

The main purpose of this study is to compare the difference of treatment dose from two IMRT treatment planning systems. Both Corvus and Pinnacle systems are currently used in our institution. To determine whether the two systems deliver clinically significant difference to our head and neck patients, a total of 100 cases treated within last two years are analyzed. The dose comparison is made for head and neck cases of all sites, including oropharynx (RTOG H0022), nasopharynx (RTOG H0225) and thyroid cancers. Since the Pinnacle IMRT plans may be improved by manual adjustment of MLC, they are in general more homogeneous than Corvus plans. In fact, the difference of standard deviation of target doses is about 20%. Also derived from DVH reports, averaged ratios of mean target dose to prescribed dose are 96.4% and 95.1% for Pinnacle and Corvus systems, respectively. Based on individual patient QA results, the ion chamber measurements made in high dose region agree well (averaged within 0.1%) for Corvus plans. For Pinnacle plans, however, the difference between the measurements and calculations is about -1%, which means the point doses used for normalization of Pinnacle plans may be 1% lower than those of Corvus plans. Furthermore, the averaged maximum dose from Pinnacle plans is about 110%, which is 5% smaller than those from Corvus plans. Our findings may support the possibility of lower complication rate by using Pinnacle plans and the necessity of using a newer version of Corvus system.