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False-Positive FDG-uptake lesions on PET-CT after pneumococcal vaccination

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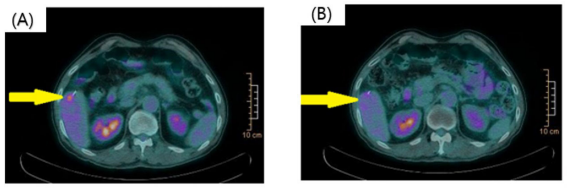
Introduction: PET-CT provides valuable information deciding cancer diagnosis, response to therapy, and recurrence. However, not only cancer cell but also activated macrophages, neutrophils, fibroblasts and granulation tissue show increased FDG uptake activity, so they can show false-positive image. Here is a case report of false positive FDG-uptake on PET-CT after vaccination. **Case:** A 62-year-old male patient with diffuse large B cell lymphoma and hepatocellular carcinoma received 6 cycles of R-CHOP chemotherapy and then CT confirmed complete response of lymphoma. He then underwent laparoscopic S4 segmentectomy for hepatocelullar carcinoma. PET-CT after end of all the treatment showed new lesions of FDG-uptake at S5 of the liver and subcarinal, right paraesophageal and right hilar lymph node (LN) (SUVmax 4.1, 6.1, 5.8 and 4.8, respectively). The multidisciplinary team compared the previous contrast enhanced CT and this PET-CT and confirmed that there was no new lesion other than FDG uptake. In order to rule out the possibility of a false-positive test, the patient's medical history was reviewed and he was found to have received a pneumococcal polysaccharide conjugate vaccine 13-valent adsorbed, 1 day before the PET-CT examination. The team decided to short-term follow up of image without pathologic confirmation. PET-CT, 2 months later, showed decreased FDG uptake at the LNs and disappeared uptake at liver compared to previous test (Fig.1, Table 1). PET-CT, 2 years later, showed more decreased FDG uptake at subcarinal, right paraesophageal and right hilar LNs compared to initial PET-CT (SUVmax 31.1%, 34.5% and 31.3% decreased, respectively). **Discussion:** There are a few reports of false positive results on PET-CT after influenza vaccination which might have caused inflammation. But there was no reported case after pneumococcal conjugated vaccination on adult. **Conclusion:** Vaccination could be a cause of FDG uptake on PET-CT. In order to avoid unnecessary biopsy or treatment, the possibility of false positives should be ruled out and it may be helpful to check the vaccine history. And we recommend delay vaccination if a patient has a plan to exam the PET-CT.



(Fig.1) Disappeared FDG-uptake lesion at S5 liver on PET-CT after 2 months, (B) compared to initial PET-CT after vaccination (A)

	2016-08-09	2016-10-21		2018-06-20	
	SUVmax	SUVmax	Reduction(%)	SUVmax	Reduction (%)
subcarinal LN	6.1	4.8	29.5	4.2	31.1
Rt hilar LN	4.8	4.3	11.6	3.3	31.3
Rt paraesophageal LN	5.8	4.7	19	3.8	34.5

(Table 1) Changes of FDG uptake

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Low Pre-treatment Nutritional Index is Significantly Related with Poor Outcomes in SCLC

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Background/Aims: The importance of nutritional status and chronic inflammation has been emphasized in cancer. We investigated the impact of Onodera's prognostic nutritional index (OPNI) on clinical outcomes in small cell lung cancer (SCLC) patients. **Methods:** Data from 220 SCLC patients treated with first-line platinum-based chemotherapy from 2006 to 2017 were reviewed retrospectively. The OPNI was calculated as 10 × serum albumin level (g/dL) + 0.005 × absolute lymphocyte count (/mm3). Patients with an OPNI of > 45, 40–45, or<40 were categorized in the high, intermediate, or low OPNI groups, respectively. **Results:** The proportion of non-responders to first-line therapy increased as the OPNI decreased (high, intermediate, low OPNI groups: 6.7%, 18.0%, and 30.8%, respectively; p<0.001). Early discontinuation of first-line therapy due to treatment toxicity occurred more frequently in the lower OPNI groups (high, intermediate, low OPNI groups: 5.8%, 21.3%, and 25.6%, respectively; p<0.001). The 1-year progression-free survival (PFS) and overall survival (OS) rates were 29% and 61%, 19% and 46%, and 3% and 23% in the high, intermediate, and low OPNI groups, respectively. On multivariate analyses, the low OPNI group was independently associated with a poor PFS (hazard ratio [HR], 1.592; 95% confidence interval [CI], 1.009–2.511; p=0.046) and OS (HR, 1.911; 95% CI, 1.208–3.024; p=0.006) compared with the high OPNI group. **Conclusions:** SCLC patients with an OPNI<40 showed a low treatment response rate, low tolerance to chemotherapy, and poor prognosis. Further evaluation is needed to validate these findings.