ROLE OF PET-CT IN ASSESMENT OF COLORECTAL CANCER

Thesis

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List of Abbreviations

Abb.	Full term
+ß	*Positron*
18F-FDG	*18Fluorine-Fluorodeoxy Glucose*
AC	*Attenuation Correction*
BAT	*Brown Adipos Tissue*
CEA	*Carcinoembryonic Antigen*
CRC	*Colorectal Cancer*
CT	*Computed Tomography*
DAS	*Digital Acquisition System*
FN	*False Negative*
FP	*False Positive*
HU	*Hounsfield units*
IBM	*International Business Machines Corporation Statistical Package for the Social Sciences*
IMV	*Inferior Mesentric Vein*
LNs	*Lymph Nodes*
LOR	*Line of Response*
mCi	*Millicurie*
MIP	*Maximum Intensity Projection*
N	*Neutron*
NPV	*Negative Predictive Value*
P	*Proton*
PET	*Positron Emission Tomography*
PPV	*Positive Predictive Value*
PT	*Primary Tumor*
SPSS	
SUV	*Standardized Uptake Value*

List of Abbreviations (Cont...)

Abb.	Full term

TN ..... *True Negative*
TNM ..... *Tumor Node Metastasis*
TP ..... *True Positive*
UICC ..... *Union of International Cancer Control*
WHO ..... *World Health Organization*

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Abstract

Purpose: The goal of this study is to elucidate the role of 18-FDG PET-CT in assessment of colo-rectal cancer

Methods: Twenty five patients with histopathologically proven colorectal primary malignancy were evaluated for suspected local recurrence and metastasis using PET/CT. No age predilection and both sexes were included, Clinical information, image follow-up, tumour markers, and pathological reports of the patients were reviewed for gold standard

Results: The final diagnosis of distant metastasis and/or local recurrence in post- therapeutic cancer colon was evident in 70% of our patient population with PET /CT sensitivity of 95.6%, specificity of 91.4%, (NPV) of 88.9%, (PPV) of 96.7%, and diagnostic efficacy of 94.4% and CT sensitivity of 62.6%, specificity of 48.6, (NPV) of 33.3% (PPV) of 76.0%, and diagnostic efficacy of 58%

Conclusion: PET/CT is a better method to evaluate colorectal cancer patients with significantly higher specificity and sensitivity.

Keywords: Colorectal cancer assessment 18-FDGPET

INTRODUCTION

Colorectal cancer is a major cause of morbidity and mortality throughout the world. It accounts for over 9% of all cancer incidence. It is the third most common cancer worldwide and the fourth most common cause of death. It affects men and women almost equally ***(Fatima and Robin, 2009).***

Despite optimal primary treatment, with adequate surgery with or without adjuvant chemotherapy, 30%–50% of patients with colon cancer will relapse and die of their disease. CT is considered the primary method of investigation because of its low cost, widespread availability, and high-resolution of anatomic details, but may under-estimate the actual tumor burden by overlooking small tumor clusters in areas of distorted anatomy after treatment ***(Israel and Kuten, 2007)***.

Cancer-related metabolic abnormalities usually precede structural changes and are readily detected by PET. PET is a highly sensitive imaging test in detection colorectal cancer ***(Israel et al., 2004)***.

Accurate imaging of patients with colorectal cancer (CRC) is vital, usually performed with carcinoembryonic antigen (CEA) level, computerized tomography (CT) and other conventional imaging techniques

but in the last few years, functional imaging using integrated positron emission tomography and CT (PET/CT) is being used increasingly to identify recurrent disease ***(Mittal et al., 2011)***.

AIM OF THE WORK

The goal of this study is to elucidate the role of 18F-FDG PET-CT in assessment colo-rectal cancer.