

Thermoformed Mask Anxiety in RT Treatment: From Myth to Reality

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Abstract

Introduction: RT for cancers is considered to be anxiety-inducing, due to its "unknown" nature for patients and the importance of immobilization which can be oppressive and uncomfortable in some situations. This study aims to evaluate the anxiety related to Radiotherapy (RT) masks immobilization and the coping strategies adopted by patients with Head and Neck Cancer (HNC).

Methods: This was a descriptive transverse study carrying on 25 patients undergoing RT, in Salah Azaiz institute department during July 2020. Patients were treated for HNC with a thermoformed mask. Screening for restraint mask anxiety was assessed using the Distress Thermometer (DT).

Results: The median age of patients was 54.8 years. Twenty-one patients were males and 4 females. Only 5 patients had a university education, 2 patients were illiterate and 18 patients had a low level of education. Thirteen patients (52%) were treated for nasopharyngeal cancer. Nine patients (36%) had surgery. Chemotherapy was delivered in 17 patients (68%). Fifteen patients (60%) were accompanied. Five had discussed the need for masks with their doctors. Mask anxiety was low, the mean score for perceived anxiety was 2.4 (0-8) according to DT. The majority of our patients (84%) had a score <4.

Conclusion: Although anxiety is present in patients treated with RT, it does not specifically concern the wearing of mask, and should be detected and treated early in order to improve the quality of life of cancerous patients.

Keywords: Anxiety •Cancer •Radiation

Introduction

Functional changes associated with the disease, resulting from the acute effects of radiation can include many difficulties with speaking, swallowing and breathing, as well as pain especially with Head and Neck Cancer (HNC) and has been described as traumatic as other cancers. Many studies suggested that these patients may experience a reduced Quality Of Life (QOL) and increased symptoms of distress at different points in the treatment process as well as during and immediately following RT [1].

The use of thermo-formable mask during treatment sessions for HNC can be a source of anxiety in particular situations but it is mandatory to ensure the immobilization and safety RT. During current practice, there have been occasional events of patient refusal of the thermoformed mask. Multifactorial causes were found related to psychological reasons but also the tumor volume compression [2].

The aim of this work was to assess patient's anxiety level, related to wearing the RT mask, as well as the coping strategies they had put in place to deal with this distress.

Materials and Methods

A descriptive and prospective study was carried out in the RT department of the Salah Azaiz institute on July 2020. 25 patients were enrolled. All of them were irradiated with a thermoformable mask for HNC.

Eligible participants were those who were aged 18 years or over, receiving definitive or post-operative RT with or without chemotherapy for HNC without any previous neurocognitive disorders preventing response to questionnaires. All of them have given their oral consent before the participation in the study. They also consented to respond to a structured interview, assessing the state of anxiety experienced during treatment.

Patients were asked to circle the number (0–10) that best describes how much distress they have been experiencing in the past week including that day (Figure 1). A cut-off score of 4 or more was considered a benchmark for psychological distress [3].

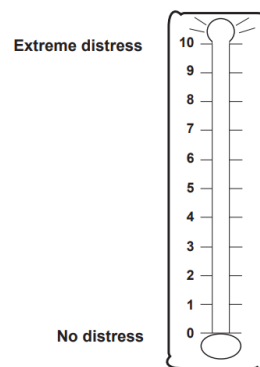


Figure 1. NCCN Distress Thermometer (DT).

The end point of our study was to assess the state of anxiety generated by RT mask in patients treated for HNC, and the diverse strategies for managing their anxiety.

Results

The median age of our patients was 54.8 years (20-84). Twenty-one patients were males (84% of cases). Only 5 patients had received higher education (20% of cases), 2 patients were illiterate (8% of cases) and 18 patients had only received a low level of education (72% of cases). Patients were treated for; glioblastoma in 1 case, nasopharyngeal cancer in 13 cases, larynx cancer in 6 cases, gingivo-mandibular cancer in 4 cases, and parotid cancer in 1 case. Nine patients (36%) had surgery. Chemotherapy

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was received by 17 patients (68%). All patients were treated for curative purposes, with 28-30 sessions of RT.

Patients were interviewed at different phases of the treatment (before, during and in final session). Fifteen patients (60%) were accompanied. Those 15 patients were accompanied for moral support and encouragement in 3 cases (12%), physical support because asthenia in 6 cases (24%). Moreover, 3 patients (12%) were tracheotomies and needed an attendant to overcome the communication barrier, 3 elderly patients (12%), who had difficulty moving, were accompanied by their children's.

Mask anxiety was low with an anxiety score ranging from 0 to 8 points according to the NCCN DT. Twenty two patients (88%) had a score of less than 4. Only two had a DT score=8. These patients were treated for nasopharyngeal cancer with concomitant chemo-RT at the dose of 70 Gy in 35 fractions. However, they didn't received anxiolytics.

Twenty-one patients were convinced of the usefulness of the mask after discussion with their doctors. In addition to the anxiety caused by the mask, most patients complained for the discomfort during the first session. We have also noted that patients become more comfortable as they progress in the RT sessions despite the appearance of acute toxicity.

Discussion

Anxiety is a distressing and unpleasant emotional state of nervousness. It is a natural reaction adapted in situations of intrinsic stress. It is widely proclaimed that up to 49% of patients attending radiation therapy appointments may experience anxiety and distress [4]. The Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR) defines anxiety as the apprehensive anticipation of future danger or misfortune accompanied by feelings of dysphoria or somatic symptoms of tension [5]. Undetected and untreated psychological needs are associated with worsening QOL, inducing malnutrition which can cause non-compliance so in some cases interruption of RT courses as well as deteriorate the quality of treatment plan. Patients go through the different phases of the psychological process of adaptation to the disease; facing the diagnosis of cancer and aggressive treatments. Receiving an oncological diagnosis involves considerable psychological distress and reactions to diagnosis may include denial, fear of death, and fear of recurrence and relationships/lifestyle changes. Then, it may lead to a radical modification of patient's life habits.

RT in HNC is technically challenging due to the location of the tumor and the several critical and functional structures surrounding the target. The challenge is to cover the target volume while protecting the organs at risk in order to achieve good local control. Hence the need for the use of a thermoplastic mask as a means of immobilization. The firm plastic mask is positioned on the face and secured to the table. This is sometimes referred to as a mould, head shell, or cast. The mask is made to hold the head and neck still, exactly in the desired position, which helps make treatment as accurate and effective as possible [6]. This process may be stressful. Most often they use a special kind of plastic, heated in warm water so that it becomes soft and pliable. The technician puts the plastic mesh on to the patient's face so that the mask gets molded to fit it perfectly. This can be distressing and can lead to a feeling of suffocation. However, the patient can still be able to breathe easily, as the plastic has numerous holes within it. After a few minutes, the plastic mesh becomes hard, that's when the technician has to take the mask off. Anxiety is commonly expressed as a result of immobilization techniques including restrictions of face masking and limited movement, coupled with isolation in an unfamiliar environment [7].

Numerous studies in cancer patients have shown higher distress level in females than in males. In particular, an Australian research studied the patient's anxiety level during the different phases of treatment. At the start of the RT, it was primarily women who were more anxious about wearing a mask ($P=0.03$). During treatment, mask anxiety was significantly reduced for all patients ($P<0.001$) [6]. In 72% of the cases, the level of initial anxiety decreased with time. 22% of the participants suffered from constant mask anxiety. And only 6% had an increase in anxiety level during RT.

Psychosocial support and education of patient are important for treatment acceptance and reassurance the patient to support the immobilization for a sufficient time [6]. Arino found quite low scores throughout the treatment in 19 patients irradiated for HNC or lymphoma with a RT mask. These scores were associated with positive representations of the mask as it would be much more accepted when it is elucidated as a means of protection rather than a restraint system [2].

Strategies experienced by patients to minimize mask anxiety were discussed with health professionals. Some strategies such as meditation and listening to music during RT may be useful especially for patient having pre-existing claustrophobia, psychological mental-health issues as contributors to mask anxiety. The recent study of Rossetti evaluated protocolized music therapy interventions in a prospective study and demonstrated the positive impact on anxiety and distress experienced by patients undergoing CT-scan simulation for HNC patients. Music therapy, provided by a board-certified music therapist, may offer a safe, cost-effective means of relaxation and comfort [7].

Benzodiazepines (BZDs) are one of the most widely prescribed anti-anxiety agents. Due to its effectiveness and relatively low toxicity and considered as a first-line agents for treating anxiety. The dose prescribed, alleviating symptoms of nervousness after 30–60 min and lasting up to four hours [8]. Corticoids and antihistamine drugs were also be helpful to complete the radio surgical procedure in cerebral tumor with mass effect [9].

In our study, despite the small number of participants, the recorded level of anxiety linked to the mask is low throughout the whole process of treatment. This low level on anxiety could be related to the positively reinforced representation of the mask's functioning as a measure of protection. This highlights the importance of discussions with their doctors. In this perspective, doctors should listen attentively and empathetically to their patients' nervous complaints, without getting too sentimental or alerted (in order not to inappropriately reinforce their concerns). The aim is to improve the aspect of oncology care treated with RT and requiring immobilization by a thermoformable mask. The evaluation of patients carried out at different times of their individual treatment, which may distort the interpretation of the results. This assessment was conducted by a radiotherapist and not a psychiatrist who can be considered as a limitation of our study.

Personalized Medicine, as it pertains to oncology, is rooted in the idea that treatment algorithms recognize the unique features of the patient and his/her cancer. This is usually focused on genomic and molecular aspects of the tumor and host [7].

Conclusion

Although anxiety is present in patients treated with RT, it does not specifically concern the wearing of a mask, and should be detected and treated early in order to improve the quality of life and improve condition of treatment patients. We should consider the unique emotional aspects of each patient and his/her treatment experience.

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