AbstractID: 7261 Title: Impact of Hemoglobin on Outcome of Chemo/Radiation Therapy for Cervical Cancer

Purpose: Hemoglobin (Hgb) has been considered as an important factor on radiation therapy for cervical cancer. However, recent studies reported that anemia is only a secondary symptom associated with disease stage and tumor volume, but not an independent predictor for outcome. Our study is to investigate whether low Hgb actively influences the effectiveness of radiation therapy or is merely a symptom of tumor burden.

Materials/Methods: The study was based on 67 cervical cancer patients (stage IB2-IVA). Serial Hgb measurements were performed before and during therapy. Tumor volume was obtained from 3D MRI volumetry. Median follow-up was 2.9 years (range 0.09~6.4 years). Treatment outcome was evaluated with local tumor-control and disease-free survival. Correlations between Hgb parameters and clinical variables were evaluated with Spearman-rank method. Outcome prediction was based on univariate and multivariate analyses with Cox regression model. Survival analysis was assessed using Kaplan-Meier method.

Results: Hgb levels were not correlated with tumor stage (correlation coefficient -0.1~ -0.2) and weakly correlated with tumor volume (correlation coefficient -0.4~ -0.5). In univariate analysis, local tumor-control was predicted by mean Hgb ($p=0.009$) and nadir Hgb ($p=0.004$); disease-free survival was only predicted by nadir Hgb ($p=0.031$). In multivariate analysis, Hgb parameters were the best predictors of outcome: local tumor-control was predicted by mean Hgb ($p=0.013$) and nadir Hgb ($p=0.007$); disease-free survival was only marginally predicted by nadir Hgb ($p=0.053$). Kaplan-Meier analysis demonstrated that Hgb (>12g/dl vs <12g/dl) could potentially differentiate patients in terms of local tumor-control and disease-free survival.

Conclusion: Preliminary results suggest that Hgb may not be associated with tumor burden (volume and stage). This early work suggests that chronically low Hgb during RT course negatively affects outcome. The independent role of Hgb in combination with other factors may be useful in outcome prediction.