FIVE YEARS FOLLOW-UP OF A QUALITY ASSURANCE PROGRAM IN VIRTUAL SIMULATION

In our department virtual simulation (VS) is used in radiation therapy planning (RTP) for all the patients. The VS chain is composed of a CT scanner (dedicated specifically for RTP), 2 workstations and a 3DRTPS linked altogether. In this work the QA program of VS is analyzed after 5 years evolution.

A baseline was established for all the parameters that were going to be monitored in routine. Initial frequencies and tolerances were stated based on the few existing publications. The program concerned all the elements of the chain. Accuracy of the CT numbers (different scanning conditions, constancy, etc.), geometric accuracy at each step and laser alignments were the main topics. The technicians perform daily checks at the CT with a simple house-designed phantom. Quarterly, the physicist performs verifications at the CT, AS and RTPS. The manufacturer performs diagnostic verifications. In addition to these periodic tests protocolized controls are performed for each individual patient at the different steps of the procedure.

Initial tolerances of 2 mm for geometric parameters and 10 HN for the CT numbers have never been exceeded for 5 years. By means of simple checks and specific designed tools the QA program has shown it usefulness in ensuring the stability of the whole process.