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Research Article

STUDIES OF *BRAHMI* BASED UNANI COMPOUND FORMULATION ON AUTISM TO ASSESS ITS EFFICACY

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ABSTRACT

Autism is most common neurodevelopmental disorder seen in pediatric population. The ratio of autism spectrum disorder nowadays increasing day by day according to Indian statistical data. In autism child generally have poor socialization, communication and speech issue which is normal in few months of the age and start regress in second years of life. In field of rehabilitation autism has better results by occupational therapy, speech therapy and early intervention. In this study we tried the *Centella asiatica* extract in form of *Brahmi* to treat many clinical symptoms such as cognition, poor attention span, hyperactivity, not responding name in autistic children. The outcome measure Childhood Autism Rating Scale and Vineland Social Maturity Scale were used for pre and post test assessment and after the statistical analysis the result suggested that experimental group have more significance result that is $p< 0.01$ in experimental group than control group that is $p<0.09$. It also suggested that score of CARS and VSMS show maximum change by employing *Brahmi* with other rehabilitation intervention in autistic kids.

KEYWORDS: Autism, Barcoppa, Cognition, Neurodevelopmental delayed.

INTRODUCTION

Autism in this era is the most common developmental disorder seen in pediatric population. It is associated with impaired both verbal and nonverbal communication, reciprocal social interactions poor interaction with peer groups, poor socialization, self-occupancy and poor social skills. In autism most children reach their development milestone according to their normal age and then regress[1]. Autism is caused by a combination of genetic and environmental factors[2]. According to diagnostic and statistical manual of mental health IV (DSM) autism comes under the autism spectrum disorders where there is lacks in cognitive and language development. According to statistical data of center for disease control and prevention (CDC), every one child has autism out of 68 children[3]. *Brahmi* is one of a group of plant extracts obtained from the plant: *Centella asiatica* (Linn.) Urban, which has been used extensively as memory enhancer and brain repairer by Ayurveda Physicians. It has a quality to regeneration and enhancement of brain repair. The name, *Brahmi*, is named after one of the highest states of consciousness (Brahman or God of consciousness), *Brahmi* (*Centella asiatica* or Gotu Kola) is one of the most powerful brain tonics in the Ayurvedic medicine. It supports restful sleep, calms emotional turbulence, and simultaneously improves concentration and alertness. In cognitive enhancement area specially in case of autism, these children have very good visual cognition seen in autism according to research by university Norkinptom, UK. This study is conducted on autism spectrum children for see the changes in their cognitive and quality of life by employing *Brahmi* medication.

Materials and methods

Subjects

Diagnosed cases of Autism spectrum disorders referred by clinical psychologist according to childhood rating scale (CARs), autism treatment evaluation checklist (ATEC) and Vinland social maturity scales (VSMS) were used by the clinical psychologist to diagnosed the case for *Brahami* treatment and on those subjects who comes under the norms of selection criteria. The inclusion criteria were Children diagnosed as Autism using the DSM IV or V Autism Criteria, certified to be in adequate healthy state by panel Pediatrician or Physician, age group 2 to 10 years and of either sex, well-educated parents who can understand the experimental nature of the study, and can give informed voluntary written permission for inclusion of their autistic child for this study. The exclusion criteria were as followed children having any genetic disabilities or cerebral palsy, insufficiency of liver / kidney / marrow functions as per appropriate biochemical tests, chronic uncontrolled illness that may need medical therapy which could interfere with diagnosis, treatment and assessment of the Autism symptoms.

Methods

Before recruiting the subjects inform consent form the parent of selected children were collected. The duration and process of *Brahmi* treatment explained to the parent whose children enrolled in the ongoing study. The duration of *Bhrami* medication was three month after enrollment of the subject in the study. All biochemical testing were performing to justify the normal health condition before starting the *Brahmi* treatment.

The composition of *Brahmi* medicines includes *Centella asiatica, Piper nigrum, Prunus amygdalus, Emblica officinalis*, phoenix dactylifera and delphinium denudatum wall which is already provided by CCRU to the UDAAN for the treatment purpose. Dose of the *Brahmi* medicine depends on the weight of per child which is shown as in table -1.

Table 1: Dosage of *Brahmi* according to weight of the child

S. No	Weight	Dose for *Brahmi*	
1	10-20Kg	2.5ml morning	2.5 ml evening
2	20-30Kg	2.5ml morning	5ml evening
3	30-40Kg	5ml morning	5ml evening
4	40-50Kg	5ml morning	7.5 ml evening
5	50-60Kg	7.5ml morning	7.5ml evening
6	Above 60Kg	10ml morning	10ml evening

In this study the subjects recruited between the age group 2 to 10 years proved to have autism according to criteria DSM-IV and CARS scoring. Total twenty subject who comes under the inclusion and exclusion criteria were divided into two groups named as Experimental group (EG) and control group (CG) for the *Brahmi* medication treatment. Before stating the *Brahmi* treatment pre assessment called pretest data and after the completion of 3 month *Brahmi* treatment called post assessment data were conducted to collect the data for statistical analysis using the following outcome measures such as Vineland Social Maturity Scale (VSMS) and Childhood Autism Rating Scale (CARS).

Outcome Measures

Childhood autism rating scale (CARs) and Vineland Social Maturity Scale (VSMS) were used as outcome measure for statistical analysis. CARs and VSMS both are the internationally approved scale for the assessment of level of autism and developmental component in neurodevelopmental disability.

In childhood autism rating scale (CARS) [4] is a 15 item behavioral rating scale developed to identify children with autism, and to distinguish them from developmentally handicapped children without the autism syndrome. CARS is especially effective in discriminating between autistic children and trainable mentally retarded children. It was designed to help differentiate children with autism from those with other developmental delays, such as intellectual disability.

Vineland Social Maturity Scale (VSMS) [5] is a uniquely useful instrument for assessing social maturity of children and young adults. It is used for measure many domains such as mental status social maturity and developmental milestone in may neurodevelopmental disorders such as cerebral palsy, down syndrome and autism.

RESULT

After the statistical data analysis using SPSS 20.0 (Armonk, NY, IBM Corp.USA) and Microsoft Excel 2010. The results show significant improvement in both the groups (CG and EG) as shown in table-2. The result also show more significant results in EG that is $p<0.01$as compare to CG that is $p<0.09$, where p-value of less that 0.05 is considered statistically significant.

Table-2. Descriptive Data of Control and Experimental Groups after Statistical Analysis

	Median		Mean ± SD			
	Pre	Post	Pre	Post	Mean Change	P-Value
Control Group	36.28	50.02	31.50±3.26	34.78±12.72	3.28	0.09
Experimental Group	33.56	46.5	31.50±2.52	19.79±17.91	11.71	0.01*

*p-value<0.05 is taken as significant

In EG mean change score are 11.71 as compare to CG that is 3.28 which also show significant changes in EG and shows that *Brahmi* medication with occupational therapy helps in improvement of social skill as well as cognitive changes in autistic children. It also suggested that the rate of progress of improvement can be improved by using *Brahmi* medication along with occupational therapy rather than only occupational therapy alone.

DISCUSSION AND CONCLUSION

Now a day study of natural and herbal products used in traditionally medicine increasing day by day. *Brahmi* is one of the herbal medicines which are more popular for cognitive enhancement [6] and coronary heart disease management[7]. If we talk about autism, these children have very good visual cognition but there is need to stimulate it in prospective and purposive manner. *Brahmi* medication has good results in cognitive enhancement in many diseases such as human memory [8-9]. We concluded that from our result *Brahmi* medication along with conservative treatment approached such as occupational therapy, play therapy and early intervention may enhances the rate of progress in quality of life (QOL) of autistic kids. In future this medicine can play important role to make these kinds in inclusion training schools also.

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