

Prevalence of Medical Comorbidities in Adults with Autism Spectrum Disorder



Natascia Brondino, MD, PhD¹, Laura Fusar-Poli, MD, PhD², Emanuela Miceli, MD³, Michele Di Stefano, MD³, Stefano Damiani, MD¹, Matteo Rocchetti, MD¹, and Pierluigi Politi, MD, PhD¹

¹Department of Brain and Behavioral Sciences, University of Pavia, Pavia, Italy; ²Department of Clinical and Experimental Medicine, Psychiatry Unit, University of Catania, Catania, Italy; ³Department of Internal Medicine, IRCCS San Matteo Hospital Foundation, University of Pavia, Pavia, Italy.

KEY WORDS: medical comorbidity; prevalence; autism spectrum disorder; physical examination.

J Gen Intern Med 34(10):1992–4
DOI: 10.1007/s11606-019-05071-x
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INTRODUCTION

Autism spectrum disorder (ASD) is characterized by difficulties in socioemotional reciprocity and communication.¹ Impairments in communication represent an important obstacle when clinicians are confronted with the challenge of diagnosing comorbidities in ASD. In fact, nonverbal or minimally verbal individuals with ASD could have difficulties in communicating symptoms, and problem behaviors, such as self-injury or aggression, could be sometimes the only manifestation of an underlying medical problem. Additionally, due to sensory impairment or refusal to initiate requested tasks, noncompliance to medical examination (i.e., palpation or auscultation) or different types of medical procedure (i.e., MRI, venipuncture) is extremely common.² These difficulties may result in important unmet medical needs in this population. Only one study³ has actually investigated the presence of medical comorbidities in adult with ASD, while the others have relied on patient/caregiver survey or medical charts/registers. The aim of the present study is to evaluate medical comorbidities in a sample of adults with ASD.

METHODS

This is a cross-sectional observational study performed at the Autism Laboratory of the University of Pavia, Italy, between January 2013 and January 2018. Individuals were considered eligible if they had a diagnosis of ASD performed in the past or during the current assessment. Level of severity for each of the two main criteria of DSM 5 was attributed to each subject. Medical history was recorded, and each reported diagnosis (i.e., allergic reactions, metabolic disorders) was reinvestigated to obtain a clinical confirmation. Congenital diseases for which appropriate documentation and genetic testing were provided

were not reinvestigated. Additionally, each patient underwent a complete neurological and physical evaluation. Each observed sign or symptom was subsequently investigated by specific instrumental testing or by referral to the appropriate medical specialist. Blood tests were prescribed if performed more than 6 months before evaluation. All comorbidities were classified according to the ICD-10 system.

RESULTS

During the study period, 191 subjects received a diagnosis of ASD and were included in the study (Table 1). Presence of at least one medical comorbidity was observed in 114 subjects (59.7%). The number of comorbidities per subject varied from one to four (Table 2). Overall, epilepsy is the most represented medical condition ($n = 29$, 15.18%), followed by allergic rhinitis ($n = 17$, 8.9%) and irritable bowel syndrome ($n = 13$, 6.8%).

Presence of medical conditions was not different between men and women ($\chi^2 = 0.17$, $p = 0.68$). Patients with ASD and

Table 1 General Characteristics of the Study Sample ($n = 191$)

Variables	Mean \pm SD or n , %
Age (years)	24.04 \pm 8.36
Gender, male	144, 75.4%
Cognitive impairment	80, 41.9%
ASD DSM 5 severity	
Level 1	43, 22.5%
Level 2	76, 39.8%
Level 3	72, 37.7%
Familiar history of ASD	5, 2.6%
Familiar history of psychiatric disorders	27, 14.1%
Marital status	
Single	182, 95.3%
Married	5, 2.6%
Separated/divorced	4, 2.1%
Employment status	
Unemployed	111, 58.1%
Student	59, 30.9%
Employed	12, 6.3%
Sheltered job	9, 4.7%
Current use of psychotropic medication	108, 56.5%
Antipsychotic	71, 37.2%
Antidepressant	39, 15.7%
Antiepileptic/mood stabilizers	44, 23%
Benzodiazepine	29, 15.2%

Published online May 29, 2019

Table 2 Type of Medical Comorbidities

Type of condition	n
Certain infectious and parasitic diseases	1
Chronic viral hepatitis C	1
Neoplasms	6
Myeloid leukemia, remitted status	1
Stomach cancer	1
Breast cancer, remitted status	1
Meningioma	1
Benign neoplasm of brain, supratentorial occipital	1
Essential thrombocythemia	1
Diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism	2
Hereditary deficiency of factor V	1
Iron deficiency anemia	1
Endocrine, nutritional, and metabolic diseases	20
Nontoxic multinodular goiter	1
Autoimmune thyroiditis	1
Hypothyroidism, unspecified	2
Type 2 diabetes mellitus	1
Obesity	11
Hyperhomocysteinemia	2
Polycystic ovarian syndrome	2
Diseases of the nervous system	40
Epilepsy	29
Migraine	3
Other headache syndromes	3
Disorder of trigeminal nerve, unspecified	1
Late-onset cerebellar ataxia	1
Cataplexy	1
Spastic paraplegia	2
Diseases of the eye and adnexa	5
Keratoconus	2
Blindness, binocular	1
Hemianopsia	1
Convergent concomitant strabismus	1
Diseases of the ear and mastoid process	3
Conductive hearing loss, bilateral	1
Hearing loss, unspecified	1
Benign paroxysmal vertigo	1
Diseases of the circulatory system	9
Essential (primary) hypertension	1
Orthostatic hypotension	1
Varicose veins of lower extremities	2
Aortic aneurysm of the bulb, without rupture	1
Mitral (valve) prolapse	1
Long QT syndrome	1
Supraventricular paroxysmal tachycardia	1
Raynaud syndrome	1
Diseases of the respiratory system	19
Chronic asthmatic bronchitis	2
Allergic rhinitis due to pollen	13
Allergic rhinitis to animal	4
Diseases of the digestive system	38
Constipation	12
Irritable bowel syndrome	13
Gastroesophageal reflux disease	3
Esophagitis	1
Eosinophilic gastroenteritis	1
Perianal abscess	1
Microscopic colitis	1
Achalasia of cardia	1
Nonalcoholic fatty liver disease	2
Solitary ulcer of anus	1
Gluten sensitivity	1
Allergic gastroenteritis	1
Diseases of the skin and subcutaneous tissue	10
Lichen sclerosus et atrophicus	2
Alopecia universalis	1
Psoriasis	1
Atopic dermatitis	3
Seborrhoeic dermatitis	1
Hypertrichosis	1
Pilonidal cyst	1
Diseases of the musculoskeletal system and connective tissue	10
Systemic lupus erythematosus	1

(continued on next page)

Table 2. (continued)

Type of condition	n
Scoliosis	4
Osteoporosis without pathological fracture	1
Flat foot	1
Lumbago due to displacement of intervertebral disc	1
Radial styloid tenosynovitis (de Quervain)	1
Scheuermann's disease (juvenile kyphosis)	1
Diseases of the genitourinary system	6
Chronic kidney disease	1
Calculus of kidney	1
Vesicoureteral reflux-associated uropathy	1
Recurrent and persistent hematuria	1
Hydrocele	1
Endometriosis	1
Congenital malformations, deformations, and chromosomal abnormalities	10
Rieger anomaly	1
Arteriovenous malformation of cerebral vessels	1
Tuberous sclerosis	2
Ulerythema ophryogenes	1
Multiple congenital exostoses	1
Ehlers-Danlos syndrome	1
Accessory toe	1
Renal hypoplasia, unilateral	1
Klippel-Trénaunay-Weber syndrome	1
Symptoms, signs, and abnormal clinical and laboratory findings, not elsewhere classified	3
Sinusal tachycardia	2
Isolated hyperCKemia	1

ID displayed more frequently medical comorbidities (71.3% vs 52.3%, $\chi^2 = 6.93$, $p = 0.01$). Additionally, ASD individuals taking psychotropic medications were more likely to have medical conditions compared with ASD individuals not taking medications (72.0% vs 43.8%, $\chi^2 = 15.17$, $p < 0.001$). There was a positive correlation between the number of medical comorbidities and age ($\rho = 0.17$, $p = 0.02$) and DSM 5-rated severity of ASD ($\rho = 0.27$, $p < 0.001$).

DISCUSSION

Our study showed a complex picture of medical comorbidities in ASD. Prevalence rate of epilepsy was higher in our sample compared with that in general population (15.18% vs 7.9%), but in line with data from the adult ASD population.⁴ Prevalence of allergic rhinitis was low compared with that in the Italian population (8.9 vs 15–25%) and that in an autistic sample (16%).⁵ As people with ASD were examined throughout different years and seasons, it is possible that we have underestimated the true prevalence of seasonal allergic rhinitis.

Our findings did not report significant sex differences in accord with a previous investigation.⁴ The same report⁴ showed a reduction in the rate of comorbidities with aging, in contrast with our results. However, Supekar mainly investigated medical conditions typical of childhood and did not consider metabolic disorders which may appear later in life.

Subjects with ASD and comorbid ID presented a higher rate of medical comorbidities. This could be related to the higher health risk burden of people with ID in general.⁶

This is the first comorbidity study based on direct observation and examination of patients by experienced clinicians. Additionally, this is the first study to actually screen for a variety of medical comorbidities in adults with ASD, which represent an understudied population.

In conclusion, people with ASD presented a mixed pattern of medical comorbidities. Physicians caring for adults with ASD should be aware of the possible presence of comorbid conditions, which could go unnoticed given the communication impairment inherent to ASD.

Corresponding Author: *Natascia Brondino, MD, PhD; Department of Brain and Behavioral Sciences University of Pavia, Pavia, Italy (e-mail: natascia.brondino@unipv.it).*

Compliance with Ethical Standards:

Conflict of Interest: *The authors declare that they do not have a conflict of interest.*

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