An Overview: Treatment of Lung Cancer on Researcher Point of View

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ABSTRACT

Cancers is defined as the uncontrolled cell divisions. Cell does not grow maturely and destined to uncontrolled cell growth. When these cells of lungs grow uncontrolled it is called lung cancer. Nowadays mortality rate due to lung cancer is increasing day by day. Many treatment and diagnoses are now a day’s available to deal with lung cancer. Here we disused different method for diagnosis the common types of lung cancer Non-Small Cell Lung Cancer, Small Cell Lung Cancer, Small Cell Lung Cancer Limited Stage, Small Cell Lung Cancer - Extensive Stage, Lung Adenocarcinoma, Squamous Cell Carcinoma, Bronchioloalveolar carcinoma (BAC), Metastatic lung cancer.

Keywords -EGFR gene, LCINS, NSCLC, Quantitative positron imaging technique, SCLC

1. INTRODUCTION

Lung cancer leads to death including both man & woman. In diagnostic view PET is a quantitative positron imaging technique which is helpful in early diagnosis of lung cancer in patient. The risk of most redundant outcome of this disease (death) can be minimized by the early detection in proper diagnosis. The main developers of lung cancer are K-RAS and EGFR which are present in NSCLC patients 10% to 15%. 5% of NSCLC patients represent PI3KCA, ERBB2, and B-RAF which is identify by efforts on DNA sequencing [1-2]. Lung cancer is developed by the abnormal behavior of cells which causes tumor. [3] In blood, these cancer cells can be removed from lungs. Lymph flow through the vessels which are called Lymphatic vessels [4]. A computer with magnet gives the detailed pictures inside the body, in clinical practice Diffusion-weighted MRI (DW-MRI) is useful to detect tumor and its related therapy [5-9]. Due to cancer, Lung cancer moves to the center of chest and their diagnosis have been discussed here. In figure different type of lung cancer are shown. There are some types of lung cancer, non-small cell lung cancer (NSCLC) and small cell lung cancer (SCLC) etc.

2. Literature Review

Lung cancer is the main cause of death, as more people are dying due to the lung cancer as compared to other cancers. Initial treatment of lung cancer can easily recover the infected, tumor patient. That’s why there is a huge demand for the latest technologies and methodologies to analyze the lung correctly in its initial stage. In this paper we have described the diagnosis of different types of lung cancer.

Figure 1. Different types of Lung Cancer
3. Non-Small Cell Lung Cancer

It is a type of cancer which leads to death causing both man & woman. The subgroup of its patients has mutations in the gene of EGFR. This correlates with the responsiveness of clinical to the inhibitor of gefitinib this Non–small-cell lung cancer is the leading cause of death from cancer among both man and woman mass. A subgroup of patients with non–small-cell lung cancer has specific mutations in the EGFR gene. Correlate the inhibitor of gefitinib this inhibitor for signaling to increase grows. The patients who are affected by gefitinib are exposed to screening for identification of lung cancer [10]. Production of lung cancer for a patient is better against prognostic factors and NSCL stages across the year. These probability of detection for lung cancer from ACOSOG Z0030 and CALGB 9761 is 72% and 79%. A subgroup of patient with disease at 1A Stage were at high risk and these may be treated by chemotherapy[11]. The patient who were better than positron Emission Tomography for wide range of cancers PET will play valuable role for RT planning. In RT planning the physician should be aware when request is for PET scan [12]. Non- small cell lungcancer the FDG-PET the patients must safely decrease the radiotherapy volume experimentally the radiation loss within the tumor. The role of FDG-PET is emerging in some disease [13] the survival rate for patient of stage 1 disease is 64.6% and 41.2%. The aim here is to find mechanism of the function related to cancer. 2D-DIGE analysis was performed on tumor from the patients having NSCLC and HEK293 cells and encoded SEC62 proteome effects of siRNA were analyzed with depletion of SEC62 interactome and protein SEC63[14]. The most common cause of lung cancer is the tobacco smoking, but just about 10–25% of patients with this disease are lifelong never smoker. With lung cancer, mutations involving TP53 and KRAS genes are more common in tobacco a smoker which is well explained from many studies, while LCINS is described by EGFR TK mutations, ALK, RET and ROS fusions. The genome of LCINS is considerably different from the tumor genome of a tobacco smoke with lung cancer. For lung cancer the LCINS genome may offer us with a relatively enhanced and easily identifiable set of oncogenic drivers. Against LCINS the relatively small number of genomic alterations also provides some better opportunities for the growth of targeted therapies.

Table 1. Results of different method of NSCLC for detection tumor

<table>
<thead>
<tr>
<th>Material/Method</th>
<th>Database</th>
<th>Number of test images</th>
<th>Accuracy/Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gradient and manual contouring[16]</td>
<td>One Institution’s hospital</td>
<td>Images of 46 pts</td>
<td>The 50% Threshold methods have less inter-observer variability than Manual.</td>
</tr>
<tr>
<td>Rebiopsies[17]</td>
<td>Medical faculty carl Gustav curus</td>
<td>A 27 year old woman</td>
<td>The worth of rebiopsies and well-timed molecular diagnostics to send suitable therapies after expansion of resistance to aimed therapies with EGFR-TKIs.</td>
</tr>
<tr>
<td>TTF-1 and p6[18]</td>
<td>National Cancer Institute, Cairo University</td>
<td>40 cases of primary lung lesions</td>
<td>Twenty six (65%) patients showed up with a one pulmonary nodule whereas only (35%) 14 patients showed up with multiple nodules.</td>
</tr>
<tr>
<td>Stage iii A and iii B NSCLC[19]</td>
<td>Zagagiz University Hospitals</td>
<td>40 patients</td>
<td>Addition to XRT can be a relatively easy method of augmenting the symptom palliative effect, supplying larger answer rates for re-expansion of destroyed lungs and decreasing Endobronchial obstruction endoscopically.</td>
</tr>
</tbody>
</table>

PET the patients must safely decrease the radiotherapy volume experimentally the radiation loss within the tumor. The role of FDG-PET is emerging in some disease [13] the survival rate for patient of stage 1 disease is 64.6% and 41.2%. The aim here is to find mechanism of the function related to cancer. 2D-DIGE analysis was performed on tumor from the patients having NSCLC and HEK293 cells and encoded SEC62 proteome effects of siRNA were analyzed with depletion of SEC62 interactome and protein SEC63[14]. The most common cause of lung cancer is the tobacco smoking, but just about 10–25% of patients with this disease are lifelong never smoker. With lung cancer, mutations involving TP53 and KRAS genes are more common in tobacco a smoker which is well explained from many studies, while LCINS is described by EGFR TK mutations, ALK, RET and ROS fusions. The genome of LCINS is considerably different from the tumor genome of a tobacco smoke with lung cancer. For lung cancer the LCINS genome may offer us with a relatively enhanced and easily identifiable set of oncogenic drivers. Against LCINS the relatively small number of genomic alterations also provides some better opportunities for the growth of targeted therapies.

4. Small Cell Lung Cancer

This is aggressive type of lung cancer. This causes the
4.1 Small Cell Lung Cancer - Limited Stage
Limited stage of small cell lung cancer patients with modern cohort, brain imaging MRI prior to PCI the survival advantage of thoracic chemoradiation is conferred by PCI alone. Chemotherapy with response of small cell lung cancer is offered with slandered of care [22]. This study presents the attempt to correlate between FDG avidity with the outcome of LS-SCLC in both pre and post CRT settings. Meaningful prognostic type information is unlikely to provide in PET and patients who are treated by CRT [23].

4.2 Small Cell Lung Cancer - Extensive Stage
Extensive stage of lung cancer (SCLC), the technique of efficacy and AZD-0530 is more helpful which four cycles of platinum-based. Saracatinib at a dose of 175 mg/day by mouth is well tolerated the PFS rate pragmatic at the pre-planned interim analysis did not meet the criteria for additional enrollment. [24] In small cell lung cancer tumor occupied area is highly vascularized. Vascular agent of tumor is ASA404 with carboplatin and ASA404 with PSF was not prolonged [25].

5. Metastatic Lung Cancer
Metastatic lung cancer is the type of lung cancer in which cancer cells from any part or any other organ of the body spreads through towards the lungs. Organ which firstly cancer began is called primary cancer. General symptom of metastatic cancers are (1) Fatigue (2) weakness (3) weight loss (4) Metastatic cancer to the lungs is the spread of cancer from another region of Loss of appetite etc. A burden of substantial symptoms occurs in non-small lung cancer and goes through the end of life. In early disease well care leads to improvement in quality and quantity of life as compared with patients’ receiving less aggressive care at the end of life have longer survival [26]. An examination of mice having lung cancer tumors. When treated with inhalational formulation of C-DIM5 and C-DIM8. These treatments result in the less protein expression of mediators of tumors initiation, metastasis and other forms that procedures cancer. A tumor marker (CD31, VEGF) shows the suppression of angiogenesis and metastasis. So C-DIM5 and C-DIM8 are antitumor’s [27]. A metastatic adenocarcinoma the lungs multiple lesions have cystic appearance are found [28].

6. Bronchioloalveolar carcinoma (BAC)
Antifolate drugs is an active agent in lung cancers specially adenocarcinoma Pemetrexed (antifolate drug) is active in patients of Bronchioloalveolar carcinoma (BAC) to underline mechanism of action as an antifolate drug [29] Tumor marker detect LIPH expression in Bronchioloalveolar carcinoma (BAC). LIPH protein early and late phase lung cancer patients by high serum level LIPH protein have better survival chances after surgery. So LIPH is tumor markers of lung cancer that is for adenocarcinoma and Bronchioloalveolar carcinoma (BAC) [30].

7. Squamous Cell Carcinoma
In lung cancer Squamous cell carcinoma (SCC) is the most common type of lung cancer. NCI-H69 cells express choline transporter which in turn gives a force in relation with NHE1. This system of choline is used for synthesis of Ach apoptosis (cell death). This choline transport system is used as chemotherapy [31]. Profiling of radiation survival should facilitate discovery of protective measures [32].

8. Lung Adenocarcinoma
In lung adenocarcinoma platinum based chemotherapy is the most common treatment. In stage three and is non prognostic mutation treatment decision are based on patients sub stages or relevant subgroups of disease [33]. There is no association found by clinicians to exclude malignancy in patients with sarcoidosis [34]. Transthoracic ultrasound can be used in different stages of lung cancer and protect chest physicians in defining the modality of diagnosis in every single patient dependent on his/her stage [35].

9. Conclusion
Lung cancer leads to death including both man & woman. In diagnostic view PET is a quantitative positron imaging technique which is helpful in early diagnosis of lung cancer in patient. It can also help us to tell about the staging and treatment for the patient. Lung cancer is also known as lung or pulmonary cancer, which is described as uncontrolled cell growth in the tissues of lung. If cancer starts from the lung, then it is called primary lung cancer. Here we discussed we have discussed the treatment of types of lung cancer on the researchers point of view.
<table>
<thead>
<tr>
<th>Application</th>
<th>Advantage</th>
<th>Limitation</th>
<th>Result</th>
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<tr>
<td>Chain reaction of digital polymers [38]</td>
<td>It enables the quantification of DNA from peripheral blood.</td>
<td>-</td>
<td>It identified PIK3CA circulating in patients of breast cancer and blood cancer.</td>
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<td>PI3K/Akt/mTOR[39]</td>
<td>The inhibitor of PI3K emerged to the problem of EGFR TKI resistance.</td>
<td>Resistance to EGFR TKIs is related with extensive, heterogeneity and complexity.</td>
<td>The inhibitors have paired with other agents if they are effective.</td>
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<td>Application metastatic adenocarcinoma of the lung is associated with NCS[40]</td>
<td>In the absence of mandibular or base of skull metastatic lesion, NCS can be present.</td>
<td>-</td>
<td>NCS is the sign of metastatic cancer.</td>
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<td>In metastatic adenocarcinoma Docetaxel induced hypersensitivity pneumonitis mimicking lymphangitic carcinoma [41].</td>
<td>Docetaxel is one of the anticancer drugs.</td>
<td>The patients presents with cough, fever, dyspnea.</td>
<td>Docetaxel also effect in response to steroids.</td>
</tr>
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<td>Lepidic component [43]</td>
<td>Patients with less papillary structure have shorter disease chances than those of structure less.</td>
<td>-</td>
<td>Low papillary structure is associated with high cancer behavior lung adenocarcinoma.</td>
</tr>
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<td>ESD[44]</td>
<td>ESD with the flex Knife make it easier to control the knife during ESD and any difficulties such as severe bleeding and perforation.</td>
<td>Endoscopic mucosal resection (EMR) is also a less-invasive treatment</td>
<td>By EMR and additional therapies it is complex able to get en bloc resection for larger lesions.</td>
</tr>
<tr>
<td>LSD1[45]</td>
<td>As compared to ESCC patients with lower expression of LSD1 were considerably inferior to overall survival.</td>
<td>With any of the following clinic pathologic characteristics sex, age, infiltration and differentiation LSD1 expression was not connected</td>
<td>In the cases with LNM than those without LNM (p &lt; 0.05) the expression level of LSD1 was higher</td>
</tr>
<tr>
<td>[46]In the human lung adenocarcinoma cells (A549) are showing to Pem, MX, and/or cisplatin (CP) (24 or 48)</td>
<td>At the G1/S border the irradiation protocol was considered to get advantage from the radio sensitivity of cells.</td>
<td>The cell cycle Supply of A549 cells and no clear radio sensitization MX (3 or 6 mM) alone had no outcome.</td>
<td>Before RT could further extend the reply line of the drugs allow the cycling cells to build up at the G1/S border.</td>
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<td>SIB integrated with WBRT [47]</td>
<td>The patients with many Brain metastases have particular option of WBRT.</td>
<td>Further studies with more patients are necessary by the limitation of the small sample size.</td>
<td>It is efficient in volume reduction and displayed excellent intracranial control.</td>
</tr>
<tr>
<td>FDG-PET and CIMs[48]</td>
<td>In the detection of primary tumor FDG-PET and CIMs were equally effective.</td>
<td>-</td>
<td>When analyzed alongside with CIM FDG-PET scanning depicts important additional in sequence and has a relevant impact on therapy planning.</td>
</tr>
<tr>
<td>FDG-PET evaluation for grading, staging ,post therapeutic evaluation and response assessment in children affected by Wilms tumor (WT).[49]</td>
<td>FDG-PET is found to be superior with recurrent WI for 1/3 cases.</td>
<td>Additional information is not provided by FDG-PET to the traditional work of imaging for WT patients. Clinical outcomes and pre-operative response</td>
<td>FDG-PET was found with more effective completion of treatment and staging of patients with pretherapeutic relapse. It seemed as good relation for SUV and histological differentiation</td>
</tr>
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</table>
Scanning FDG-PET/CT in patients having Wilms tumors [50]

<table>
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<th>Scanning FDG-PET/CT in patients having Wilms tumors [50]</th>
<th>Concentration of FDG-PET with Wilms tumors. However the small pulmonary may be visualize easily.</th>
<th>Non visualization of PET scans for the lungs with 10mm smaller</th>
<th>FGD-PET is very helpful in assessing the response for treatment.</th>
</tr>
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<tbody>
<tr>
<td>PET/CT optimized with dual contrast[51]</td>
<td>It can be optimized for molecular imaging to be used in humans.</td>
<td>Distinguishing b/w good and poor response was difficult by SUV2/SUV1</td>
<td>Dual contrast PET/CT having early post contrast with 3h delay. It provides the better way to detect early tumor lesions.</td>
</tr>
<tr>
<td>Positron emission tomography for F-18-fluoro-2-deoxy-d-glucose [52]</td>
<td>In chemotherapy it was better to evaluate the TBR for SUVmax.</td>
<td>The meditational lymph node displacements, It might not be appropriate to use an isotropic margin in applying IFRT to NSCLC.</td>
<td>The promising tool of FDG-PET is easily to access the response of chemotherapy for noninvasively.</td>
</tr>
<tr>
<td>IFRT [53]</td>
<td>Prescribed doses of radiation and lymph failure nodes were mainly developed by field of radiation.</td>
<td>The disease free survival and overall survival of patients after complete response to chemo-radiation therapy.</td>
<td>PCI is beneficial over the earlier administration to decrease the metastases of brain in incidence.</td>
</tr>
</tbody>
</table>

References


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