

두경부암에서의 PET-CT의 유용성

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Availability of PET-CT in Head and Neck Cancers

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PET(Positron Emission Tomography)의 원리

PET은 방사성 동위원소로 표지된 약물을 투여한 후, 방사성 동위원소가 붕괴하여 방출되는 양전자와 전자와의 쌍소멸에 의해 발생하는 511keV의 감마선 쌍을 검출하여 영상화하는 기술이다. PET은 주로 ^{18}F -FDG를 이용하여 암의 진단과 병기확정에 사용된다. PET은 SUV(standard uptake value)를 이용하여 조직의 방사성 농도를 정량화한다. PET은 주로 ^{18}F -FDG를 이용하여 암의 진단과 병기확정에 사용된다. PET은 SUV(standard uptake value)를 이용하여 조직의 방사성 농도를 정량화한다. PET은 주로 ^{18}F -FDG를 이용하여 암의 진단과 병기확정에 사용된다. PET은 SUV(standard uptake value)를 이용하여 조직의 방사성 농도를 정량화한다.

Fusion PET(PET-CT)의 도입

Fusion PET(CT)은 PET과 CT 영상을 융합하여 진단의 정확도를 높이는 기술이다. PET은 기능적 정보를 제공하고, CT는 해부학적 정보를 제공한다. Fusion PET(CT)은 PET과 CT 영상을 융합하여 진단의 정확도를 높이는 기술이다. PET은 기능적 정보를 제공하고, CT는 해부학적 정보를 제공한다. Fusion PET(CT)은 PET과 CT 영상을 융합하여 진단의 정확도를 높이는 기술이다. PET은 기능적 정보를 제공하고, CT는 해부학적 정보를 제공한다.

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PET CT , ,
 PET - CT . PET - CT PET 가 ,
 CT 가 가
 . PET - CT가
 PET CT
 anatomical localization PET을 이용한 두경부암의 병기 결정
 가 . PET - CT oncology 가 3가 ,
 staging 가 가

두경부암에 있어서의 PET 영상

PET 가 원발 종양의 병기 결정
 , 1930 PET (T - staging)
 PET ¹⁸F - FDG ³⁾⁴⁾ PET
 . ¹¹C - methionine ¹¹C - thymidine (CT, MRI) , T -
¹⁸F - FDG staging 가 ,
 . ¹¹C - methionine ¹¹C - thymidine T

FDG ,
 FDG ²⁾ 가 PET ,
 , FDG ⁵⁾ PET ,
 FDG PET
 , 200 mg/dl
 FDG

PET ¹⁾ 원발 부위를 모르는 종양의 진단
 PET 5%
 FDG가 , (CT, MRI)
 tonsil 가 가

temporalis, pterygoid, masseter,
 가 , 가
 , PET 20~25%
 . ⁶⁻⁹⁾ ,
 PET 가 1 cm
 . PET ¹⁰⁾

PET - CT

주위 임파선 전이

, PET 가 가 , PET
 가 .³⁾⁴⁾¹¹⁻¹⁵⁾ 가 , PET
 PET ,
 가 . Adams 1400 . ,
 60 , PET PET
 CT, MRI, US 10% PET
 가 (Fig. 1).
 PET
 low - stage tumor neck dissection . Myers
 , NO FDG PET
 PET . FDG PET
 CT 2 .

두경부 암 치료의 평가에 있어서의 PET 영상

PET을 이용한 원격 전이 병기

HNSCC 가 FDG가 ,
 HNSCC FDG 가 .
 가 , 가
 PET 가 FDG 가 ,
 FDG가 .
 Teknos PET stage 가 .¹⁸⁾ 12~16
 III IV 가 .¹⁶⁾ 2 FDG 가 가
 (17%) 가 CT 가 , .¹⁹⁾ FDG
 PET 가 , SUV SUV
 (true - positive) . 1/3 CT PET , (overlap)
 가 .

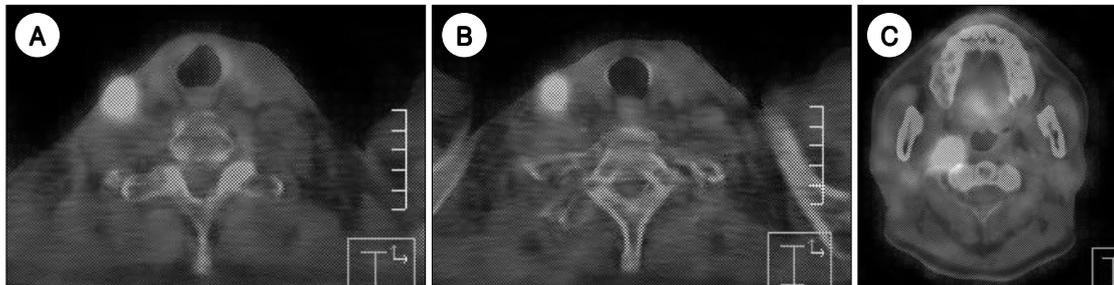


Fig. 1. Right level IV LN (A), right supraclavicular LN (B), right retropharyngeal LN (C)에서 비정상적으로 증가된 glucose metabolism이 관찰된다.

가 , FDG
 , FDG
 , 1
 ,²⁰⁾ Lowe HNSCC
 organ - sparing chemotherapy/radi-
 ation FDG PET needle
 biopsy
 PET 가 90%(19/21)
 , blind biopsy
 . FDG PET guidance
 biopsy , biopsy 100%
 가 . PET biopsy 100%
 83%(5/6) . Greven 31
 HNSCC PET
 , PET
 80% 81% 가
²²⁾

원격 전이의 발견에 있어서의 PET
 staging
 가가
²⁸⁾ PET
 , non - curable distant tumor가
 curative surgery radiation
 morbidity

결론

PET
 . PET
 PET - CT
 가 , PET
 . PET
 , PET
 . PET /

재발성 두경부암의 평가

국소 재발의 발견에 있어서의 PET

PET 가 . PET
 PET
^{4)15)21 - 28)}
 Anzai
 CT/MRI PET
 receiver operating characteristic analysis
²⁴⁾ , 가 PET
 . Fischbein
 CT PET
²⁷⁾
 , PET
 가 ,
 가 . PET
 , 가
 , 가

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