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CASE REPORT

Long-Term Beneficial Effects of Dog Assisted Therapy on Depressive Symptoms in a Patient with Atypical Autism

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Abstract: This single-case study was conducted on a 34-year-old woman diagnosed with therapy-resistant depression and co-occurring atypical autism. The subject had been kept on the same medications for eight years despite her condition not improving and at the same time experiencing side effects. Previous studies and patient experiences suggest that many physicians are reluctant to end prescribed medication even if the patient is experiencing inadequate benefits and questionable effects. Co-occurring diseases often share overlapping symptoms, which can make accurate diagnosis and treatment more challenging, such as for patients with depression and autism. The problem becomes even more complicated when looking into the long-term treatment of depression occurring alongside autism spectrum disorder (ASD). The focus of conducting this case study was to determine the effect of DAT on a patient with confirmed therapy-resistant depression and ASD and if DAT would provide long-term benefit for the subject. The study's results indicate that the patient experienced both quick improvement and long-term positive outcomes of DAT and is now in her 10th-year symptom-free.

Keywords: Autism spectrum disorder, ASD, Depression, Suicidal thoughts, Therapy- resistance, Animal-assisted therapy, Dog-assisted therapy

Introduction

Symptoms seen in depression, such as lack of social contact and engagement, sleeping disturbance, reduced appetite, and diminished zest for life, often resemble the symptoms seen in ASD. It has been known for some time that animal-assisted intervention (AAI) might have a positive effect on both depression and ASD, respectively.[1,2]

The term dog assisted therapy (DAT) is used when the therapy animal is a dog. Dogs are preferred because they are relatively easy to train, and a long-standing positive trust relationship exists between dogs and humans. Studies have demonstrated that a dog's response behavior is consistent with an expression of empathy and the ability to understand human body language.[3]

Despite medical and social advantages, DAT is rarely used in Sweden. The most common reason is concern about the spread of infection and allergic reactions. However, these risks can be minimalized by using simple hygiene routines and not including patients with pet (eg, fur) allergies in DAT.[4]

Studies have demonstrated that children and adults, both in and outpatients, involved in dog-assistant therapy resulted in decreased heart rate and blood pressure, reduced stress, increased pain threshold, and improved social interaction. At the same time, the patient experienced less stress and anxiety.[5–7]

In a clinical randomized trial, Cole et al determined that a 12-minute dog hospital visit improved cardiopulmonary pressures, neurohormone levels, and anxiety in patients hospitalized with heart failure. Results indicated that the blood concentration of some neurohormones such as Adrenaline and Noradrenaline and the stress hormone Cortisol decreases

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with DAT. This variation in blood concentration of different neurohormones indicates that central functions are affected when dog-human encounters.[8]

In another randomized controlled trial study of 70 hospitalized children, Kaminski et al found that both parents and caregivers felt that the hospitalized children felt significantly better after a 40-minute dog session per week.[8] Stefanini et al studied a sample of 34 children and adolescents admitted to a psychiatric clinic. The analysis showed that the subjects interacting with a dog for 45 minutes each week resulted in significant clinical and behavioral benefits such as improved general well-being and decreased anxiety.[9]

In a prospective study using questionnaires with and without 45-minute DAT (the subject was the control), fifty children in a pediatric surgical unit were evaluated based on their experiences and responses to AAI as a complementary treatment. Most children (93%) assessed the interaction with the dog as very good.[10]

Despite study design limitations, O'Haire et al summarized evidence of improved social interaction in nine 14 studies of children with autism. Dogs, horses, or dolphins were used in these studies. Improved language and "general behavior" were also noted. Parents who were surveyed thought the therapy had a positive effect.[11]

Lundqvist M. et al reviewed 18 studies on the effect of DAT in depression. The results indicated that DAT and sometimes even only dog-assisted support, ie, companionship with a dog, had a minor to moderate effect on psychiatric conditions.[12]

Travers et al conducted a randomized trial comparing DAT versus standard (human-therapist-only intervention) therapy in 55 patients living in residential aged care facilities with depression who also had mild to moderate dementia. Participants in the DAT had no adverse events, significant improvements in the Quality of Life (QoL) scale, improved mood, and decreased depression after 11 weeks of treatment. Those who initially had the most pronounced depression improved the most.[13]

Method

This case study presents a 34-year-old woman who was urgently admitted to a psychiatric clinic due to persistent suicidal thoughts and depressive symptoms of severity since the age of 14. For the last eight month, she was medicated with Citalopram (SSRI inhibitor) and Venlafaxine (SNRI inhibitor). According to the patient, during this time, neither of the medications had been changed, even though she provided feedback saying she was experiencing poor benefits and having severe side effects.

During her 62-day hospital stay, the patient underwent the following: medications were changed (Table 1) to Mirtazapine (Remeron), Atarax (Hydroxyzine), received an infusion of Nafranil (Clomipramine); a neuropsychiatric examine resulted in her initial diagnosis (Asperger's) updated to atypical autism; psychotherapy sessions, and twelve ECT sessions, all without obtaining the desired effect.

At this juncture, DAT was introduced into the patient's treatment regime. Initially, the dog instructor was present with the dog and patient to guide the dog therapy sessions.

Results

From the time of admission to the ward, the patient went through a series of treatments, a change in her long-term medications, confirmation of atypical autism diagnosis, psychotherapy sessions, and twelve ECT sessions. None of these interventions resulted in improvement; then, DAT was introduced to the patient. According to the patient, she experienced an immediate positive feeling when first encountering the assistant dog. After twelve instructor-led 30-minute dog assisted therapy sessions, the patient felt comfortable and independently performed the DAT. The patient was discharged home after twelve DAT sessions. Five years later, the patient remains completely symptom-free and has only outpatient contact with psychiatrists.

However, the patient remains skeptical about taking the medicines (Table 1) as she believes their only perceivable effect results in adverse events.

Discussion

This case report highlights both the quick improvement and the long-term positive outcome of DAT in a woman diagnosed with therapy-resistant depression and co-occurring atypical autism. According to the patient, she strongly believed that the positive improvements in her mental well-being were direct results of DAT. She felt needed for the first time, and her life had become more structured.

Table 1 Below are the Drugs Administered to the Patient to Treat Depressive Symptoms and Suicidal Thoughts Before, During, and After Hospitalization. Also Noted are the Effects According to the Patient's Experience

Drugs used before hospitalization		
Name	**Type**	**Effect**
Citalopram	SSRI	NS
Venlafaxine	SNRI	NS
Drugs used during hospital stay		
Mirtazapine	Antidepressive	NS
Atarax	Hydroximin	NS
Anafranil	Clomipramine	NS
Drugs used after hospitalization		
Voxra	SNRI	NS
Anafranil	Klomipramin	NS

Abbreviations: SSRI; NS, not sufficient.

To our knowledge, this is the first report to describe the long-term positive effect of DAT in therapy-resistant depression caused by atypical autism. Notably, DAT was provided entirely without side effects. One of the major limitations is that this was a single case study, and larger scale randomized control trials need to be done.

We suggest that in the case of therapy-resistant depression where there is suspicion of autism-induced depression, DAT should be considered. As presented in this case study, the treatment is effective, without side effects, and the benefit is long-lasting.

In cases with intractable depressive symptoms where (diagnosed, confirmed) autism may be involved, DAT should be considered as treatment.

While there has been much verbal feedback on autism-support animals improving social skills, the scientific evidence is limited. Additional research is needed to ensure that, among other factors, both adults and children enrolled in clinical trials are clinically diagnosed with a form of autism, defining what the "therapy" is and clearly defining what outcomes the study is assessing.

In scientifically conducted and peer-reviewed studies, DAT has been shown to potentially improve the well-being of treating symptoms, such as in the current case. However, there is little research on their efficacy, and additional studies are needed.

Another aspect that needs further investigation is the trained dog's well-being during similar circumstances and it is always important to monitor the dog's well-being. In this case report, a qualified ethologist has been involved in the background to ensure the dog's welfare.

Conclusion

This is a case report and should not be interpreted as generalizable evidence, but the results indicate that the patient experienced both quick improvement and long-term positive outcomes of DAT and is now in her 10th-year symptom-free.

Consent

The patient provided written informed consent for participation in the study and the publication of the details in this case with accompanying image was obtained from the patient. No institutional approval was required to publish the case details.

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Author Contributions

AR, MD, PhD in Physiology, made a significant contribution to the analysis and interpretation of the case data, was co-writing the paper revised it critically for important intellectual content; AE, MD, PhD in Medicine, was responsible for the Case study and drafted the work or revised it critically for important intellectual content; All authors made a significant contribution to the work reported, whether that is in the conception, study design, execution, acquisition of data, analysis and interpretation, or in all these areas; took part in drafting, revising or critically reviewing the article; gave final approval of the version to be published; have agreed on the journal to which the article has been submitted; and agree to be accountable for all aspects of the work.

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Disclosure

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