

## Pet Therapy Effects on Oncological Day Hospital Patients Undergoing Chemotherapy Treatment

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**Abstract.** *Background:* Pet therapy is utilised to improve the quality of life of patients with chronic diseases. The impact of AAA (animal-assisted activities), a kind of pet therapy, on oncological patients submitted to chemotherapy was evaluated. *Patients and Methods:* Two groups of patients receiving chemotherapy with (experimental group) or without AAA (control group) were compared. The 2 participating dogs have been trained by a cynophilist behaviourist and examined by a veterinarian. Before and after chemotherapy both groups of patients were asked to fill out a A.De.Ss.O. test questionnaire, a simplified Italian version of Kellner's Symptom Questionnaire. Arterial blood pressure, heart rate and arterial oxygen saturation were recorded. *Results:* Depression improved only in the AAA group ( $p=0.01$ ). Arterial oxygen saturation increased in the experimental group ( $p=0.004$ ), while it decreased in the controls. *Conclusion:* AAA during chemotherapy reduces depression of patients and increases their arterial oxygen saturation.

Pet therapy includes several activities which provide for the use of an animal in order not only to prevent or heal some pathologies, but also to maintain both mental and physical human health.

In Italy, a recent research in an oncological pediatric centre had positive results in terms of patient participation in the different activities, and satisfaction of the relatives and medical staff (1).

Pet therapy consists of two main branches: animal-assisted therapy (AAT) and animal-assisted activities

(AAA). AAT is a specific therapeutic activity, with definite features, whose target is to improve patients health condition through specific aims. It is a support therapy which can be combined with traditional medical therapies. On the other hand, the primary aim of AAA is to improve the quality of life of some categories of people such as the elderly, blind and sick. This type of therapy includes educational and recreational activities which can be introduced in different situations by properly trained professionals together with common pets (2).

The oncology patients treated with chemotherapy have to face a long therapeutic journey which deeply affects their lifestyle, from both a physical and psychological perspective, often producing a physical decline and a depressive and anxious state (3-8).

Pets have the natural ability of offering love and security and stimulate the curiosity of the participants, making socialization easier (9). It has been proven that pet contact may reduce loneliness giving comfort, encouragement and satisfaction (10).

The aim of this research was to define the effects of pet therapy, in particular AAA, in oncology patients during chemotherapy treatment at the Day Hospital in the Oncology Ward in Carrara, Italy.

### Patients and Methods

The study was conducted from November 2005 up to April 2006. Two dogs were used; an 8-year-old male border collie and a 9-year-old female Shetland sheepdog. The dogs had been trained by a cynophilist behaviourist who verified their suitability to perform the scheduled activities. Furthermore, they were subjected to check-ups by a veterinarian in order to verify that they were in perfect health, and were carefully cleaned and brushed before arriving in the ward.

A.De.Ss.O test (Anxiety, DEpression, Somatic Symptoms, hOstility) which is a reduced version of the Symptom Questionnaire (11, 12), was used. The questionnaire evaluated four categories: anxiety, depression, some somatic symptoms (pain, dyspnoea, asthenia and nausea/vomiting) and

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aggressiveness which are the most correlated variables to oncological disease (13). It consisted of sixteen questions, four per category, and it was distributed at the beginning and at the end of the chemotherapy by the medical staff and completed by the patients.

The patient could answer true or false to each question and 1 point was assigned every time the answer was positive. Additionally, the medical staff recorded the heart rate, the arterial oxygen saturation and the blood pressure at the beginning of the therapy, after one hour and after two hours.

The pet therapy was carried out once a week in a room equipped with armchairs, where the 8 patients underwent chemotherapy together. The patients could choose whether to have chemotherapy in the room where pet therapy was taking place (experimental area) or in the adjoining room. The following day other patients, who were undergoing chemotherapy in the therapy room but without pet therapy, were enlisted in the control group.

The pet therapy was subdivided in three phases of 20 minutes each. In the first phase patients observed a dog doing some exercises with the trainer. In the second phase the patients could play with a dog, while in the last phase they could hold a dog and/or feed it. In every phase dogs were directly controlled by the trainer. The collected data (vital parameters and the responses to the questionnaire) was analysed by comparison of the means using the Student's *t*-test.

## Results

During the 25 weeks of the research the nurses asked 104 patients if they would prefer chemotherapy in the room with the dogs. Fifteen patients (14.4%) declined (5 because they did not appreciate the animal presence, 3 due to fear of dogs, 3 due to possible allergic problems and 4 gave no explanation).

The 89 patients who agreed to take part in the study became the experimental group; for the control group, the recruitment stopped once the same number of patients had been recruited. Patient characteristics are displayed in Table I.

*A.De.Ss.O test.* The patients treated with pet therapy showed a significant reduction in anxiety after chemotherapy treatment (mean value at the beginning of the therapy 1.84 and at the end of the therapy 0.48,  $p < 0.001$ ). A similar result was noted for depression (mean value 1.04 before and 0.7 after therapy,  $p = 0.01$ ) and for aggressiveness (mean value 1.11 before and 0.51 after therapy,  $p < 0.001$ ). Concerning somatic symptoms, no variation was noted.

In the control group, chemotherapy-treated patients without pet therapy, a very similar reduction of anxiety (mean value 1.63 before and 0.65 after therapy,  $p < 0.001$ ) and aggressiveness (mean value 1.09 before and 0.77 after therapy,  $p = 0.004$ ) was noted. Depression remained unchanged. Concerning somatic symptoms, there was a tendency to aggravation (mean value 0.95 before and 1.24 after therapy,  $p = 0.012$ ).

Table I. Patient characteristics.

	Experimental group	Control group
No.	89	89
Males/Females	61 (69%)/28 (31%)	45 (51%)/44 (49%)
Median age (range)	64.5 (25-83)	63.8 (25-77.5)
1st chemo-treatment	13 (14%)	18 (20%)
Pathologies		
Breast	18 (20%)	17 (19%)
Gastrointestinal tract	37 (42%)	36 (40%)
Lung	16 (14%)	18 (20%)
Head and neck	8 (9%)	5 (6%)
Other organs	12 (13%)	13 (15%)

*Vital parameters.* The heart rate value, in both the experimental and control groups, decreased significantly. In the experimental group the mean heart rate at the beginning of the therapy was 76.3 pulses/minute, after 1 hour it was 71.8, and after 2 hours 69.9. In the control group the mean heart rate at the beginning of the therapy was 77.9/minute, after 1 hour it was 72.4 and after 2 hours 72.6. In the experimental group a significant increase of arterial oxygen saturation was recorded, the mean value at the beginning of the therapy was 97.47%, after 1 hour it was 98.01% ( $p < 0.001$ ) and after 2 hours 98.04% ( $p = 0.004$ ). In contrast, in the control group the arterial oxygen saturation decreased, although not significantly, the mean value at the beginning being 97.38%, after 1 hour 97.32% and after 2 hours 97.00%.

In both patient groups, a significant reduction of systolic and diastolic values of blood pressure was recorded at the end of chemotherapy.

## Discussion

The presence of dogs in a specialist hospital ward is still uncommon and it is limited to pediatric and geriatric centres and to treatments for some neurological pathologies. In this first study in an Italian oncology centre the patients showed a general acceptance of the therapy and only 14.4% refused to participate. During the 25 weeks of the study there were no problems due to the dogs presence such as infections or allergic reactions, not even in the adjoining rooms. The nursing activity was not obstructed as no increase in the waiting time or duration of chemotherapy was noticed, either in the room where the dogs were or in the rest of the day hospital.

A reduction in blood pressure and heart rate between the beginning and the end of a chemotherapy treatment was noted in both the patients accompanied by the dogs and

those without the dogs. This fact, together with the reduction in anxiety which also occurred in both groups, shows that the additional care by the nursing staff (questionnaire distribution and vital parameter monitoring) could reduce the anxiety of patients undergoing chemotherapy treatment.

A difference in the arterial oxygen saturation was noticed between the two groups, it significantly increased in pet therapy treated patients, while it decreased in the others. This fact could have been related to the physical activity of the patients when playing with the dogs, instead of being motionless in the armchair, waiting for the chemotherapy to end.

The results of the questionnaire showed that pet therapy did not seem to affect aggressiveness, since in both patients groups it decreased considerably at the end of the therapy.

Different effects were highlighted in the perception of somatic symptoms, which did not change in the experimental group, but deteriorated in the control group. The reason for this may be that the pet therapy could distract the patients, diverting them from the perception of some symptoms related to the disease and the therapy thus increasing treatment compliance.

Another difference between the two patient groups concerned the level of depression which remained unchanged in the patients treated without pet therapy, while it was significantly decreased in the experimental group.

In conclusion, during day hospital chemotherapy treatment, patient anxiety, heart rate and blood pressure were reduced thanks to the caring and the attention of the nursing staff.

Chemotherapy treatment associated with AAA produced a noticeable reduction in depression together with a significant increase in the arterial oxygen saturation.

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