

Pet Therapy in geriatrics: a social and medical relationship

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Abstract

Pet therapy is an innovative science that finds valid intervention strategies not only for treating psycho-physical diseases but also for improving the quality of life.

The areas of intervention concern various fields: pedagogical, psychological, social and health care. Improving the welfare state of certain categories of people, including the elderly.

The contact with the animal demonstrates not only positive influence on social and individual parameters, such as interaction and communication, but is also effective on behavioral parameters, reducing agitation, stimulating creativity, curiosity and observation capacity, And affectivity with improved depression and anxiety.

In complementary therapies, pet therapy, either animal assisted activity (AAA) or animal assisted therapy (AAT), is able to modify the state of the present by providing some well-being in the elderly in treatment. A therapy that goes beyond From the severity of the patient's status but could also benefit in those cases of particular gravity as Alzheimer's.

The use of this therapy in elderly people who can record a physiological aging of their functions, such as dementia and Alzheimer's, also has a strong emotional, cognitive and relational stimulation, a recovery of autobiographical memory, an increase in sense of Self-esteem and self-efficacy, a push towards eagerness and social interaction.

A therapeutic geriatric, which works mainly on emotions, modifies quantitatively the behavioral and cognitive changes of patients and, by integrating with traditional drugs, improves the state of well-being and quality of life.

Key-Words: PetTherapy; Geriatrics; Social impact of Pet Therapy

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Introduction

Pet therapy is a new science which provides valuable methods of intervention not only in treatment of psycho-physical pathologies, but also for improving the quality of life.

There are various fields of intervention: pedagogical, psychological, social and public health. Several categories of people gain an improvement in their well-being from it, and elderly people are among them.

The well-being that an elderly person obtains from contact with a pet is connected to the various mechanisms outlined (1), in particular to the mirror neurons which show how the greater part of

interaction with the environment and of emotional behaviour depends on the ability to perceive and understand other people's emotions.(2).

A prompt understanding of the emotions of others, whether humans or animals, is a necessary prerequisite for that empathetic behaviour which is the basis for relationships between individuals and is very important for explaining the mechanisms on which human-animal relationships are based.

Humans develop relationships with other living beings, including animals, through their emotions.

Given that the firing of mirror neurons activates the same neuronal structures (motor and visceromotor) that are responsible for both our actions and our emotions, observing actions performed by others initiates an immediate involvement of the motor areas which deal with their organization and carrying out.

These same mechanisms could be of use for understanding the processes on which pet-assisted therapy with elderly people is based. (3)

Contact with animals has been seen to have a positive influence on social and individual parameters such as interaction and communication, but it also has positive effects on behaviour: such as reducing agitation, stimulating creativity, curiosity and observation skills, and on the affectivity, bringing improvement in cases of depression and anxiety.

Elderly people make up about 30% of the population and require social and health intervention in relation to various factors. Besides the health issues that ageing brings (hypertension, diabetes, cardiac and bronchial problems etc.), there are often problems relating to other factors, such as loss of social function through retirement, bereavements or other stress-engendering events, leaving their homes and moving to care homes, with a loss of social and affective support. All these can lead to an increase in anxiety and depression, which often accentuates the physiological cognitive decline.

For all these reasons and given the mechanisms of action already observed in pet therapy, using animals in geriatric medicine offers advantages for both motor and cognitive stimulation and re-establishes affective and emotional connections.

It can therefore be said that a pet acts as a real therapy, not only in prevention, but also in the treatment of psycho-physical problems in older people, especially in cases of long-term hospitalization for depression, dementia and Alzheimer's.

1.Functional phenomena of cerebral ageing.

Before entering in greater detail into the social and health connection between pet therapy and

elderly people, the authors believe it useful to mention the functional variations which commonly occur as people age and which become particularly marked, and thus worthy of attention, when longevity reaches the levels that it has today.

Improvements in living conditions, especially in hygiene and diet, together with advances in medical science have made it possible for the human race to discover the process of ageing, although this is not something it is programmed for. The functional processes of ageing, which vary from one individual to another although the basic alterations are similar, cause progressive changes in organs and systems which are characterized by a general slowing down of biological functions and a decline in organic resilience.

Firstly, as the third age approaches, the individual undergoes a physiological slowing down of brain functions which are no longer able to maintain certain rhythms and this leads to deficiencies which affect vitality.

Mnemonic deficiencies are among those which are present, but not always apparent. A characteristic is a reduced connection to recently occurred events, even within the same day, such as not remembering what was eaten that day or the day before, when and what was eaten for breakfast, what appointments occurred on the same day or what people contact was had with.

This deficit in short-term memory contrasts with memories of past events which become more clear as one goes back in time and become almost complete when one is dealing with adolescence or youth.

Together with these deficits in memory there is a drop in attention levels which makes the individual affected by this physiological cerebral phenomenon unable to take a normal interest in everyday life and its issues. This includes relationships and it is as if there were a barrier between the elderly person and the world around them, making them feel detached from it, giving their attention only to their own personal affairs and putting the rest, their family and community as well as their surroundings, at a distance.

This drop in attention levels is accompanied by reduced concentration, which makes it difficult to take an interest in a conversation, even to the point where it is impossible to follow its normal development. The same situation may occur when watching television or reading the newspaper, or more probably a magazine which has greater appeal because it is in colour and has more illustrations.

A significantly high percentage of patients suffering from the above deficits shows a drop in speed and execution of movement. These are physical deficits and are a consequence of the slow wear and tear process which hard tissues, joints and even muscles undergo over time, giving rise to degenerative and proliferative phenomena which have negative effects on motor functions,

thus slowing down executive functions in everyday actions.

In the determinism of these deficits there is a correlation between the symptoms and neuroimaging where the indications lie in four main factors :

- striato-frontal impairment, which is responsible for executive dysfunction, psychomotor retardation, apathy, reduction of agitation, feelings of guilt and introspection;
- pontine hyperintensity, an induction of reduced psychomotor speed;
- basal ganglia hyperintensity which leads to impairment in specific tests;
- periventricular heterotopia (PVH) with impairment of remember late;
- deep white matter hyperintensity which impairs motivation, concentration and decision-making abilities (4).

The progressive evolution of these functional phenomena, which in ageing bring about significant changes, generally and frequently result in two syndromes in elderly people, often in coexistence: depression and dementia.

These are psychiatric syndromes, characterized not only by coinciding symptoms but also by a multi-factor aetiology common to both.

The shared symptoms include psychomotor retardation, marked emotional instability with sudden short bouts of unmotivated crying or smiling, difficulty sleeping at night, weight loss despite a good appetite and a good diet, inability to describe feelings.

There are several causes for these medical conditions, both predisposing or determining, which interact and give rise to the appearance of these symptoms.

Among the predisposing factors are the changes in society in recent years, such as a fall in the birth rate and a constant and progressive fall in the mortality rate which lead to a simplification or nuclearization of the family together with a gradual ageing of its members.

One or two-member families make up over half of families today and it is principally elderly people who live alone. Recent statistics indicate that elderly people are also one of the categories most vulnerable to the risk of poverty: families which include at least one elderly person are relatively poorer than other families.

There are other contributing causes which, although they are a normal part of a human life, can act as trigger factors. Retirement from work, for example, which nowadays occurs when a person is still efficient and active, a house move for various reasons, a move to a care home or a nursing home, any change in habits, loss of social significance, disabilities, bereavement, stressful events, family and friends moving away and loss of social support.

All these interlinking factors can give rise to a well of loneliness which, together with fatalism and fading enthusiasm, is a gateway to depression and dementia which are correlated to apathy

and loss of trust. When psychological distress is combined with physical impairment, the problems become more serious.

Depression and senile dementia

With regard to the symptoms common to depression and dementia, the authors feel it useful, considering the aims of the therapy under discussion, to describe in greater detail the psychological and somatic symptoms which patients present.

The somatic symptomatology lie principally in difficulty sleeping (sleep phase syndrome, sleep apnea syndrome) and disturbed appetite, night-time insomnia and fluctuating appetite, a tendency to fatigue with no perceptible organic cardiovascular or neuromuscular disease, a chronic and generalized tendency to pain over the whole body whether or not muscle or bone lesions are present, a gradual weight loss, nonspecific symptoms which are usually present in other illnesses, as well as denial of being depressed. Hypochondria is frequently seen.

The psychological symptoms generally observed in cases of depression and dementia are numerous and intensify the physical state of depression.

Firstly, the mood is almost always sad and dejected and the rare moments of joviality are low-key and with limited participation; there is a frequent tendency to weeping for no apparent reason; patients have frequent thoughts of death and/or suicide, together with feelings of despair and helplessness; there is a marked drop in self-esteem and reduced interest in pleasurable pastimes; feelings of guilt or remorse with a tendency to withdrawal, difficulties in decision-making and planning everyday activities are predominant; there is latent agitation in association with reduced psychomotor ability.

Various risk factors have a role in the evolution of this complex syndrome and can, with varying intensity, be considered as important elements in development of disease.

A family history, recent or remote, of a tendency to depression, previous episodes of isolation, stressful events in earlier life, reduced social support, insecure socio-economic status, functional impairment and cognitive decline. Other factors to be added include retirement, serious bereavements, general and marital relationship issues.

Diseases associated with senile depression.

This complex syndrome is often a combination of neurological diseases and intrinsic medical conditions.

With regard to lesions of the central and peripheral nervous system, the following are often encountered with depression: acute and chronic vascular damage to the brain, Parkinson's disease, Alzheimer's disease, multi-factor dementia caused by multiple strokes, Creutzfeldt-Jacob's disease, Pick's disease, neurodegenerative diseases, epilepsy or epileptic-type

syndromes, neoplastic diseases of the central nervous system.

Intrinsic diseases include thyroid defects, metabolic diseases such as diabetes, hypertension, problems with haemopoiesis, bacterial and immune-based joint disease (rheumatoid arthritis), orthopaedic diseases, endocrine dysfunction (hyperthyroidism, Cushing's syndrome, hypercorticosurrealism), chronic obstructive bronchitis, cardiovascular disease, infectious diseases, HIV infections, neoplastic diseases and hypoacusia.

Alzheimer's disease

Alzheimer's disease, first described by the German neurologist in 1906, is associated with depression and senile dementia prevalently after the age of 60. It is a degenerative disease of brain cells and is responsible for a form of dementia characterized by a gradual decline in intellect and memory as well as changes in personality and behaviour.

It is the cause of high levels of disability as it causes a gradual loss of independence which eventually makes patients completely dependent on others for all their daily needs.

The symptoms start with difficulty in remembering recent events and become more serious over time; there are changes in behaviour and in spatio-temporal orientation.

There may also be cognitive and language impairments (aphasia), inability to recognise people and places (agnosia), and patients may become incapable of washing, dressing and feeding themselves and suffer from delirium and hallucinations.

Motor symptoms sometimes develop with rigidity of the muscles leading to difficulty in walking and tremors. (5).

Nursing homes and care homes

Following this rapid review of the functional characteristics of ageing with its accent on the more frequent issues, such as depression, dementia and Alzheimer's disease together with the associated diseases, the authors think it useful to draw attention to some aspects concerning elderly people who, for the above reasons, spend the last years of their life in a care home where, obviously, emotional and affective conditions are different to those experienced in their own home.

It is to be expected that an elderly person may fall prey to that emotional sub-stratum which ageing brings, where loneliness, depression, exclusion, disability and a feeling of pointlessness dominate and, when the person is in a totally different environment to his or her own world, a worsening of this state and more marked deficiencies are inevitable.

Specifically, there is a marked loss of affection, respect and self-esteem, with reduced stimulus, prospects and interest; there are few moments of enjoyment and few activities the person is able to take part in and communication and comprehension abilities are lower. (6)

Therapeutic intervention.

There are no simple strategies for intervention in such complex clinical pictures, where organic and psychological issues are entwined. Medication alone cannot be seen as a sufficient response and patients must be viewed holistically if the main objective of bringing them back to a state of well-being, satisfaction, socialisation – in short to an acceptable quality of life – is to be attained. Often therapeutic intervention, rehabilitation or even simple care treatments have aims which do not take the patient's well-being into account:

- such as improving cognitive test scores;
- keeping biological parameters within normal limits;
- rehabilitating the patient and limiting disturbing behavior;
- obtaining some modest improvement or maintaining with an effort some cognitive functions.

In some cases intervention is almost random and carried out as a mere ethical or moral duty, since the patient's precarious condition allows for little and results are viewed as unlikely.

The most realistic target is to obtain the greatest well-being possible for a dementia patient, reduce pain and distress, banish loneliness and combat the feeling of impotence which afflicts not only the patient, but also the family. So-called complementary intervention can, through empathy and communication, have positive effects on rehabilitation and quality of life.

These effects can be visible in cognitive and functional rehabilitation and in preserving the emotional aspects which have a positive influence on both memory and the ability to be in stimulating contact with the environment. (7)

2. Pet therapy

Pet therapy is comprised in the sphere of complementary intervention. Both animal assisted activities (AAA) and animal assisted therapy (AAT) can modify the present state and bring some well-being to the patients in treatment. This therapy can be used at all degrees of gravity of the patient's state, indeed it may bring relief even in serious cases of Alzheimer's disease.

To better clarify this concept it is useful to examine ideas previously expressed by other authors.(8) which they have been able to give a precise picture of this innovative therapeutic process, both from the point of view of training and of the health care itself.

According to Bonetta, an act of culture can be interpreted as an *animal action* where humans become aware of their specificity. As humans move closer to other species, through cognitive pathways and gradual differentiation, they become less autarkic and self-centred. Through relationships and cultural exchange with animals, through "communication bridges" with other

species and through processes of separation and distinction from them, humans build knowledge of their own being, of their own characteristics and of human identity.

What we are looking at is a paradigmatic revolution of the human-animal relationship; a revolution which enhances the cultural, psychological, emotional, cognitive and learning values of the relationship between two interdependent subjects, between which there can and must be encounters, alliances and continuous fusion. Therefore, and this is the direction in which Pet therapy takes us, there is a vital need of research, experimenting, the spread of new values and new paths and new relationship models which will establish biunivocal human-animal relationships of significant quality and, thus, bringing welfare benefits to both.

Pet therapy has numerous fields of application and their boundaries are permeable. It involves operatives and researchers from several disciplines which, although sometimes very separate, are ever more frequently engaged in the construction of efficient synergy. Its many fields are divided into two categories : Animal assisted Therapy (AAT) and Animal assisted activities (AAA), each of which originates projects aimed at specific user groups and backed up by focused methodologies. This classification shows that pet therapy can potentially be used more widely than is commonly thought : it is useful not only in the field of medicine, therapeutics and rehabilitation, but also in education.

AAT does indeed principally comprise projects connected with medical treatments which target patients suffering from physical and psychological health problems or disabilities. AAT intervention is combined with traditional medicine and aims to ease pain and reduce suffering. The pet, with its innate charge of affection, becomes a co-therapist rather than a therapeutic device and makes its contribution through psychological and emotional relationships which help patients to recover their potential resources and psycho-physical equilibrium. Among the most frequently observed benefits of AAT are: a prevalence of positive emotions, improvement in mood and in the quality of interpersonal relationships, an increased ability to relax, better resistance to stress agents connected with hospitalisation and disease and lower doses of medication. Recent theories in biochemistry confirm all this: precisely because human-animal relationships are emotionally calming for their empathetic basis, production of adrenalin and stress hormones (corticosteroid hormones) is reduced. These data are confirmed by studies on the molecules that the brain produces (endorphins) when there is a flow of emotion and their proven ability to reinforce our immune system defences. (9).

3.Pet therapy and geriatrics

We shall now consider the general character of the application of this innovative therapy,

emphasising once again how animals' age-old relationship with human beings can give rise to indubitably valuable effects which fall into four main categories :

- they provide excellent companionship
- they give emotional support
- they encourage physical activity
- they stimulate feelings of responsibility

Beyond these general aspects, let us evaluate the specific functions of these living beings towards people who, having reached a certain age, can reap these benefits not only when there is a physiological state of ageing but also when there are function-impairing medical conditions.

Particular attention will be paid to how these effects are related to these people's life-styles, that is to say whether they live in their own home or in a care home.

Elderly people living in their own homes who have a well regulated emotional bond with a pet can gain positive effects when there is an imbalance in affectivity and the pet helps to re-open those channels of communication and socialisation which problems linked to ageing may have shut down to a certain extent.

In contemporary society, elderly people are no longer considered important in family management and the values acquired through a lifetime of experience are not appreciated or are deliberately ignored.

Grandparents, our families' guardian angels, the importance of their affection, the joys of their tender protective embrace are set to one side and the messages they would have to pass on to us are not taken into account.

Activities carried out with a specifically or generally trained animal allow those skills remaining to develop and this can help promote independence and new-found self-esteem.

Taking care of an animal also has effects on sense of responsibility and organisation of daily tasks, while being occupied with activities can help to overcome depression, apathy and loneliness.

For an elderly person in a care home the company of an animal company means there is a living being to share emotions with, a true companion and faithful friend, capable of giving and receiving affection and encouraging communication and interaction, a stimulus which can revive interest and be a reference point.

Pet therapy can be used to support physiotherapy and kinesitherapy treatment: the patient can be encouraged by the therapist to carry out specific actions by relating them to the dog.

This procedure has been widely used for rehabilitation of deficits in adolescence in Pet Therapy centre as reported by the University of Messina..

This empathetic relationship process is simpler between human and animal than between human and

human as, regardless of whether the patients live in their own home or in a care home, it does not involve those functions which may be most impaired by illness, such as language, orientation, memory and critical faculties. Animals do not recognise disability and do not discriminate against those who have objectively lower levels of functioning.

The ability to identify and participate emotionally in the thoughts and sentiments of others develops through this empathetic process of understanding their emotional signals.

An empathetic relationship can also have beneficial effects for caregivers of dementia patients, as has been shown by some Authors who observed that relatives of dementia patients who owned a dog or a cat showed fewer signs of stress and burn-out than those who did not own pets (10).

Aims of pet therapy

The aims of pet therapy in geriatrics can be summed up in the following list of effects:

- increasing interest and sentimental and emotional participation;
- stimulating the revival or the preservation of sentimental attachment;
- stimulating cognitive and/or motor abilities;
- strengthening memory and attention;
- correcting movement and stimulating perception of it;
- stimulating the sense of rhythm;
- limiting muscular and postural tonicity with reduction of hypertonicity caused by lesions;
- stimulating ideomotor co-ordination;
- reducing reactive anxiety;
- improving self-esteem and self-control.

Regarding the targets aimed for, below is a summary of the results that should generally be reached in animal assisted therapy with geriatric patients :

- remembering the outline of the orders to give to the dog so as to be understood;
- getting the dog ready to go out for a walk;
- managing feeding and getting food supplies;
- checking health status: vaccinations, treatments, visits to the vet etc.;
- perceiving sensory and physical stimulation in response to the animal's actions (licking, tail wagging, attention signalling, stroking etc.);
- obtaining gratifying and comprehensible effects;
- stimulation of memory and cognitive processes;
- stimulation of attention and concentration;
- stimulation of verbal and non-verbal communication;
- stimulation to socialisation.

Effects of Pet therapy.

Having seen the targets aimed for with animal assisted therapy in elderly people with physiological effects of ageing on their functions, the authors think it useful to also consider the effects of the therapy in the case of the most frequent disorders, such as senile dementia and Alzheimer's disease.

Senile dementia

In cases of senile dementia, the presence of animals, used of course in line with the therapeutic protocols which are the fruits of experience and related scientific knowledge, can produce results pertaining to cognitive parameters, alterations in behaviour and mood, as well as benefits for the cardiovascular system.

Cognitive parameters

Since the animal gives gratifying responses, improved attention levels may be observed and this can make it possible to continue traditional rehabilitation activities which had begun to seem tiring and tiresome.

Pet therapy enables treatment even of patients with marked cognitive deficiencies, with relational problems and affectivity issues.

Effects on *verbal coherence* are also seen; indeed there are marked improvements and language becomes more appropriate, communication more fluent and verbal interaction more adapted to context. Some authors say that there is a significant general improvement in the field of language.

Assessment of cognitive states using the SIB scale (*Severe Impairment Battery*) showed an overall improvement in test scores when a dog was present, a marked improvement in the *items* which explore language (11).

It also has substantial effects on memory since, because of the strong affective component, remembering has a positive effect on mood and the general well-being of the dementia patient.

There can be no doubt that contact with an animal stimulates reminiscences and encourages sharing them with both the staff and other patients. Reminiscence is a vague and imprecise memory in which emotions are dominant.

In the majority of dementia patients, animal-assisted reminiscing activity seems to be particularly pleasant.

Changes in behaviour.

Patients who receive AAT show a marked decrease in behavioural changes (12). Therapy with dogs in hospitalised patients brings about a significant decrease in psychomotor agitation, aggressiveness, anxiety and apathy and an increase in socialisation and communication (13) (!4)

Mood

The use of AAT can have a positive effect on parameters which regulate mood. Particularly

noticeable are a lessening of depression and a visible increase in social interaction signals (looking, smiling, touching, physical and verbal contact) together with a decrease in signs of embarrassment (15). Some studies also report an improvement in sensation which reaches the levels the Greeks called eu-coenesthesia, or well-being (16).

The Authors think it important to underline that some studies and experiences at the Pet Therapy centre in Messina show how the use of animals with patients suffering from medical conditions which compromise vital functions leads to a significant fall in the need for psychiatric medication, with the consequent savings in health care costs.

Cardiovascular parameters.

Observed effects of pet therapy on the cardiovascular system are the following :

- fall in blood pressure (max. and min.) from the start of the session until the end;
- steady blood pressure also in control sessions;
- stable heart rate in control sessions;
- normalisation of rhythm.

Thus it can be claimed that, in general, the presence of animals as co-therapists has a calming effect on elderly patients. Use of a heart rate monitor also showed that when the patients stroked, lick or even just made eye contact with the animal, the heart rate dropped.

Biochemical blood parameters

No noteworthy variations in the patients' protein, carbohydrate, mineral and enzyme metabolism were observed during the experiment..

An important finding was that blood cortisol levels undergo a significant reduction in concentration during sessions of both Animal Assisted Activities and Animal Assisted Therapy. In the latter case, concentration was 25 % lower.

Lipid metabolism has also shown a significant variation with a drop in blood triglycerides being observed (17).

Alzheimer's disease

Pet therapy, as already mentioned, is a co-therapeutic intervention which, when used together with classic therapies, aims to facilitate reaching of specific targets.

In Alzheimer sufferers presenting apathy and cognitive problems the aim is to reactivate the person's past, or biographical dimension, through the relationship with the pet and auto-narration.

In this particular case, animal assisted co-therapy aims to help dementia patients, especially in care homes, in social integration and biographical competence, to reduce anxiety and contribute to maintaining the remaining cognitive resources.

An interesting experience emerged from a project with Alzheimer patients at the Fondazione Manuli

in Milan which included pet therapy.

The research on a group of patients was coordinated by Roberto Marchesini and gave some thought-provoking results.(13). In 33 one-hour sessions, dogs of several breeds were used with their pet-partners to carry out specific activities which included:

- *application activities* : referring to the dog without actively involving it;
- *observation activities*: watching the dog as it searched by smell or in a game;
- *simple management activity*. playing an interactive game or dressing the animal

The results of this study, carried out with guided interaction for management and observation, enabled some people to better integrate into the group and facilitated conversation with the paramedical staff; talk about an earlier period of life in which dogs were present; being attracted by the animals and a propensity to physical contact and dialogue with signs of well-being and pleasure; mention of the animals' morphostructural aspects such as coat colour, ear and tail shape, size gave rise to conversation among the patients and moments of sharing and well-being.

At the end of the experiment, the targets aimed for had been reached, in particular greater social and conversational integration, including memory and cognitive exercises.

General effects

After examining the specific effects of pet therapy on elderly people, with particular analysis of changes in cognitive, behavioural, cardiovascular and blood biochemistry parameters, we proceed to consider the effects this co-therapy can have in all kinds of gerontological medical conditions.

Increased survival rates – Studies have shown that when comparing two groups, one treated with the presence of animals and one without, the former benefits from greater longevity.

The reasons for this could be:

- *a less sedentary life-style*- physical movement is necessary during the sessions;
- *lower anxiety levels*- due to the calming and anxiolytic effect of the animals' presence;
- *activation of the sympathetic nervous system*- which is responsible, through its main neurotransmitters noradrenalin and acetylcholine, for various excitatory functions in organs and systems;
- *control of cardiovascular reactivity* to stress with a drop in heart rate and normalisation of rhythm.

Various psychological, visual and emotional mechanisms can play a part in determining these effects.

Specific scores

Other noteworthy effects are related to neuro-rehabilitation treatment:

- *Joint mobility*: movement of the arm, hand and forearm most important;
- *Muscle tone*: -is more relaxed and there is an increase in general relaxation;

- *Neuro-rehabilitation treatment* is reinforced
- *Functional recovery*: quicker, more stable and more easily accepted;
- *Neuromuscular benefits*: more evident through psychological channels.

Medication

This co-therapy has a decisive effect on monitoring of drugs administered to this category of patients. The many medical conditions that can affect them make pharmacological intervention frequently necessary.

It has been demonstrated that the presence of pet therapy animals, both in care homes and in the patients' own homes, leads to a decrease in use of hypertension drugs, anxiolytics and psychiatric medication. This is often associated with dilation in dosage.

Behavioural analysis

Among the changes in behaviour that can occur during pet therapy, we will examine facial expression, interaction and relaxing.

Facial expression –Our experience supplied clear demonstrations of the effects on facial expression; during pet therapy the face shows interest and is smiling, with indicative movements of the eyebrows, forehead and eyes. These variations derive from the emotions the patient experiences during the sessions.

Interaction - There is a two-way understanding which is intensified through several actions : touching or stroking the dog, gesturing to call it, watching its movements, calling it or giving it instructions.

Relaxing- This effect can be perceived when the following are observed: a calm and smiling face, loose arms and legs, interest in talking to others and use of appropriate words.

Observation of the patients also reveals the absence of the following behaviours or attitudes:

- twisting of hands;
- folded arms;
- touching themselves or other people;
- not looking at the animal;
- absent expression;
- sleeping or remaining silent;
- stress;
- stiff arms;
- crossed legs;
- looking away.

Other *physiological and behavioural effects* include :

- increased communication,
- improvement in mood,
- decreased anxiety and depression,
- improved joint and muscle mobility,
- decreased blood pressure.

For AAT pet therapy, as for all forms of therapeutic treatment, some factors indicating its usefulness should be examined:

-indications and e possible side effects

- cost-benefit ratio
- risk-benefit ratio
- frequency of treatment
- duration of treatment
- side effects
- compliance.

Experience at the Messina Pet Therapy Centre and in other institutions where the therapy is carried out shows that strict methodology is essential both to obtain positive results and to ensure that they can be scientifically evaluated and reproduced.

Conclusions

We have outlined the effects of pet therapy in geriatric patients and examined the possible adverse effects which could limit its field of application and proceed to report here the possible advantages of this innovative therapy.

Even if we leave aside the strong emotional, cognitive and relationship stimulus pet therapy can give to elderly people, we still observe retrieval of autobiographical memory, an increase in self-esteem and autoefficiency, an incentive to conversation and social interaction. Pet therapy has beneficial effects – both in quantity and quality – on cognitive and behavioural changes in dementia and Alzheimer patients. The increase in communication and socialisation can be observed not only among patients but also with the health care professionals.

Pet therapy acts mainly on emotion and can be integrated with traditional medication to improve the well-being and quality of life of those patients who have the misfortune to be affected with these medical conditions.

Conflicts of Interest: There is no potential conflict of interest, and the authors have nothing to disclose. This work was not supported by any grant.

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Introductory Lecture given on April 6, 2017; received June 7, 2017; published on line June 30, 2017.