

## Clinical effectiveness of animal assisted therapy in severe disability: a case report

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### Résumé

*Dans le cas des personnes atteintes de troubles du spectre autistique et de déficience intellectuelle, qui peuvent avoir une communication verbale limitée ou absente, les interventions éducatives et psychothérapeutiques conventionnelles n'apportent qu'une amélioration limitée. La présence de troubles du comportement ajoute des difficultés d'intégration sociale et d'adaptation dans les institutions socio-éducatives, soulignant le besoin d'approches innovantes pour cette population. La thérapie assistée par l'animal est un contexte d'intervention spécifique utilisé en complément aux thérapies conventionnelles, où l'animal joue un rôle intermédiaire entre le thérapeute et le patient. Bien que de nombreuses études tendent à démontrer que cette méthode est bénéfique, les avantages sont rarement pleinement expliqués et le rôle du thérapeute est complètement oublié.*

*En proposant la thérapie assistée par l'animal dans notre unité psychiatrique depuis 2008, nous avons observé des effets bénéfiques chez de nombreux patients. Le but du présent article est de décrire la méthode utilisée chez un patient adulte présentant un trouble du spectre autistique et une déficience intellectuelle sévère et chez qui une thérapie assistée par l'animal a permis une réelle amélioration de son humeur et une diminution significative des troubles du comportement mesurés avec l'Aberrant Behavior Checklist (ABC).*

*L'évolution du patient a été lente mais son état actuel est très positif, avec un réel changement d'humeur et une disparition des troubles du comportement. En effet, les scores ABC du patient montrent une nette amélioration. Il parle aussi plus spontanément et répond plus adéquatement aux questions, il compose des phrases pour parler de son état d'esprit et il ne montre plus de comportements auto- et hétéro-agressifs.*

*L'analyse de l'évolution de ce patient permet de mettre en évidence les processus thérapeutiques pouvant intervenir dans ce type d'intervention. En outre, nous décrivons plusieurs mécanismes de thérapie généralement impliqués dans la thérapie assistée par l'animal, où le thérapeute joue également bien sûr un rôle fondamental.*

## **Abstract**

In the case of persons with autistic spectrum disorder and intellectual disability, who may have limited or absent verbal communication, conventional educational and psychotherapeutic interventions provide only limited improvement. The presence of behavioural disorders adds difficulties in social integration and adaptation in socio-educational institutions, highlighting the need for innovative approaches for this population. Animal-assisted therapy is a specific context of intervention used as a complement to conventional therapies, where the animal plays an intermediary role between the therapist and the patient. Although many studies tend to demonstrate that this method is beneficial, the benefits are rarely fully explained and the role of the therapist is quite completely forgotten.

Proposing animal assisted therapy in our psychiatric unit since 2008, we observed beneficial effects in many patients. The aim of the present article is then to describe the method used with one adult patient who present autism spectrum disorder and severe intellectual disability and for whom animal assisted therapy with a dog permitted a real improvement of his mood and a significant decrease in behavioural disorders measured with the Aberrant Behavior Checklist.

The evolution of the patient has been slow, but his present state is mostly very positive, with real change in his mood and disappearance of behavioural disorders. Indeed, the patient ABC scores show a clear amelioration. He also speaks more spontaneously and responds more adequately to questions, he composes sentences to talk about his state of mind and he no longer exhibits self- and hetero-aggressive behaviours.

The analysis of this patient's evolution allows us to highlight the therapeutic processes that can take place in this type of intervention. In addition, we describe several therapy mechanisms generally involved in animal assisted therapy, where the therapist also plays of course a fundamental role.

**Keywords:** Animal assisted therapy, autism spectrum disorder, intellectual disability

## **Introduction**

Animal assisted therapy (AAT) belongs to the more general domain of animal-assisted interventions (Kruger, Trachtenberg & Serpell, 2004). Conducted by a duly trained professional with the help of a carefully selected animal, AAT aims at improving the mental or physical health of a person, or simply their quality of life. The animal provides a source of sensory, motivational and socializing stimulation via the significant contact and activities it generates. The climate of security and support introduced during a session of AAT is favourable to improvements in several areas (Lehotkay, 2009b). Mostly defined as a method of intervention, AAT refers more to a specific context of intervention, a specific therapeutic framework used as a complement to conventional therapy, where the animal plays an intermediary role between the therapist and his/her patient (Lehotkay, 2008; 2009b). The method depends therefore on the objective of the therapy, and consequently on the therapist's area of expertise. In the case of psychotherapy, the animal is frequently used to facilitate the therapeutic relationship, and the improvement of this bond allows faster progress toward the chosen goal. Thus, the therapist works *with* the animal, considered here as a therapeutic adjunct which takes an integral part in the treatment process. This technique does not consist simply of the presence of an animal in the course of the therapy; it is an effort that is based on the interaction among the therapist, the patient and the animal. The benefits of the presence of the animal consist not only in the activity it enables, but also in the highlighting by the therapist of the skills that the patient shows with the animal.

AAT is not strictly speaking a new technique, but it introduces a new element, the animal, in the context of existing therapies. As early as the 17th century, it was thought that caring for an animal could restore harmony between body and mind. During the 18th and 19th centuries, various species of animals were part of the environment of several health care institutions in England and elsewhere (Serpell, 2000). In the 20th century, Boris Levinson (1969, 1984), who is considered to be the father of AAT, published many papers on the subject, but it took until the end of the century for research to develop and show empirically, the benefits that the presence of an animal can have on the physical and psychological health of humans (Antonioli & Reveley, 2005; Brickel, 1986; Corson & Corson 1980; Bouchard & Delbourg, 1995; Folse, Minder, Aycocock & Santana, 1994; Friedmann, Katcher & Lynch, 1980; Kruger, Trachtenberg & Serpell, 2004; Mallon, 1994). Nowadays, the use of animals is increasingly widespread, ranging from simple presence of an animal to the most complex sessions of individual therapy.

Effectiveness of AAT is well documented in the literature and several studies tend to confirm the beneficial effects of the presence of animals with different populations, including children, adolescents, adults and the elderly (Baun & McCabe, 2000), whether they have a disability or not (Duncan & Allen, 2000; Kruger & Serpell, 2006; Scholl, Grall, Petzl, R thler, Slotta-Bachmayr & Kotrschal, 2008; Turner, 2003). Positive effects have been also observed with many different psychiatric diagnoses, such as post-traumatic stress disorder (Altschuler, 1999), borderline personality disorder (Sato, Senjo, Tanaka & Miyazaki, 2003), anxiety in children (Athy, 2006) and adults (Morgan, 2009; Schwartz & Patronek, 2002), loneliness and depression (Antonioli & Reveley, 2005; Banks & Banks, 2005; Holcomb, Jendro & Weber, 1997; Jessen, Cardiello & Baun, 1996; Le Roux & Kemp, 2009; McVarish, 1995;), behavioural disorders in children (Katcher & Wilkins, 1998; Soutar-Freeman, 2003), emotional and behavioural disorders in adolescents (Drawe, 2001; Ewing, MacDonald, Taylor, & Bowers, 2007); attention deficit disorder with hyperactivity (Somervill, Swanson, Robertson, Arnett, & MacLin, 2009), and learning disorders (Limond, Bradshaw & Magnus Cormack, 1997). However, very few publications are trying to give an explanation of why AAT is beneficial (Galli Carminati, Lehotkay, Martin & Carminati, 2013).

The animal alone may be useful, and a growing number of studies show remarkable behavioural changes resulting from the presence of animals. Several authors suggest indeed that animals - especially dogs - encourage social interaction (Corson, Corson & Gwynne, 1977; Limond, Bradshaw & Magnus Cormack, 1997; Martin & Farnum, 2002). Being a neutral topic of conversation, the animal seems indeed to facilitate contacts

between people and has been characterized as a "social lubricant" (Hart, Hart & Bergin, 1987; Kruger & Serpell, 2006; Mader, Hart & Bergin, 1989; Messent, 1983; Nielsen & Delude 1989).

Besides the social catalyst effect, other elements lead us to see the animal as a real therapy assistant. First, the motivating effect of AAT sessions can help develop the therapeutic relationship. Accompanied by a dog, a person is seen to be more sympathetic than if he or she is alone (Lockwood, 1983; Pavlides, 2008). The therapist with a dog can then be seen as less threatening, especially in the case of people who are reluctant to follow any treatment. In this case, the animal acts as a transitional object supporting therapy (Galli Carminati, Lehotkay, Martin & Carminati, 2013; Lehotkay, 2012).

Sensory stimulation through the animal allows a withdrawn person to pay more attention to the outside world, thus reducing some forms of inappropriate behaviour and increasing appropriate social behaviours. In the context of dog-assisted therapy, Redefer and Goodman (1989) showed that with autistic children, the number of social interactions directed toward the therapist or the dog increased significantly, whereas the number of behaviours directed at them significantly decreased.

The calming effect of the presence of the animal has also been demonstrated in several studies, which confirm the fact that petting a dog causes a drop in blood pressure and heart rate (Friedmann, Katcher & Thomas, 1983; Jenkins, 1986). The anti-stress effect of the animal is visible at the physiological level, but its presence is also beneficial at the psychological level (Antonoli & Reveley, 2005; Barker & Dawson, 1998; Muschel, 1984; Pavlides, 2008).

Finally, the presence of the animal, often involving a walk outdoors, encourages physical exercise, which may be useful in the case of a population that has tendency to have poor physical activity. The fact of taking care of an animal can also develop a sense of responsibility, which promotes the development of autonomy. In addition, the presence of an animal in the proposed activities can be an occasion of learning, as the animal is used as a model for improving social skills (Kruger, Trachtenberg & Serpell, 2004). Then, the presence of the animal alone can be beneficial, but does the therapist play a role in the treatment process and improvement of the patient?

In people with intellectual disability (ID), the presence of behavioural disorders is a main obstacle to social integration and adaptation in socio-educational institutions, and increasing some social behaviour is often a primary therapeutic goal. Decreasing the severity of patients' behavioural disorders can not only enable their social integration but also improve consequently their quality of life (Galli Carminati, Gerber, Baud & Baud, 2007; Galli Carminati, Gerber, Kempf-Constantin & Baud, 2007; Lehotkay, Varisco, Deriaz, Doubi & Galli Carminati, 2009). In some cases, communication impairments add to the difficulty in management of their disorders (Lehotkay, 2009a), which require a treatment adapted and specific to each case (Galli Carminati & Lehotkay, 2008).

For adults with severe to profound ID and Autistic Spectrum Disorders (ASD), where verbal communication is limited or absent, conventional educational or psychotherapeutic interventions provide only limited improvement, as they often are based on verbal communication. As problems in communication and isolation also often cause outbursts of behavioural disorders, it is reasonable to assume that an intervention aimed at improving communication and isolation would lead to a reduction of behavioural disorders. One promising intervention is then animal assisted therapy (AAT), which aims precisely at alleviating the communication disorders (among others) and isolation.

According to the ICD-10 (World Health Organization, 1994), ASD are characterized by severe developmental alterations producing three key symptoms: restricted social interaction, restricted communication and interests, and repetitive and stereotyped activities. These symptoms are also known as the autistic triad, which appears before the age of 3 years. For people with ASD, the presence of an animal in a therapeutic context can be beneficial, since it may be useful in improving each of these three areas.

Unfortunately, most studies concern children (Martin & Farnum, 2002; Pavlides, 2008; Prothmann, Ettrich & Prothmann, 2009; Redeker & Goodman, 1989; Sams, Fortney Willenbring & 2006), while the number of adults with ASD is obviously more important since there is no cure for these disorders.

AAT was introduced in the Psychiatric Unit of Mental Development (UPDM) within the University Hospitals of Geneva in January 2008. The patients of this unit are adults with ID and psychiatric disorders. Since 2008, many patients have benefited from dog- and cat-assisted psychotherapy, and in June 2012, the Animal Assisted Therapy Center opened in the UPDM. This experience allows us to evaluate the long-term effects of such therapy. In the current study, we aim to shed light on the positive potential of AAT in patients with severe ID, ASD and behavioural disorders. Although it may indeed be interesting to evaluate what is happening during a therapy session, it would be also important to explore the positive potential of AAT in patients with severe ID, ASD, and behavioural disorders by analysing its long-term effects when AAT is used over a relatively long period.

### **Method - Presentation of the patient**

Our patient is a man aged 50 with severe ID and ASD in the form of infantile autism with severe behavioural disorders (F72 and F84.1), according to the ICD-10 criteria (World Health Organization, 1994). His family permitted and supported the publication of this paper in order to encourage the AAT approach for other adults with similar disorders.

In terms of personal history, he presented with a delayed psychomotor development, with delay in acquisition of walking skills and speech. Because of loss of balance associated with frequent falls, lexical poverty (language limited to a few words) and behavioural disorders (psychomotor agitation and severe hetero-aggressivity), he was hospitalized at the age of 3 years in a paediatric ward for clinical investigation. He was given a diagnosis of delayed psychomotor development associated with global microcephaly. The persistence of his behavioural disorders led to new hospital admissions and integration into a socio-pedagogical institution at the age of 8 years.

At the age of 18, the patient suffered from a state of sadness, fatigue, irritability and loss of appetite. Significant weight loss was also reported. Mood disorder was evoked to explain the clinical conditions. Somatic investigations also revealed a hiatal hernia with probable gastro-oesophageal reflux. We note here that somatic investigations among the population with developmental disorders and reduced verbal ability are of central importance, because somatic problems may be the main cause of behavioural disorders, as these patients do not complain verbally of their physical discomfort or pain (Galli Carminati, Chauvet & Deriaz, 2006). Various psychotropic medications were established and modified over time. These treatments did not provide significant improvement.

At the age of 40, following the death of his mother, our patient presented with a clear worsening of his clinical condition with behavioural self- and hetero-aggressive behaviours. In this context, another treatment was initiated in combination with intensive psychiatric support. The clinical course was favourable, although episodes of psychomotor agitation persisted.

At the time of this study, our patient lived in a socio-educational institution, and his workshop activities were based on a personal development program founded on sensory stimulation activities, learning and maintenance of acquired cognitive, relational and language skills, as well as the development of autonomy.

At the start of the therapy, the patient presented as withdrawn, apparently absorbed in his own thoughts and scarcely available to create a link with others. During walks, he would hold the hand of the therapist and speak very little. He answered yes or no to simple questions but remained silent when the issue was more complex. For example, when we asked him how he felt, he simply repeated the question that was asked. He

habitually stood hunched and walked slowly, as an elderly person; he gave the impression of having some difficulty in balance, although his support perimeter was not extended. He did not seem much invested in therapy sessions and behaved almost automatically, repeating his rituals. He also obsessively repeated a question related to a game he had played in his childhood, a question that irritates those around him. He would often ask when he would see his father.

The patient was evaluated before the beginning of AAT, using the Aberrant Behavior Checklist (ABC; Aman, Burrow & Wolford, 1995; Aman, Richmond, Stewart, Bell & Kissel, 1987; Aman & Singh 1994; Aman, Singh, Stewart & Field, 1985a, 1985b). Results showed that our patient demonstrated different behavioral disorders as Irritability, Agitation, Social Withdrawal, and a lot of Stereotypic Behavior. The details of the results are shown in the table 1.

**Table 1** Mean score for each ABC factor before AAT

	Before the beginning of AAT
F1-Irritability, Agitation, Crying (15 items)	<b>1,00</b>
F2-Lethargy, Social Withdrawal (16 items)	<b>163</b>
F3-Stereotypic Behaviour (7 items)	<b>1,57</b>
F4-Hyperactivity, Non-compliance (16 items)	<b>0,56</b>
F5-Inappropriate Speech (4 items)	<b>1,25</b>

### **Intervention and outcome**

Since January 2008, the patient attended specialized AAT sessions with a dog. The therapeutic work with this patient was essentially based on a weekly session with a pet therapist, who is a psychologist psychotherapist specialized in AAT, and her dog "Max", a male Labrador retriever. The 60-minute session included a walk outside and a break in a cafe.

Beside the walking, each session consists of a real psychotherapy frame, where the patient is invited to express himself about his mood and to answer questions about environmental variables such as the time (present day, season) the weather or the dog, in order to allow him to develop consciousness of the present reality. The questions are always the same, and this allows the patient to know the answers and to be able to respond adequately. When he does so, the psychologist compliments him and points out his ability to know about his environment. Similarly, the patient is thanked when he expresses his state of mind, the psychologist stressing the importance of such communication.

The evolution of the patient has been slow, with a short time of deterioration followed by improvement. His present state is mostly very positive, with real change in his mood and disappearance of most behavioural disorders. Today, the patient speaks more spontaneously and responds more adequately to questions, even those about his mood. He composes sentences to talk about his state of mind or to ask questions about activities to come. In addition, he no longer speaks of his childhood game and rarely asks about his father.

We have also observed an improvement in motor coordination and posture. Indeed, the patient now walks with a straight back, in a less jerky and more comfortable manner, especially when he has the dog on leash. At present, the patient seems to be more invested in the sessions, rejoicing in the opportunity to go for a drink, asking questions about the dog, asking to give the dog cookies, and asking the pet therapist, 'When will you come to see me next week?' Finally, he no longer exhibits self- and hetero-aggressive

behaviours. This improvement was confirmed by the results of the evaluation with the ABC three years later (see table 2), demonstrating a decrease in most mean scores for each ABC factor, as shown in the figure 1.

**Table 2** Mean score for each ABC factor after 3 years of AAT

	After 3 years of AAT
F1-Irritability, Agitation, Crying (15 items)	<b>0,47</b>
F2-Lethargy, Social Withdrawal (16 items)	<b>1,13</b>
F3-Stereotypic Behaviour (7 items)	<b>0,86</b>
F4-Hyperactivity, Non-compliance (16 items)	<b>0,38</b>
F5-Inappropriate Speech (4 items)	<b>0,75</b>

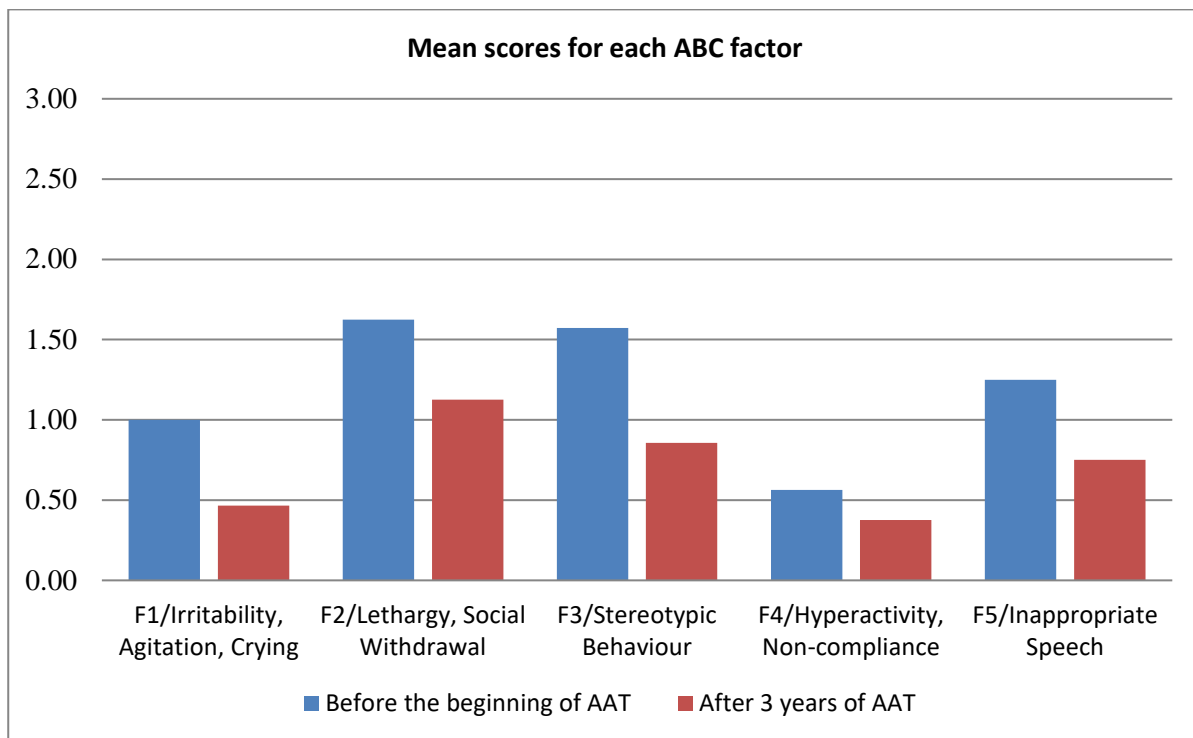


Figure 1. Mean scores for each ABC factor before and after 3 years of animal assisted therapy

## Discussion

Adults with severe ID and ASD who present with behavioural disorders experience important problems in socialization, and yet they are relatively poorly described in the literature. The approach with AAT in this population has had several effects, including de-dramatization of psychiatric care, improvement of communication through its increased dynamism, sensory and cognitive stimulation, and the improvement of relations with others, thanks to the mediation of the animal. The effect of enhancing patients' social image allows them to see themselves in a more positive light, probably improving self-esteem. The attachment to the animal also helps motivate patients to actively participate in the therapeutic process. Finally, repetitive activities bring a soothing routine that allows a reduction in anxiety.

With these basic concepts of AAT in mind, we will now examine their application to the clinical situation of our patient. We will also discuss the extent to which this therapy could improve his clinical condition. First,

the dog's presence has the effect of improving the patient's social image, which allows enhancement of self-esteem. One reason for the initial improvement of the state of our patient is the different image that being with the dog gives to people he meets in the street, along with the different reaction he receives in turn. During his walks, instead of holding the hand of the psychologist, our patient now holds the dog's leash. In the street, people do not see a disabled person with his therapist but simply two people walking a dog. The patient is no longer the assisted person, but the person responsible for the animal, thereby improving his self-esteem. The fact of caring for an animal can develop a sense of responsibility, which promotes autonomy. For our patient, who is sometimes not aware of what he knows or can do, this simple activity, requiring some focusing toward a living being, helps the development of his autonomy.

Sensory stimulation through the presence of the dog allows a person who is focused only on himself to look more to the outside world, thus reducing any form of inappropriate behaviours (self-mutilation, stereotypical movements) and increasing appropriate social behaviours (eye contact with the animal, imitation of gestures of the therapist; Redeker & Goodman, 1989). Thus, when our patient is at a coffee bar, instead of focusing on his drink, he listens to the psychologist, who invites him to give the dog biscuits. This activity requires not only motor and visual coordination but also mental coordination, since the patient must first ask the dog to sit, say 'gently' to him, and then give the dog the biscuit (otherwise, the animal takes the biscuit too quickly). This not only allows our patient to understand that all good behaviour is rewarded, but more importantly, it mobilizes reflection to face the consequences of his behaviour.

Improved communication is achieved through the dog's presence, which also becomes an excuse to boost communication. Even for people with autism, the dog's behaviour can be easily decoded and therefore quickly understood. Through these simple and repetitive nonverbal actions, the dog allows the patient to get in touch with the external reality through tactile stimulation, developing the person's conscience of the other. The mobilization of the patient's reflection has also been achieved via simple questions put to him about the dog. Gradually, these same questions and answers are part of a routine that reassures the patient. The patient, who has learned to recognize certain behaviours of the dog answers the questions correctly to the psychologist. He is then praised for his good responses, which also allows him to improve his self-esteem. Mobilized by these questions, our patient stopped repeating the verbal stereotypy that had made his management difficult.

The presence of the dog in the proposed activities can be the occasion for learning in which the animal is used as a model for improving social skills (Kruger, Trachtenberg & Serpell, 2004). Thus, this routine game of simple questions and answers about the behaviour of the dog has led to more complex questions about his state of mind. By projection, the goal was to bring our patient to realize that communication is crucial for us to know his own state of mind. The present result is that our patient speaks spontaneously about his mood and says, 'I am happy', and when we ask him why, he even gives a reason for this, saying, 'Because we're going to drink something'.

The fact that the presence of the animal most often involves a walk outside also allows the patient to perform some physical activity. In the case of our patient, this walk has improved motor coordination and posture. Thus, while our patient previously always stood hunched, having to hold the dog's leash caused him not only to focus on what he was holding in his hand, but also to stand up straight. The pet therapist would point out his hunched posture, asking him to stand upright to be better able to keep the dog on leash. Currently our patient has a better posture; he now walks with his back straight and his gait is more confident and lithe.

Through his attachment to the animal, our patient seems more stimulated, also perhaps because he has emotionally invested in the dog. Indeed, he more often remembers the dog's name than the name of the therapist. The dog has become a companion that our patient loves to pet and with whom he loves to touch.



In efforts to improve the low level of sensory and affective stimulation of persons with autism and ID living in institutions, the stimulus provided by a dog is interesting because it is multisensory. It allows them to gradually master physical contact, serving as a mediator between the rejection of social interaction and the acceptance of interpersonal relationships. Because we see the animal as non-judgmental, his presence also brings a sense of unconditional acceptance. Faced with the difficulty of communicating with others, the person with autism and ID may feel anxious. The feeling of unconditional acceptance from the dog can then lead to a decrease of anxiety, which in turn leads to a decrease of behavioural disorders. Apart from improving self-esteem, lowering anxiety in relation to others seems to have been another important element in improving the state of our patient.

The appeasing routine introduced by the dog's presence, which himself functions as much on a routine basis, seems to be very appropriate in the therapeutic care of people with autism and ID. Indeed, the animal acquires habits and behaves in the same way each time, which reassures the patient, who recognizes these behaviours. Returning from the walk, the dog is accustomed to jump on a bench to wait for cookies. The location is fixed and the time too, which allows our patient to know exactly what is asked from him at that moment. He then feels proud to spontaneously ask the therapist, after decoding the dog's behaviour, 'I want to give cookies to Max'.

Finally, this enjoyable activity of walking the dog may also develop the patient's consciousness of pleasure and verbalization of it, which becomes clear when the therapist asks the patient what makes him happy, or what he would prefer to do today. These questions also enhance volition, which refers to a person's interests and motivation to engage in new activities (Taylor, Kielhofner, Smith, Buttler, Cahill, Ciukaj et al., 2009).

## **Conclusion**

In a therapeutic setting, the presence of an animal as the dog for example facilitates social interaction and may then be considered as a social catalyst. Its presence being a pretext for speaking, it promotes verbal exchanges and communication in general. Finally, because the animal requires a lot of attention, its presence allows activities that encourage the patient to become fully engaged, and the patient with ASD, at least temporarily, can be diverted from repetitive or obsessive thoughts. When the dog licks the hand of the person, it also allows contact with external reality through this tactile stimulation, thus developing consciousness of the other in the patient. It allows the patient to gradually master physical contact, serving as a mediator between rejection of social interaction and acceptance of interpersonal relationships. The animal can thus be seen as a valuable tool to reduce the withdrawal tendency of the person with ASD. It allows the therapist to enter more easily into a close relationship with the patient.

The animal serves as a valuable tool to reduce the withdrawal tendency of the person with ID and ASD. The presence of the animal allows the therapist to more easily enter into relationship with the patient. In general, AAT is a dynamic and enjoyable therapeutic framework where the animal acts as a catalyst promoting social interactions (Kruger, Trachtenberg & Serpell, 2004; Limond, Bradshaw & Magnus Cormack, 1997; Martin & Farnum, 2002). The improvement of the contact between the therapist and the patient is certainly one of the main goals in therapy, but it is not the only one.

In most cases, the person with ID has behavioural problems that are often the result of anxiety. In the case of our patient, behavioural disorders also seemed to be associated with an increase of depression caused by the death of his mother. The goal of our therapeutic intervention was therefore to alleviate our patient's anxiety and depressed mood, to allow him to develop a more adequate functioning. Today, our patient is much better; he is smiling, he no longer shows behavioural disorders or verbal stereotypies and he expresses himself more spontaneously regarding his state of mind. Curious about what is happening around

him, he also raises questions about upcoming events. Finally, he has shown a significant improvement in motor coordination and posture. The result of this therapy is therefore very positive.

Although many studies on animal-assisted interventions tend to demonstrate that this method is beneficial, it is still rare for the benefits to be fully explicated. The present study aims, then, to propose concrete elements that explain the therapeutic process which takes place in AAT for a person with ID and autism. It would be interesting to analyse whether these elements are also present in the therapeutic process for a person with a better intellectual level and without ASD.

Traditionally, in order to evaluate the effects of a treatment in any domain, we start from the theoretical context and then develop a methodology, in which we present the way the change will be evaluated, which variables will be measured and when they will be measured, as for example before and after treatment. It is therefore interesting to note that in the domain of AAT, we start from practice, the aim being to show the beneficial effect of the animal's presence, and the results are then explained in a chosen theoretical framework. This type of approach, used in other therapeutic mediations (Galli Carminati, Constantin, Legay, Tschopp, Zid, Hermet, et al., 2004) when patients cannot be easily treated verbally, appears to have a significant impact for reducing behavioural disorders on the population with ASD and severe ID.

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