Set-up and Reproducibility Accuracy of a Multipoint System Masks in Head and Head & Neck Cancer Radiotherapy Treatments

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<Summary>

Set-up and reproducibility accuracy is an important factor influencing the definition of the planning target volume (PTV). The purpose of this study is to **analyze the precision of the set up and repositioning of the multipoint mask system, using cone-beam CT (CBCT) before the treatment as set-up verification system**.

<Material and method>

15 head and head & neck patients treated at the Virgen de las Nieves University Hospital (Granada) during 2020 were included in this study. The patient's immobilization was carried out at using the eXaCast Accuracy Multi-point thermoplastic masks (AnatGe), custom headrest cushions Moldcare **HN-E (ALCARE)** and the immobilization system eaSyFrame (AnatGe). For the study, the daily corrections data in X (lateral), Y (longitudinal) and Z (vertical) axis were collected along the treatment sessions of each patient.

<Results>

From the data set obtained from 280 images of CBCTs collected for the 15 patients, the average was calculated for each of the axes. Table 1 shows the mean of the displacements obtained in the three axes for each patient, as well as the total average. Thus, it can be deduced from Table 1 that **only 13.33% of the patients presented a displacement greater than 2 mm in any of the axes, with 66.66% of the patients having an average displacement of less than 1.5 mm and the 33.33% less than 1 mm**.

<Conclusion>

The immobilization system evaluated worked optimally. We can conclude that this system offers **great adaptability to the morphology of the patient, which leads to great precision and reproducibility for head and head and neck radiotherapy treatments**.

Please refer to the original document as attached.