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Results

A total of 72 patients met the criteria for ultra-central tumor location. The PTV abutted the main bronchus, trachea or esophagus in 78%, 21% and 21% of cases, respectively. At a median follow-up of 19 months, 1- and 2-year local failure-free survival rates were 98% and 85%, respectively. Overall survival rates at 1 and 2 years were 77% and 52%, respectively. Grade 3 or higher toxicity was observed in 21%, of which 10 patients (14% of total) died of bronchopulmonary hemorrhage. A significant difference between patients with or without grade ≥ 3 toxicity was found for the mean dose (D_{mean}) to the main bronchus ($p=0.015$), where a D_{mean} BED₃ of ≥ 90 Gy increased the risk of grade ≥ 3 toxicity significantly. Age, tumor histology and antithrombotic therapy was not significantly associated with the rate of grade ≥ 3 toxicity.

Conclusion

A protracted SBRT regimen of 60 Gy in 12 fractions for ultra-central lung tumors leads to high local control rates with acceptable toxicity in most patients, albeit at the risk of serious toxicity and even mortality. Therefore, possible risk factors of lung hemorrhage such as dose to the main bronchus, peri- or endobronchial tumor location and anti-vascular endothelial growth factor (anti-VEGF) or antithrombotic therapy should be taken into account. This study suggests to limit the D_{mean} BED₃ to the main bronchus to 90 Gy.

PO-1173 Previous pneumectomy is a risk factor of severe radiation pneumonitis after IMRT for lung cancer

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Purpose or Objective

Radiation therapy is a major treatment modality for management of locally advanced lung cancer. Volumetric modulate arc therapy (VMAT) and helical tomotherapy (HT) are current standard techniques of intensity modulated radiation therapy. However, risk factors of severe radiation pneumonitis (RP) are poorly understood in lung cancer patients who undergo VMAT and HT. The purpose of the present study was to assess risk factors of symptomatic RP in lung cancer patients who received IMRT using VMAT or HT.

Materials and Methods

Fifty-two patients who received definitive radiotherapy using VMAT or HT for lung cancer were included in this retrospective study. Twenty-nine and 23 patients received IMRT using VMAT and HT, respectively. Patients with distant metastasis or a follow-up duration of less than 90 days without grade 5 RP were excluded. Median age was 70 [range; 53-85]. One, five, and 46 patients had clinical stage 1B, stage 2AB, and stage 3ABC, respectively. Eight patients had past medical history of pneumectomy, and median residual lung volume was 2684 cc [range; 1723-3799]. Prescribed dose was a total of 60 Gy in 30 fractions. Clinical factors were tested for associations with symptomatic RP after radiotherapy. Time-to-event analyses were performed from the start of radiotherapy to the emergence of the event. Cumulative time to event was calculated using the Kaplan-Meier method. Potential factors associated with RP were evaluated using the COX proportional hazards model.

Results

The median follow-up time was 362 days [range; 77-927]. Eighteen and 8 patients experienced disease failure and died during the follow-up term, respectively. The median overall survival and disease-free survival time was 646 and 498 days, respectively. Twenty-four, 11, six, one, and one patients developed grade 1, 2, 3, 4, and 5 RP, respectively. The 6-month and 1-year incidence of grade ≥ 2 RP was 31.7 and 39.5%, respectively. Univariate analyses revealed that occurrence of grade ≥ 2 RP was significantly associated with planning target volume (PTV) ≥ 365 cc, whole lung volume receiving 20 Gy (V_{20}) $\geq 18\%$ and $V_5 \geq 44\%$, the mean dose (D_{mean}) to the whole lung ≥ 11 Gy, $V_{20} \geq 36\%$ and $V_5 \geq 61\%$ of ipsilateral lung and the use of VMAT ($p = 0.018, 0.002, 0.001, 0.001, 0.002, 0.002, 0.042$, respectively). However, no independent factors which were associated with grade ≥ 2 RP were observed in the multivariate analyses. In terms of grade ≥ 3 RP, univariate analyses revealed that past medical history of pneumectomy, whole lung volume ≤ 3150 cc, $V_5 \geq 44\%$ of whole lung, $V_{20} \geq 36\%$ and $V_5 \geq 61\%$ of ipsilateral lung were significantly associated with the occurrence of RP. In addition, past medical history of pneumectomy was independently associated with grade ≥ 3 RP in the multivariate analyses (hazard rate, 4.888; 95% confidence interval, 1.028-23.239; $p = 0.046$).

Conclusion

Severe RP was associated with the previous pneumectomy in patients with lung cancer treated by VMAT or HT.

PO-1174 3-weekly paclitaxel-carboplatin with radiation for stage III NSCLC - option during COVID-19 pandemic

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Purpose or Objective

The optimal choice and schedule of chemotherapy (CT) given concurrently with radiation (RT) for primary treatment of stage III unresectable non-small cell lung cancer (NSCLC) remain debatable. 3-weekly paclitaxel-carboplatin (PC) is a convenient schedule but not well studied. This study aims to review the efficacy, toxicities and prognostic factors for treatment outcomes of this regime.

Materials and Methods

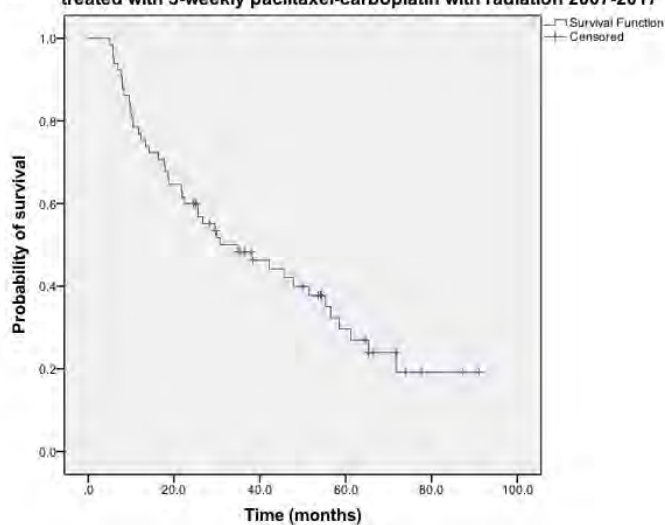
Patients with unresectable stage III (AJCC TNM 7th edition) NSCLC treated with radical chemoradiotherapy using 3-weekly PC (P 175mg/m², C AUC=5 on day 1 of 21-day cycle) from January 2007 to April 2017 were

retrospectively reviewed. RT was given 5 days per week in 2 Gy daily fractions to the planning target volume using 3D-conformal technique. Total of 4 to 6 cycles of CT were allowed at clinicians' discretion. Patients who had >2 CT cycles before RT, <1 cycle of CT concurrently with RT and total RT dose < 60 Gy were excluded.

Results

A total of 65 patients with median age 63 years (range 45-74 years) were included. Stage distribution was similar between IIIA (53.8%) and IIIB (46.2%). Majority (41.5%) of patients had adenocarcinoma, followed by squamous histology (38.5%). Most patients received 60 Gy of RT (96.9%) and 4 cycles of CT (83.1%). At a median follow up of 29.5 months (mo) (Interquartile range 13.4-53.6 mo), the median overall survival (OS) was 35.0 mo (95% CI 17.5-52.4 mo) and the median progressive free survival (PFS) was 12.2 mo (95% CI 8.7-15.8 mo). The 1, 3 and 5-year OS rates were 76.9%, 48.3% and 29.7% respectively. Multivariate analyses showed that gross tumour volume (HR 1.005 [95% CI 1.002-1.008]; $p < 0.01$), mean heart dose ≥ 5 Gy (HR 2.507 [95% CI 1.293-5.108]; $p < 0.01$) and more than 4 cycles of CT given (HR 3.830 [95% CI 1.479-9.921]; $p < 0.01$) were independent prognostic factors for worse OS, while \geq grade 2 esophagitis was an independent prognostic factor for worse PFS (HR 2.563 [95% CI 1.031-6.370]; $p = 0.04$). The maximum grade toxicity was grade 2 in 20 patients (41.5%), grade 3 in 27 patients (20.0%) and grade 4 in 5 patients (7.7%). No grade 5 events were observed. The most common grade 3 or 4 toxicity was neutropenia, which occurred in 9 (13.8%) and 5 (7.7%) patients respectively. Neutropenic fever was seen in 3 patients (4.6%). Grade 2 or above pneumonitis and esophagitis occurred in 5 (7.7%) and 9 (13.8%) patients respectively.

Overall survival of patients with unresectable stage III non small cell lung cancer treated with 3-weekly paclitaxel-carboplatin with radiation 2007-2017



Conclusion

Radical chemoradiotherapy using 3-weekly PC for unresectable stage III NSCLC is well tolerated, with comparable outcomes to historical data and less hospital visits which is preferred during the COVID-19 pandemic. Prospective studies evaluating whether this regime in combination with more sophisticated RT techniques to lower the cardiac and esophageal doses could improve the survival outcomes and further enhance the therapeutic ratio in the era of consolidative durvalumab are warranted.

PO-1175 Influence of Charlson comorbidity index in hypofractionated radiotherapy treatment in lung cancer.

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Purpose or Objective

To evaluate the influence of Charlson comorbidity index (CCI) in survival outcomes in patients (pts) with lung cancer (LC) treated with concomitant radiochemotherapy (RCT) or radiotherapy (RT) alone with radical intention during SARS-2-COVID19 pandemic.

Materials and Methods

Retrospective study of 50 pts with LC treated with radical intention from November 2019 to December 2020 in University Hospital of Badajoz and University Hospital Virgen Macarena in Seville. All pts were treated with radical intention and hypofractionated scheme of radiotherapy (total dose 55 Gy in 20 fractions of 2.75 Gy/daily) to decrease the duration of thoracic radiotherapy in pandemic era. 40% of pts were treated with concomitant RCT, 38% with RT alone and 22% with chemotherapy and sequential RT.

CCI was used to identify associated diseases in all pts, after the evaluation of 19 items that influence in the life expectancy of them.

In general, it is considered low comorbidity ≤ 3 points in CCI and high comorbidity > 3 points.

Kaplan-Meier curves have been used for the statistical analysis of overall survival (OS) and cancer specific survival (CSS) and log-rank test to compare them.

Results