)</td>
<td>89.5(34/38)</td>
<td>74.0(54/73)</td>
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<tr>
<td>EBUS-TBNA 95.8(23/24)</td>
<td>100(49/49)</td>
<td>100(23/23)</td>
<td>98.0(49/50)</td>
<td>98.6(72/73)</td>
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<tr>
<td>ADC, n=34</td>
<td>PET/CT 83.1(13/16)</td>
<td>83.3(15/18)</td>
<td>81.3(13/16)</td>
<td>83.3(15/18)</td>
<td>82.4(26/32)</td>
</tr>
<tr>
<td>EBUS-TBNA 100(16/16)</td>
<td>100(18/18)</td>
<td>100(16/16)</td>
<td>100(18/18)</td>
<td>100(34/34)</td>
<td></td>
</tr>
<tr>
<td>SCC, n=32</td>
<td>PET/CT 83.3(5/6)</td>
<td>61.5(16/26)</td>
<td>33.3(5/15)</td>
<td>94.1(16/17)</td>
<td>65.6(21/32)</td>
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<tr>
<td>EBUS-TBNA 83.3(5/6)</td>
<td>100(26/26)</td>
<td>100(5/5)</td>
<td>96.3(26/27)</td>
<td>96.9(31/32)</td>
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</table>

Photodynamic therapy using talaporfin sodium (NP6) for centrally located early stage lung cancer

Usuda, Jitsuo1 Honda, Hidetoshi1 Ichinose, Shuji1 Hirata, Takeshi1 Inoue, Tatsuya1 Ohtani, Keishi1 Maehara, Sachio1 Ikeda, Norihiko1 Furukawa, Kinya1 Okunaka, Tetsuya1 Kato, Harunobu1
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Background: We had previously developed the possibility of use of a photodynamic diagnosis (PDD) system using a tumor-selective photosensitizer and laser irradiation for the early detection and photodynamic therapy (PDT) of centrally located early lung cancers. Recently, we established the autofluorescence diagnosis system integrated into a videoendoscope (SAFE-3000) as a very useful technique for the early diagnosis of lung cancer.

Patients and Methods: Thirty-four patients (45 lesions) with centrally located early lung cancer (Squamous cell carcinoma, carcinoma in situ, TisN0M0, stage 0) received PDT using the second-generation photosensitizer, talaporfin sodium (NP6), and a diode laser (664 nm). Just before the PDT, we defined the tumor margin accurately using the novel PDD system SAFE-3000 with NP6 and a diode laser (408 nm).

Results: Red fluorescence emitted from the tumor by excitation of the photosensitizer by the diode laser (408 nm) from SAFE-3000 allowed accurate determination of the tumor margin just before the PDT. The complete remission (CR) rate following NP6-PDT in the cases with early lung cancer was 93.3% (42/45 lesions). We also confirmed the loss of red fluorescence from the tumors immediately after the PDT using SAFE-3000. We confirmed that all the NP6 in the tumor had been excited and photobleached by the laser irradiation (664 nm) and that no additional laser irradiation was needed for curative treatment.

Conclusions: This novel PDD system using SAFE-3000 and NP6 improved the quality and efficacy of PDT and avoided misjudgment of the dose of the photosensitizer or laser irradiation in PDT.

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