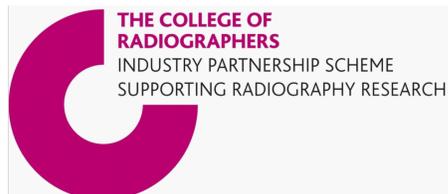


For office use only

Grant ID:



College of Radiographers Industrial Partnership Research Awards Final Report Form

Please use the tab key to move to next question

1. Principal Investigator	Claire Roberts
2. Project Title	The effectiveness of the use of mouth bites in radiotherapy
3. Amount of Award	£2375
4. Did you spend the money as indicated in your proposal (if not why)?	
Yes	
5. Did you reach your intended project outcomes (if not why)?	
Yes, however only managed to recruit 11 patients and a larger scale study would be needed to gain more insight into this topic area.	
6. What are your significant findings?	
Deviations in the mouth bite position ranged from 14mm anterior to 6mm posterior, 6mm left to 3mm right, and 6mm inferior to 4mm superior. Tongue position remained constant throughout treatment. Side effects increased over the course of treatment, but did not impact upon mouth bite or tongue position. Size and volume of mouth bite may be an influencing factor in mouth bite movement.	
7. Have you submitted the work for publication (if so where)?	
No	
8. Please provide an executive summary of your work (two sides of A4 maximum) N.B. If you already have a draft or final version of the proposed publication can you please attach.	

Summary

Purpose

The purpose of this study was to assess the effectiveness of the use of mouth bites in radiotherapy, for head and neck patients, in immobilising the tongue and separating the jaws. This was done by assessing how the mouth bite and tongue positions varied throughout the course of radiotherapy treatment, and looking at the factors that may have influenced any movement.

Materials and method

11 patients were recruited into the study. Patients were recruited between September 2010 and November 2011. All head and neck patients that required a mouth bite for their radiotherapy treatment were eligible for the study, provided that their course of treatment was over three weeks to allow sufficient data to be collected. Patients also had to be able to complete the weekly questionnaire, either by themselves or with a carer. Only one patient that was approached to take part in the study declined, citing personal reasons. Three patients were not included in the study as they were undergoing a palliative course of radiotherapy. All patients were immobilised using a five point thermoplastic mask. All mouth bites were constructed by the pre-treatment radiographers, and all were made from the same material. Orthogonal images were captured using a mixture of kilovoltage and megavoltage techniques and following departmental protocols on when to take these images. The images were then used to identify deviations in mouth bite and tongue positions. Deviations in millimetres were recorded on a data collection sheet, and general tongue position was assessed to see if it had altered at all from the original pre-treatment position. Weight and volume of each mouth bite were recorded on the data collection sheet at the start of treatment. Questionnaires were completed by participants once a week to determine contributing factors to any mouth bite or tongue movement. In total, 86 pairs of orthogonal portal images were captured and analysed, along with 58 questionnaires. Full LREC approval was granted for the study.

Results

Deviations in the mouth bite position ranged from 14mm anterior to 6mm posterior, 6mm left to 3mm right, and 6mm inferior to 4mm superior. Tongue position remained constant throughout treatment. Questions put to the patient included ease of placing the mouth bite, discomfort in placing the mouth bite, areas of discomfort within the treatment region, soreness of mouth and how full the patient's mouth felt with the mouth bite in place. The results from this study showed that although side effects became more frequent and more severe as treatment progressed, there was no impact upon mouth bite or tongue movement as a result. However, size and volume of mouth bite may be an influencing factor in mouth bite movement. The average weight of the mouth bite was 37.8g (range 24-56g) and the average volume of the mouth bite was 33.2ml³ (range 15-50ml³). A re-test analysis was performed on a random sample of three patients in order to assess intra-observer reliability and this test showed that overall, there was a good correlation between the two data sets, which shows that intra-observer variability was low.

Conclusion

Although the sample size was small, this study has been able to show that, in spite of increased side effects towards the end of a patients' treatment, the mouth bite does not seem to move around any more than it does at the start of treatment. Tongue position also remained constant throughout treatment, although the study did highlight the fact that tongue position was not correct to begin with in over half of the patients studied, which perhaps highlights that a further study into the design of the mouth bite needs to be done. Size and volume of the mouth bite seemed to have the largest impact on mouth bite movement. In this study, findings concluded that a small size mouth bite with a small volume moved around much more than a small mouth bite with a larger volume, as these mouth bites have a bigger surface area and would compress the tongue more effectively. Other influencing factors on tongue and mouth bite movement including chemotherapy and smoking were inconclusive. Further investigation into the different mouth bite designs being currently used needs to be undertaken, and with the implementation of cone beam computed tomography, more advanced data analysis could be undertaken to allow more in-depth statistical analysis.

9. Return of application form

Please return this form to:

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