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Hypofractionated accelerated high dose radiotherapy (RT) in non small cell lung cancer (NSCLC)

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Abstract:

Background:

Dose escalation and RT intensification may improve local control in NSCLC but may potentially increase late toxicity. We postulated that accelerated hypofractionated RT is safe and efficacious with use of 3D-CRT and application of strict dose volume constraints (DVC).

Methods:

50 patients with stage 1-3 medically inoperable/unresectable NSCLC, with weight loss less than 10% and KPS >70% were enrolled on a phase 1/11 clinical trial (ICORG 99-09) with a schedule of 72 Gy in 24 fractions, once daily, five fractions per week, over 32 days. Median age =65 years (Range: 45-82 yrs). 39 patients were male and 11 female. 31 patients had induction chemotherapy. No elective lymph node irradiation was used. Primary endpoints were acute and late oesophageal (RTOG/EORTC scale) and pulmonary toxicity (SWOG). Secondary endpoints were response rate at 3 months, time to tumour progression (TTP), time to tumour local progression (TTLP), time to distant progression (TTDP), progression free survival (PFS) and overall survival (OS).

Results:

45 patients were treated with median f/u =11 months (range 3-73 mos). Acute toxicity was: acute pneumonitis (20 pts: Grade (Gr) 1=19 pts, Gr2=1 pt); acute oesophagitis (20 pts: Gr1=14pts, Gr2=3 pts, Gr3=3 pts) with one 4 day treatment interruption. 12 pts had late pneumonitis (Gr1=10 pts, Gr2=2 pts). A previous analysis presented at ASCO 2004 reported 2 pts with Gr 5 late oesophagitis. Therefore, we introduced an additional oesophageal DVC where <1 cm of circumferential oesophagus was within the 98% isodose. Since then 8 patients were treated with no grade 5 toxicity and Gr1 = 1pt, Gr2=1pt, Gr3=1pt, with median f/u =9 mos. Tumour response rate at 3 mos:(18% CR, 29% PR, 15% SD, 17% PD and 20 % non-evaluable). Median TTP = 12 mos, median TTLP =21 mos, and median TTDP = 11 mos. 1 yr PFS=81%, 3 yr PFS=28%. Median OS=17 mos with 1 yr OS=81%, 3 yr OS=25%.

Conclusions:

The toxicity profile is favourable apart from initial unexpected oesophageal late toxicity. We continue to evaluate the safety of our oesophageal DVC. The median survival and TTLP results are encouraging as 40% pts had Stage 3 disease.

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Additional Information I (Complete):

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If you selected "Other" as the type of trial above, please enter trial type :
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