Gemcitabine and Cisplatin Induction Chemotherapy in Nasopharyngeal Carcinoma

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BACKGROUND

Platinum-based concurrent chemoradiotherapy is the standard of care for patients with loco-regionally advanced nasopharyngeal carcinoma. Additional gemcitabine- and cisplatin-induction chemotherapy has shown promising efficacy in phase 2 trials.

METHODS

In a parallel-group, multicentre, randomised, controlled, phase 3 trial, we compared gemcitabine and cisplatin as induction chemotherapy agents plus concurrent chemoradiotherapy with concurrent chemoradiotherapy alone. Patients with loco-regionally advanced nasopharyngeal carcinoma were randomly assigned in a 1:1 ratio to receive gemcitabine (at a dose of 1g/m^2 of body-surface area on days one and eight) plus cisplatin (80mg/m^2 on day one), administered every three weeks for three cycles, plus chemoradiotherapy (concurrent cisplatin at a dose of 100mg/m^2 every three weeks for three cycles plus intensity-modulated radiotherapy) or chemoradiotherapy alone. The primary end point was recurrence-free survival (i.e., freedom from disease recurrence [distant metastasis or loco-regional recurrence]) or death from any cause in the intention-to-treat population. Secondary end points included overall survival, treatment adherence, and safety.

RESULTS

A total of 480 patients were included in the trial (242 patients in the induction-chemotherapy group and 238 in the standard-therapy group). At a median follow-up of 42.7 months, the three-year recurrence-free survival was 85.3% in the induction-chemotherapy group and 76.5% in the standard-therapy group (stratified hazard ratio for recurrence or death, 0.51; 95% confidence interval [CI], 0.34 to 0.77; P = 0.001). Overall survival at three years was 94.6% and 90.3%, respectively (stratified hazard ratio for death, 0.43; 95% CI, 0.24 to 0.77). A total of 96.7% of the patients completed three cycles of induction chemotherapy. The incidence of acute adverse events of grades 3 or 4 was 75.7% in the induction-chemotherapy group and 55.7% in the standard-therapy group, with a higher incidence of neutropenia, thrombocytopenia, anaemia, nausea, and vomiting in the induction-chemotherapy group. The incidence of grades 3 or 4 late toxic effects was 9.2% in the induction-chemotherapy group and 11.4% in the standard-therapy group.

CONCLUSION

Induction chemotherapy added to chemoradiotherapy significantly improved recurrence-free survival and overall survival, as compared with chemoradiotherapy alone, among patients with loco-regionally advanced nasopharyngeal carcinoma.