VACCINATION DILEMMA IN AUTISTIC SPECTRUM DISORDERS - SOCIOLOGICAL STUDY

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INTRODUCTION

Autism spectrum disorder is worryingly increasing its prevalence from year to year. As there were 1 in 5000 in 1980's years, in 2016 CDC claim to be a prevalence of 1 in 68 and still grows [1].

Autism is a neurodevelopmental disorder which affects a person's capacity to communicate and understand others. The main characteristics are: repetitive behaviours, narrow interests, difficulty making eye contact or holding a conversation, delay in speech or absence of speech, difficulty of executive functioning, poor motor and sensitive skills. It is important to know that if the child is receptive and has a good potential there are better chances of recovery as long as the diagnosis is made on the early childhood.

A study made by Hrdlicka and all in 2016 show that earlier diagnosis of ASD is associated with a higher parental education, but there were no statistical significance in the association with socioeconomic status. Mothers were more interested in seeking information on autism, but the number of sources of information that the access was not correlated with an early diagnosis [2].

The study which initiated controversy on the theme of vaccination was made by an English team and published in 1998 in The Lancet Publication, an article that was not peer reviewed, without a control group, which involved a lot of 12 children suffering chronic enterocolitis and an associated development disorder. The claim was that the Measles, Mumps and Rubella (MMR) Vaccine especially the anti-measles antigen caused mutations of the intestinal mucosa which creates the right conditions for the absorption of toxins that will influence the state of the immune system, affecting the brain and leading to the instalment of serious diseases, like autism. The original article was retracted by the publication in 2010 due to the fact that no following studies supported the claim [3].

OBJECTIVES

In this article, we propose to analyse the scientific literature in order to evaluate the perceived bound between autism and vaccination. There are more than 25 original and validated article made between 1990 and 2018 that show no evidence bound between autism and vaccination.

Also, we want to to evaluate parents' opinion about vaccination. We intend to analyse parents' level of concern about the adverse effects of vaccination / the refuse of vaccination. We focused on the link between the presence of a diagnosis of neurodevelopment disorder and the parents' decision regarding vaccination / revaccination, as well as the causal relationship between vaccination / non-vaccination and chronic diseases. We have also analysed the sources of information most frequently accessed by parents.

In order to conduct the study, we used a sociological questionnaire applied to parents between October 2017 and December 2017.

The questionnaire was applied to a group of 138 parents of children aged 2-17 years evaluated at the Psychiatric Clinic of Child and Adolescent within "Professor Doctor Alexandru Obregia" Clinical Psychiatry Hospital, Bucharest.

A questionnaire with 15 questions which contains informations about respondents, dichotomous questions, evaluation scales, single or multiple answer grid questions and open questions was applied. Statistical analysis of the data was carried out in the SPPS Program Version 20.

LITERATURE RESULTS

A case control study made on 25 children with autism and gastrointestinal disturbances and 13 children with gastrointestinal disturbances only in US undergoing ileocolonoscopy and harvest ileal and cecal tissue. Through reverve transcription PCR was observed if there is present MV-RNA in intestinal mucosa in three laboratories blinded to diagnosis. They wanted to see if there is a bound between the presence of MV in the children with ASD. The results show no modification in the mucosa of ASD children even though GI symptom associated with ASD is related with elevated rates of regression in language or other areas of functioning and the MMR vaccine timing [4].

Black C. et al. made a case control study on 96 children diagnosed with autism and 449 controls. No evidence was found that children with autism were more likely than children without autism to have had defined gastrointestinal disorders at any time before their diagnosis of autism [10].

A study that evaluated the link between psychiatric illnesses and vaccines made an electronically search using databases of Google Schoolar and Medline between May 1967 and May 2017. There was proved a safety profile of the immunogens and the adjuvants in humans. There was no link between Pervasive Developmental Disorders and Measles Mumps Rubella vaccine [5].

Even though there are a lot of studies who shows no link between vaccination and autism, many parents worldwide are afraid to vaccinate their children if they have relatives with autism. A study made by Drexel Autism Institute fallowed between 2001 and 2012 a cohort of 95727 children, in which 1929 children had an older sibling with Autism Spectrum Disorder proved once again there is no higher risk of autism occurring in children who have younger sibling with autistic spectrum disorder and undergo vaccination [6].

A meta-analysis that summarise the data from case-control and cohort studies on the topic of childhood vaccinations and development of autism proved once more that the components of the vaccines (mercury or thimerosal) are not associated with the development of autism spectrum disorder [8].

Demicheli V et al. reviewed 5 randomized controlled trials, 1 controlled clinical trial, 27 cohort studies, 17 case-control studies, 5 time-series trials, 1 case cross-over trial, 2 ecological studies, 6 and self-controlled case series studies involving in all about 14,700,000 children and assessing effectiveness and safety of MMR vaccine (2004-2011). The result shows that exposure to the MMR vaccine was unlikely to be associated with autism, asthma, leukaemia, hay fever, type 1 diabetes, gait disturbance, Crohn's disease, demyelinating diseases, bacterial or viral infections [9].

Kaye JA et al. analysed 305 children with autism. Because the incidence of autism among 2 to 5 year olds increased markedly among boys born in each year separately from 1988 to 1993 while MMR vaccine coverage was over 95% for successive annual birth cohorts, the data provide evidence that no correlation exists between the prevalence of MMR vaccination and the rapid increase in the risk of autism over time. The explanation

for the marked increase in risk of the diagnosis of autism in the past decade remains uncertain [13].

RESULTS

Most parents who responded to the questionnaire were in the age range of 31-40 years (53.6%) and were female (67.4%). The average age of the children was 7 years, and over half of the parents had more children than one (54.3%).

Among respondents, 73.2% had a child with autistic spectrum disorder. Parents of children with TSA are more statistically worried about the adverse effects of vaccination (p=0.006, Pearson Correlation r=0.234) (Table 1).

Regarding the lack of vaccination, more worried are those who do not have children with autism spectrum disorder, but the results are not statistically significant. We need to consider the fact that respondents

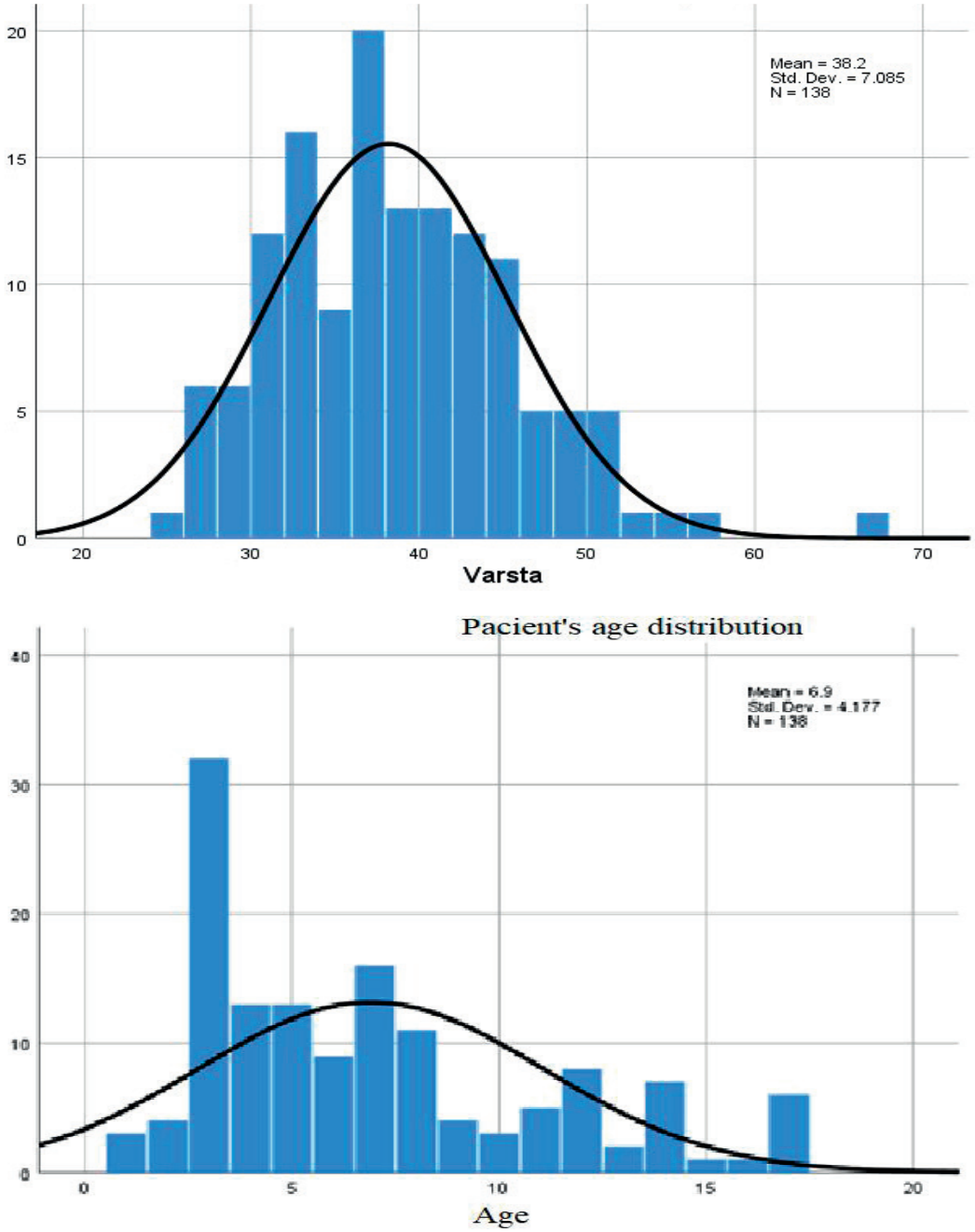

Figure 1: Pacients Age distribution

Table 1. The correlation about the adverse effects of vaccination

Correlations			
		Ea_vaccinare	TSA
Ea_vaccinare	Pearson Correlation	1	.234**
	Sig. (2-tailed)		.006
	N	138	138
TSA	Pearson Correlation	.234**	1
	Sig. (2-tailed)	.006	
	N	138	138
**. Correlation is significant at the 0.01 level (2-tailed).			

who have children without autistic spectrum disorder are 37 and those with children with autistic spectrum disorder are 101 (Chi Square Test) (Table 2). There is a negative correlation between the children's age and the level of concern regarding vaccination (p=0.501, Pearson Correlation r=-0.058).

The most worried parents seem to be those of the children between 2 and 10 years (Table 3).

Table 2. Chi Square Test

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	3.072[a]	1	.080	.112	.067
Continuity Correction[b]	2.057	1	.151		
Likelihood Ratio	3.850	1	.050	.079	.067
Fisher's Exact Test				.112	.067
N of Valid Cases	138				

Table 3. The correlation between the children's age and the level of concern regarding vaccination

Correlations			
		Ea_vaccinare	Varsta_grupe
Ea_vaccinare	Pearson Correlation	1	-.058
	Sig. (2-tailed)		.501
	N	138	138
Varsta_grupe	Pearson Correlation	-.058	1
	Sig. (2-tailed)	.501	
	N	138	138

Table 4. What influenced most your opinion about vaccination?

Sources of information	Doctor	Media	Child's disease	Other parents
Percent	58%	34.1%	13%	15.2%

At the question – "do you believe that chronic diseases are caused by vaccination?", 21.0% responded "don't know", 31.2% responded "yes" and 47.8% of them believe that autism is not cause by vaccines.

At the question – "From your point of view, what influenced most your opinion about vaccination?" with multiple answers, the most frequent answer was doctor's opinion (58%), followed by mass-media (34.1%), child's disease (13%) and other parents (15.2%) (Table 4).

CONCLUSIONS

In our study, Parents of children with Autism Spectrum Disorder (ASD) are statistically significantly more worried about vaccination than parents of children with other mental disorders. However, most of them would vaccinate again their children. Concern about the adverse effects of vaccination is increased and significantly higher among parents of children aged 2-10. Approximately 50% of parents believe vaccines do not cause chronic illness. The most common sources of information are doctors, followed by media channels. The last answer is quite surprising due to the urge of personal research on online resources that parents of the people with ASD seemed to have in literature reports [7].

The results of our study performed in the Psychiatric Clinic of Child and Adolescent are limited and cannot be extended on the larger populations.

We would like to carry out larger populational studies, even with control group, in order to obtain results with more statistical significance.

Effective control of information sources and the organization of information campaigns on vaccination is needed to reduce the high degree of confusion and misinformation among parents.

Due to the growing accessibility of information and the creation of an environment which facilitates the propagation of personal opinion, the number of publications without scientific basis has increased. Thus, it has become more and more difficult for people without medical studies to distinguish between scientific information and those that lack research.

There is an imperious need for awareness campaigns, supported by domain experts who can help parents to clarify their concerns and make decisions based on documented evidence.

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