



## Oncological Hyperthermia and Quality of Life

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### Abstract

The present observational study concerns the impact of the hyperthermic method (deep capacitive radiofrequency hyperthermia) on the quality of life of cancer patients in active and inactive therapy. It considers the improvement of symptoms such as pain, fatigue and the psychological state of the patient after one cycle of treatment. The assessment of the patient's quality of life was performed using the SF-12 test, which is widely used for this purpose in the international medical literature. The use of hyperthermia in improving the quality of life of cancer patients seems relevant and this encourages further studies as well as the use of the method on a wider scale.

**Keywords:** Oncology; Oncological Hyperthermia; Quality of Life

### Introduction

The chronic oncological patient, due to the disabling characteristics of the disease and the early onset of related disabilities, requires continuous and specific care. The aim of the study conducted was to evaluate improvements in quality of life by supplementing medical oncological therapy with deep capacitive hyperthermia.

Hyperthermia in oncology is a physics therapy (13.56 Mhz radiofrequency) used as a synergistic adjuvant to ordinary cancer treatments in chemotherapy, immunotherapy, molecularly targeted drugs, and radiotherapy by variably improving response rates [1].

50 patients treated on an outpatient basis with advanced neoplasia underwent 20 sessions of hyperthermia. This study serves to provide information, which can be a prerequisite for multidisciplinary care planning, which can result in the improvement of the treatment process, patient autonomy and patient satisfaction.

### Materials and Methods

For this study, non-probabilistic sampling was used, namely the selection of a convenience sample; this type of sample made it possible to collect data from readily available and easily accessible subjects. The data collection was done through the short form SF-12. The total time taken for the study was 4 months. The SF-12 is a short form of the SF-36, the most widely used Quality of Life (QoL) measurement instrument in the literature in recent years. It identifies 8 multiple-question scales measuring different concepts related to physical and mental health status. The SF-12 in its version so far accredited in several languages, including Italian, allows to describe the health of a group of people using 2 questions for each of the following scales of the SF-36: physical activity, role and physical health, role and emotional state and mental health. The remaining scales - physical pain, general health, vitality and social activities - are described with only one question each [2].

### Data analysis and graphs

The sample of 50 patients taken into consideration is composed of 21 men and 29 women representing 42% and 58% respectively

Their age represented in the following graph is distributed between a minimum of 51 years and a maximum of 73 years.

Composition of the sample by gender:

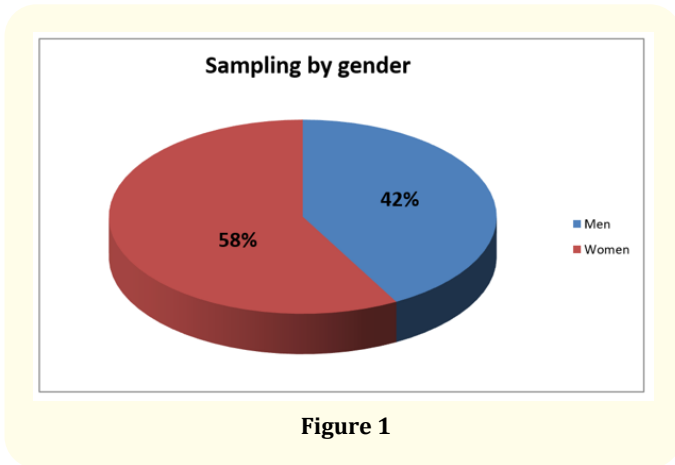


Figure 1

Patient's perceived state of health, by gender:

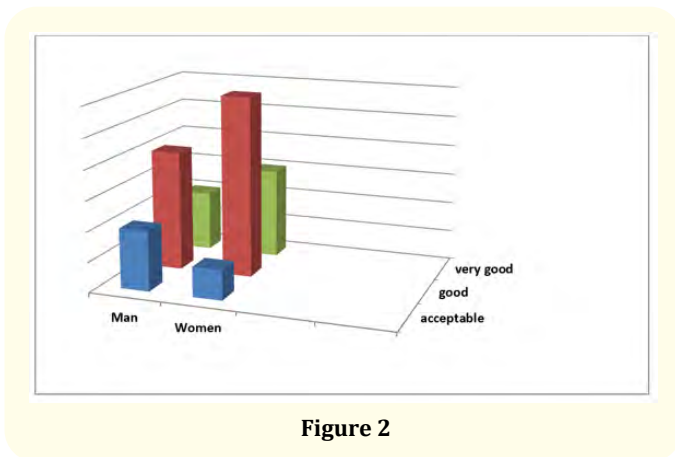


Figure 2

In the graph of the patients' perceived state of health, we note a substantial evenness in the frequency of observations between the two sexes, with regard to the good judgement 10 men out of 21 and 16 women out of 29, while there is a difference in the frequency of the tolerable judgement on the state of health between men and women 6 men out of 21 and 4 women out of 29.

At the same time, we can see that the poor rating is essentially absent.

Limitation of autonomy in daily life.

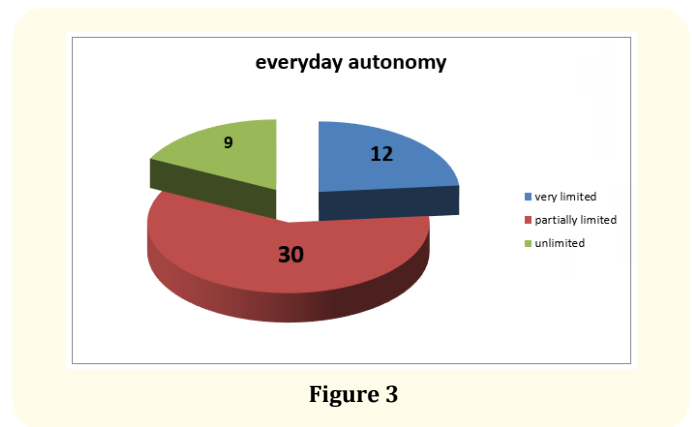


Figure 3

This graph denotes that out of the sample of 50 patients taken into consideration, 30 of them are somewhat limited in their daily autonomy, 12 are very limited while 9 of them do not feel limited.

Judgement on decline in concentration at work or in other areas.

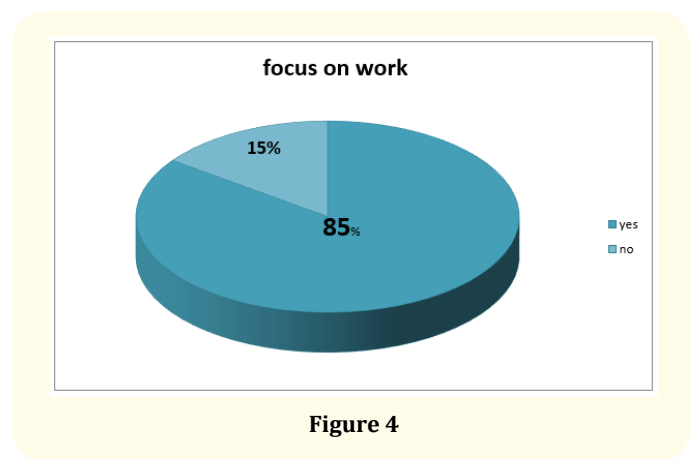


Figure 4

From the graph we can see that 85% of the respondents state that they have experienced drops in concentration at work due to the constant presence of the thought of illness.

Patient's judgement of the degree of his or her own physical performance in relation to personal expectations.

In the table we can see that 84% of the patients claim to have had a better physical performance while 16% claim to have performed less than they would have liked.

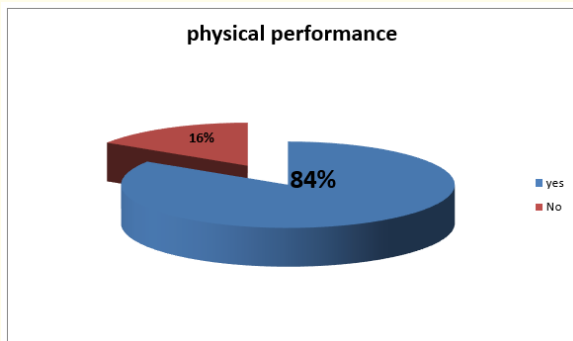


Figure 5

Patient’s judgement on the influence of their emotional state on work in relation to personal expectations.

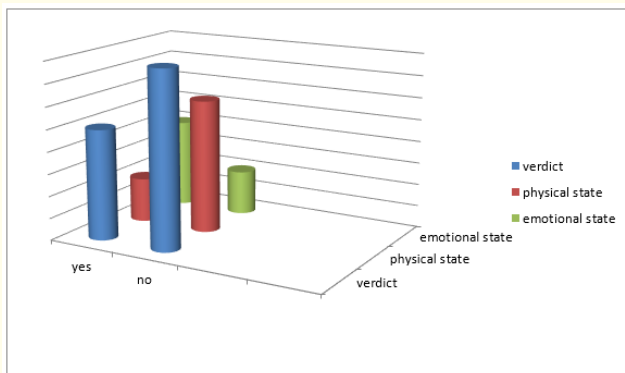


Figure 6

In the graph we can see that the majority of patients, i.e. 30 out of 50 state that their emotional state negatively affects their work performance compared to their physical state, which does not affect work performance.

Judgement of perceived limitation of activities habitually performed in view of pain (graph, analysis by gender).

In the graph above, we have divided the patients by gender, and we can see that in both men and women, the pharmacological therapies aided by oncological hyperthermia promote a reduction in pain and the possibility of being able to carry out their daily activities [3,4].

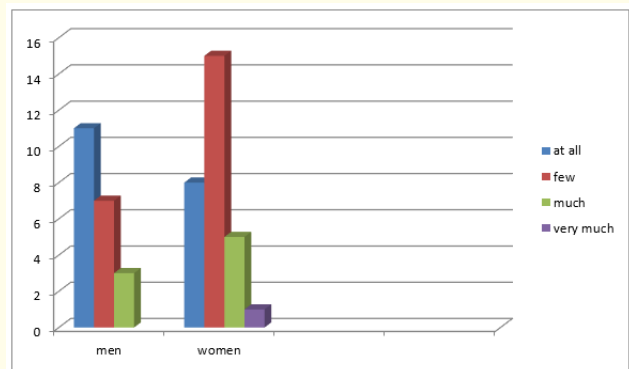


Figure 7

With regard to the study of the relationship between the judgement of one’s state of health and social relationships, we found that the patients’ judgement of their state of health was good, and consequently their social relationships did not undergo excessive changes.

**Discussion and Conclusions**

The clinical study has made it possible to highlight the improvements brought about by the integration of drug therapies and oncological hyperthermia for cancer patients. The most significant results emerged from the following correlations:

- Measurement of the association between perception of health status and age.
- Study of the relationship between judgement of one’s state of health and social relationships.
- Limitation of autonomy in daily life.
- Patient’s judgement of the degree of his own physical performance in relation to personal expectations Patient’s judgement on the perception of limitation of activities habitually performed in consideration of pain
- Patient’s judgement on the influence of one’s emotional state on work in relation to personal expectations.

Thus, it is shown how the disease influences the emotional state and partly the physical state of the person, affecting his or her work performance and actions in daily life in a relative way, without compromising social and emotional relationships.

Moreover, it has been found that the action of hyperthermia clearly improves the patient's perception of his or her state of health and, above all, we notice a strong alleviation of pain [5].

Compared to the population of patients not treated with hyperthermia, we note a clinically significant improvement in physical performance, performance of daily and work activities, and perception of health status.

This pilot study opens up interesting prospects for further studies with a larger sample of patients.

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