

Effects of music therapy with Ayurvedic head massage for patients with Autism Spectrum Disorder (ASD) by bioresonance method

Abstract

Autism Spectrum Disorder (ASD) has attracted attention for difficulty with social communication, where valid exam and treatment are expected. Current cases include 2 patients (32F/13M) with ASD and their mothers (61F/43F). They received procedures of music therapy (MT), Ayurvedic head massage, and measured the changes in the values of bio resonance apparatus before and after the intervention. As a result, oxytocin brought remarkable improvement among dopamine, GABA, serotonin, autonomic nerve, autism and others. Questionnaire survey showed satisfactory evaluation from all subjects. These results suggest that combined therapeutic trials would contribute the improvement of ASD, leading to future possibility of treatment.

Keywords: autism spectrum disorder (ASD), Ayurvedic head massage, music therapy, bio resonance, integrative medicine (IM), Japan Ayurveda Society

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Introduction

Autism Spectrum Disorder (ASD) is classified as a neurodevelopmental disorder.¹ There are symptoms related to communication and language, which are encompassed as a continuum of various conditions.² It has rather broad symptoms and diagnosis, including the autistic spectrum.

The core symptoms are persistent difficulty with social communication and interaction, limited mobility, special interests, and repetitive behaviors.³ Autism spectrum patients also feel very anxious when their daily habits are interrupted. The treatment policy is to minimize core symptoms and related symptoms, maximize QOL, and reduce various stress for the patient's family.⁴

On the other hand, music therapy has been known to have a power for human mind and heart. There is an anecdote in the Old Testament about David, who was a master lyre player, and had played the lyre (harp) to the first Hebrew king Saul. Then, he was refreshed by the music sound (1 Saul 16:23).⁵ Since ancient times, music has had the power to heal people's hearts.⁶ In recent years, music therapy has been applied to not only elderly people for anti-aging treatment, but also children for anxiety and some psychological problems.⁷ Authors et al. have continued music therapy activity in various opportunities and subjects, including elderly, children with certain diseases.⁸

Furthermore, our group has been also involved in Ayurvedic treatments. In Japan, the Indian Tradition Research Society was established in 1970. The author, Inamura, studied at Gujarat Ayurveda University and became the first Japanese person to be recognized as a nationally certified Ayurvedic doctor in India.⁹ In 2008, she served as chairman of the 30th Ayurvedic Society General Meeting in Japan, where she summarized long history and various literature into the Ayurvedic research textbook. The author, Kitanishi, currently serves as the president of the Japan Ayurveda Society, and works from inter- and intra-national points of view, in order to contribute for maintaining and improving the health care of the people.¹⁰

Subjects and methods

Subjects

The subjects were 2 patients of ASD (1 male, 1 female) and their two mothers. The detail history and information are summarized in the following.

- A. Case 1 (32F):** The patient is 32-year-old female with ASD with intellectual disability. She makes sweet cakes at a day care facility for people with intellectual disabilities. She gets stressed easily, worries about the tiny matters, and has a habit of muttering to herself. She is a gold medalist in the bowling competition at the National Sports Tournament for the Disabled. She is also good at painting, and her paintings were published in public relations magazines. She likes taking photos with her smartphone. She frequently exchanges emails with her mother and continues to swim and bowling so far.
- B. Mother of Case 1:** The case is 61-year-old female, who has thyroid disease and type 2 diabetes (T2D) with insulin administration. She has been a local government counselor for people with intellectual disabilities, and she has methodical, gentle and honest personality. She did not like to eat fruit before or during pregnancy. Her hobbies are watching movies and eating out.
- C. Case 2 (13M):** The patient is 13-year-old male with ASD and intellectual disability, who is learning in junior high school at a support school. He has suffered from allergic rhinitis, hypersensitivity, and flutters his palms when feeling not well. The problems include difficulty in holding concentration and in speaking words on unstable days. When he has panics, he tends to kick another people. He visits pediatric department for developmental disorder once every 6 months. He comes to speech treatment once a month, and music therapy session 3 times a month.

D. Mother of Case 2: The case is 43-years-old female. Since the spread of COVID-19 pandemic, she has been taking medication for enteritis due to irritable bowel syndrome (IBS). She receives osteopathic treatment twice a week. She doesn't like fruit and hasn't eaten much since before and during her pregnancy. She has been passive about friendships, and usually spend time at home. She has meticulous and serious personality, and becomes occasionally unstable and aggressive to other people.

Method

Music therapy session was performed for 40 min in a music room run by a registered music therapist (RMT).¹¹ During individual session, the client was listening to favorite music, and also provided Ayurvedic head massage for 10 min under the guidance of their mother. The study was conducted in January 2022 on a day that the school was off for 2 cases. Furthermore, adequate day was selected when the cases were in good physical condition.

German medical bioresonance measurement method has been known¹² and the name comes from bio + resonance, as every substance has its own unique frequency. It would be clear that human body also has its own unique fractions, such as organs. In 1976, German physicist Paul Schmidt developed a frequency measurement therapy device.¹³ Until now, Rayocomp has been used (Figure 1). It has been incorporated into many natural and alternative therapies as treatment in Germany. Furthermore, several treatment programs have been developed. Evaluation has been performed on a 6-level scales for the resonance reaction results. They are 1-2 with resonance, 3-6 without resonance, in which resonance reaction are 1: very good, 2: good, 3: mild, 4: moderate, 5: severe, 6: extremely. A normal value is 2 or less, and a high value indicates a frequency imbalance.



Figure 1 Wave measuring instrument. The standard apparatus "Rayocomp PS10".

As regards to measuring method, oral mucosa samples were collected before and after therapy and treatment. Measurements and resonance response evaluations were performed by Dr. Kitanishi. Test items for resonance reactions included autism, autonomic nervous system, and brain neurotransmitter hormones (dopamine, serotonin, oxytocin, acetylcholine, and GABA), based on past reports. Client's oral mucosa was collected by each mother in the waiting room, because clients may become emotionally unstable if performed by unknown staffs. Mothers collected oral mucosa samples themselves.

Questionnaire survey

For case 1 and 2, the following 6 items were evaluated. They are music instrument performance, head massage, oral mucosa

examination and feelings before the activity. Each feeling before and after the activity was evaluated as 3 level rating, that is poor, good, excellent.

For mothers of case 1 and 2, the following 5 items were evaluated. They are song, music instrument performance, head massage, oral mucosa examination and case concentration. Each feeling before and after all activities was evaluated as 3 level rating, that is poor, good, excellent.

Ethical considerations

Current investigation has been fundamentally conducted with Declaration of Helsinki. In addition, some commentary was present according to the Ethical Guidelines for Research for Humans, which was associated with Good Clinical Practice (GCP). Authors et al. have set the ethical committee for conducting ethical considerations. It was established in Kitanishi Medical Clinic including some professionals. They are the president, physician, pharmacist, head nurse, nutritionist and legal specialty personnel. The members discussed in the satisfactory manner, and reached the agreements for the current protocol. The informed consent was obtained from the case by the written document.

Clinical progress

1. Five different instruments were prepared and played for the preference of the client. Then, each client recognized the tones and tunes of the instrument (Figure 2a-e).
2. Registered music therapist (RMT) played the piano, where client and RMT sang the name song, together. Then, they selected their favorite instrument from a-e. By the introductory behavior of RMT, four subjects played the favorite instrument that they can feel comfortable.
3. RMT explained head massage using a stuffed doll, and adjusted the lighting in the room.
4. The clients sat in the armchair and listened to a CD recording of "Mom and Baby's Music Box. The favorite songs were chosen by Clients. Case 1 selected "Over the Rainbow, Beauty and Beast, It's a Small World". Case 2 selected "Mickey Mouse March, My Neighbor Totoro theme song, It's a Small World".
5. The mothers provided the clients Ayurvedic head massage. The details are shown below: i) it was applied to the head (from the front to the back) using cotton soaked with warmed sesame oil, ii) the practitioner applied sesame oil to her fingers and then used both fingers to massage the forehead, temple, and back of the head while tapping, iii) the practitioner massaged the neck, shoulders, and parotid glands, iv) the applied sesame oil was wiped off with a hot towel, and v) she warmed client's hands with a hot towel.
6. Clients, their mothers, and RMT played the finger cymbals together. This always means the closing greetings, it is done with the sound of an instrument rather than with words (Figure 2f).

Results

In this research, the results for case 1 and its mother are summarized in Figure 3. The remarkably improved areas include Dopamine, Oxytocin, and GABA in case 1. Similarly, Autonomic N. and dopamine showed remarkable improvement in the mother. Concerning these 7 factors, a tendency was observed toward the improvement when comparing before and after the intervention.

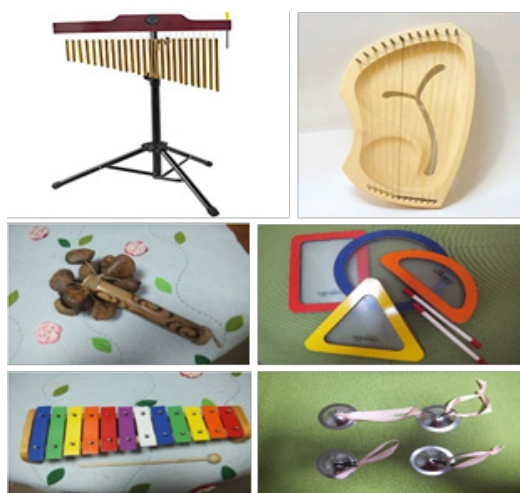


Figure 2 Musical instruments.
a. Wind chime b. Aurisliar c. Cya cya cya d. Sound shapes e. Mini metallophen f. Finger cymbals

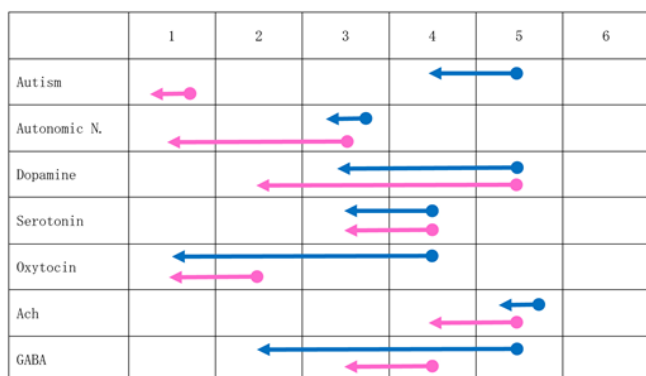


Figure 3 Changes in several biomarkers before and after the treatment.

Blue line: 32F (case 1).

Pink line: 61F (mother of case 1).

For the case 2, similar results were found in Figure 4. The remarkable improvement was found in serotonin, oxytocin and GABA. Similarly, the mother had improvement in Autonomic nerve and oxytocin. Both cases 1 and 2 showed remarkable improvement in Oxytocin and GABA.

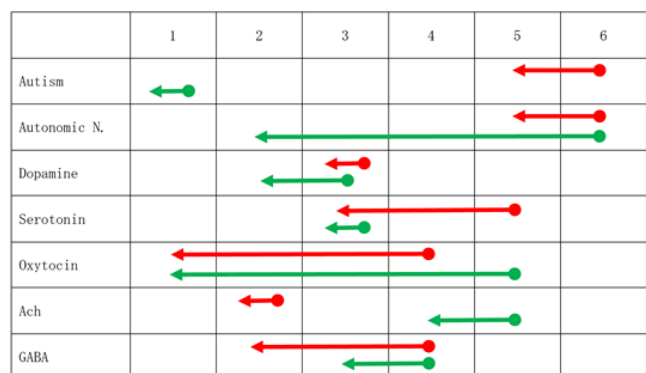


Figure 4 Changes in several biomarkers before and after the treatment.

Red line: 13M (case 2).

Green line: 43F (mother of case 2).

The data of the Questionnaire survey before and after the treatment were analyzed. The results showed that all items were excellent, which means satisfactory evaluation for case 1 and 2, and for mothers of case 1 and 2.

Discussion

In current study, multiple factors were involved in the process of the research. A relaxing environment was created through music therapy sessions and Ayurvedic practices.¹⁴ Furthermore, pre- and post-intervention evaluations were conducted using the bioresonance method.¹⁵ As to current study protocol, patients and their mothers showed no particular mental burden. ASD patients have some characteristic aspects that they feel stressful to experience something first time. Then, it seems to be appropriate for the mother to collect the oral mucosa. In addition, ASD patient may have a negative response to musical instrument activities due to hyperacusis. It brought smooth study process, in which ASD cases selected the instruments themselves after hearing the details from their mothers in advance.

The present results confirmed remarkable improvement changes in response to oxytocin in two patients with ASD. In addition, remarkable change was found in one of the 2 mothers. It is noteworthy that such marked improvements were found among 7 kinds of specimen in 3 out of 4 participants. Some reports were observed concerning ASD and oxytocin.¹⁶ Common variants of specific oxytocin-related genes (OTRGs) have been related with the etiology of ASD. From 15581 ASD cases and 3391 controls, ASD pathology was investigated. As a result, rare genetic OTRG variations were found for significant relationship with ASD etiology, in which the common order would be dnCNVs > ihCNVs > DNMs. Among all ASD probands, about 10-11% could be accounted for probands with rare disruptive variations.

What kind of treatments and actual responses have been applied for patients with ASD to date? The first-line treatments for ASD children would include educational and behavioral interventions, possible oxytocin benefit for changing social function.¹⁷ Further, oxytocin and serotonin would modulate neural function together,¹⁸ and intranasal oxytocin administration may improve social impairment in people with ASD.¹⁹

Research on intranasal oxytocin has received attention. Patients with ASD have sociocommunicational deficits for smooth verbal and non-verbal information. In order to examine whether oxytocin may have beneficial efficacy, intranasal oxytocin was studied compared with placebo group for totally 40 ASD male.²⁰ As a result, the former group showed significant positive difference for nonverbal information-based judgments (NVJs)(p=0.03), the response time for NVJs (p=0.02), and brain activity in the medial prefrontal cortex (P<0.001). Consequently, this neurobiological evidence indicated benefit of oxytocin on sociocommunicational deficits of ASD, leading to possible clarifying neurobiological mechanism. Various markers other than oxytocin have been reported. For research for ASD, 280 papers were analyzed from 940 biomarkers and 5799 various reports. Most common biomarkers included cytokines, neurotransmitters, growth factors, hormones and neurophysiology.²¹ Recently, several neuroendocrine factors or others may contribute clinical effect on ASD patients, such as microbiota, vasopressin, salivary oxytocin, supplement of Maca, and so on.²²⁻²⁵

In addition to music therapy, Ayurvedic head massage was also conducted, Four subjects felt relax, and it seemed to be effective. Concerning head massage by Ayurveda-based techniques, physical and psychological efficacy were investigated for 24 healthy females.²⁶ The protocol cited crossover design including intervention and

control groups. As a result, the value of parasympathetic nerve activity was elevated just after the treatment. Upon the treatment completion, the predominance tendency of parasympathetic nerve was gradually relieved. Consequently, head treatment relieved anxiety and boosted freshness. For children diagnosed with ASD, a systematic Àyurvedic treatment protocol was discussed.²⁷ Among them, not only the principle of Àyurvedic procedure, but also various approach for resolutions in the context of ASD children and their parents. It shows profound implications for integration of Àyurvedic medicines and related contemporary disorders.

There are some limitations in current report. The subjects include only 4 cases, and they received music therapy, Àyurvedic procedure and examination of bioresonance. Obtained results were satisfactory, suggesting clinical effect. However, not all related factors were not investigated. Then, follow up their clinical progress will be required with close attention.

In summary, two patients with ASD and their mothers have received combined procedure of music, Àyurvedic and bioresonance. Current study would be meaningful in the field of complementary and alternative medicine (CAM) or Integrative medicine (IM). This report will become hopefully useful reference in the clinical study and research in CAM.

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None.

Conflicts of interest

The authors declare no conflict of interest.

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