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Can accelerated hypofractionated radiotherapy (AHRT) be an acceptable treatment option in inoperable non-small cell lung cancer Myanmar patients?

Introduction
Lung cancer is one of the most common causes of cancer mortality worldwide. The prognosis is poor even if patients can undergo curative treatments such as radical surgery or standard radical radiotherapy treatment (60 Gy in 30 fractions over six weeks with or without concurrent chemotherapy). However, most lung cancer patients are diagnosed as advanced inoperable stage and majorities are old age, with comorbid diseases or with poor lung/ cardiac function. Therefore, for those patients, shorter course radiation regime such as accelerated or hypofractionated regime should be considered.
This study was conducted to assess the outcomes of accelerated hypofractionated radiotherapy (AHRT) (45 Gy in 15 fractions over three weeks by using 3D conformal planning) in inoperable non-small cell lung cancer (NSCLC) patients who were ineligible for surgery or standard concurrent chemo radiotherapy (CCRT).
Methodology
This was a hospital based prospective study (2018 January- 2019 June) which had been done in Radiotherapy Department, Yangon General Hospital, Myanmar. A total of 65 patients with unresectable or medically inoperable non-small cell lung cancer patients, who were unfit for chemotherapy due to some comorbidities (E.g., poor cardiac, liver or renal function, etc., or old age) were enrolled in the study. Patients with poor PS (ECOG PS >2), patients with distant metastasis or patients previously treated with thoracic radiotherapy or chemotherapy were excluded.
They were treated with the regime of 45 Gy in 15 fractions over 3 weeks by using 3D conformal RT technique. Locoregional response was assessed by chest CT before and six weeks after RT. Revised RECIST (Response Evaluation Criteria in Solid Tumours) guideline version 1.1 was used to detect locoregional response. Relief of symptoms such as cough, dyspnoea and chest pain was evaluated before RT, during RT and six weeks after RT. Treatment related acute toxicities such as dysphagia and radiation dermatitis were observed during and six weeks after RT. Common Terminology Criteria for Adverse Events (CTCAE) version 5.0 was used to study these symptoms and toxicities.
Results
65 patients with inoperable NSCLC (7 patients with stage II and 58 patients with stage III) were participated in this study. The most common age group was 71-80 years (36.92%) and most commonly found cell type was squamous cell carcinoma (73.9 %). The majorities were male (69.2%), smokers (67.7%), with PS1 (44.6%). Among them, two patients were lost to follow-up at 12 weeks after RT due to death. Assessment of locoregional response six weeks after RT showed that partial response (PR) was seen in 69.23% of patients and stable disease (SD) was seen in 30.77% while there was neither complete response (CR) nor progressive disease (PD). Associations between baseline characteristics and tumour response were also observed. Statistically significant associations were only found between pre-treatment tumour size vs tumour response and performance status of the patients vs tumour response. Good relief of symptoms such as cough, dyspnoea and chest pain was found after RT, but no severe acute toxicities such as dysphagia and radiation dermatitis (more than grade 3) were resulted at the end of the study.
Conclusion
The locoregional response and symptomatic response of inoperable non-small cell lung cancer patients to this accelerated hypofractionated radiotherapy regime (with 45 Gy in 15 fractions over three weeks) were good. The treatment regime was well tolerated with acceptable toxicity results. As accelerated radiotherapy can decrease treatment time and treatment related costs, this may become an acceptable option for those patients who are unfit for prolonged intensive radical treatment in a resource limiting country like Myanmar.

Country or Int. Organization

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