Autism

Name

Institution

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Introduction

Autism is a growing developmental disorder prevalent among children with recent global statistics indicating that one in every 88 youngsters has the condition. Individuals suffering from this ailment show repetitive movements with prevalent communication and social impairments. The increasing reports of autism cases strain the health sector in the provision of expected prevention and intervention solutions. The outcomes of this condition include abnormalities that alter the normal functioning of essential systems in the body. Autism affects various body functional structures including the metabolic, immunological, mitochondrial, gastrointestinal and the neurological systems.

Identification and modeling of systems that are influenced by autism set a new therapeutic process that reduces the impact and upgrades the quality of life for individuals living with the condition. Mumrper and Cook (2015) point out that oxidative stress, inflammation, immune and mitochondria dysfunctions are the primary causes of autism through the impact of these aspects on the body cells. The purpose of the paper is to discuss various systems impacted by autism and reviewing relevant biological research areas that approves how and why the condition is prevalent among the modern young population. Further, the techniques to address the dysfunctional conditions caused by autism will also be discussed.

Level 1 Question: Body Systems Affected by Autism

Autism is a behavioral disorder that causes impairments in social judgment, movements, and challenges in achieving effective communication. In the recent past autism was considered to be a neurological disorder. However, with increasing theoretical and educational evidence, the disorder is confirmed to influence multiple body systems. Some of the essential functional areas that are

profoundly impacted by the condition include metabolic, gastrointestinal, immunological, mitochondrial and neurological systems. The metabolic network is affected based on the genetic component within a family line.

The combination of high-frequency genes slows the cognitive development in the body resulting in the autism disorder (Mumrper and Cook, 2015). The genetic variants within the metabolic functionality create a high probability of contracting autism. However, the single genetic structure is not part of etiology of the condition with a permutation of the environment and genetic elements remaining as the principal causative factor. The variants in the genetic structure that increase autism rates are highly interlinked to the metabolism reactions rather than the brain structure. The mitochondrial system is subjectively responsible for energy synthesis by converting energy into the adenosine triphosphate from carbohydrates and other fats.

The mitochondria disease linkable to autism condition develops from multiple disorders such as encephalomyopathy and hypotonia as well as endocrine, cardiomyopathy and different respiratory defects. The autism disorder is common in a young population that suffers from any condition related to mitochondrial condition inherited from the parent genes (Griffiths and Levy, 2017). The slowed energy synthesis in the mitochondrial system affects brain coordination which has demands of energy to neutralize free radicals for normal body functioning. On the other hand, there is a strong correlation between immune system failure and children with autism. The imbalance of impervious system cytokines and body cells are also common in autistic adult's body defense structure.

Clinical examinations present various possibilities in the immune system that lead to autistic conditions. For instance, poor immune regulation results in a continuous inflation of brain cells and blood vessels supplying the organ. The tumor that grows leads to psychiatric diseases such as schizophrenia, Alzheimer, depression, and bipolar conditions. The ailments are directly correlated to

the abnormal immune functioning and critical autistic symptoms such as deficits in speech, mood, and social interactions. The gastrointestinal system disease affects up to 80 percent of autistic individuals. The increased intestinal permeability in autistic patients prompts bowel dysfunctions (Wasilewska and Klukowski, 2015). Large molecules that generally remain within the gut lining are absorbed into the bloodstream. The absorbed substances result in a high concentration of oxalate for autistic patients due to an abnormality in the absorption process.

The mental coordination has a direct effect on the functionality of the gut which triggers the recurrence of the irritable bowel syndrome when inflammation occurs during the normal absorption of vital substances. The anatomical variation of the brain is considered the main system that supports the development of autism and related conditions. For autistic victims, a decrease in the Purkinje fibers and granular brain cells is frequent. A general upward brain size with the variant cells grows from the disproportionate white matter enlargement within the autistic body system. The expansion reduces connectivity in the autistic brain which creates problems in excess brain activity through increased synthesis of information.

Level 2 Question: How Body Systems are affected by Autism

Frye (2015) asserts that the rates of the autistic condition on the major body systems continue to rise every year due to inadequate preventive measures, change in lifestyles, and the psychological, emotional, and social disorder in addition to the environmental aspects. The impact of body systems by autistic conditions is facilitated by the various etiologies of the ailment. According to Wasilewska and Klukowski (2015), autism affects body systems to different extents. Immunity is vital in determining the systems that are susceptible to autistic. Similarly, an autistic condition in neurological aspect is unique in that some kids are born with a healthy brain which later on suffers a regress.

Despite the challenging approach while reviewing the impact of autism, the five major body systems affected by the condition have a close functional interdependence. Mumrper and Cook (2015) establish that metabolic system is affected by autism through genetic variants and oxidative stress. Psychological studies on etiology of autism in metabolic system stem from a combination of various high genes. Studies on the biological twins prove that the rate of having autism have a concordance of 0-10 percent for dizygotic and 70-90 percent for the monozygotic (Frye, 2015). The outcome establishes that autism has a likelihood of impacting metabolic system for children born as identical twins.

The oxidative stress emanates from the poor ability of the body to neutralize reactive oxygen species (ROS) and reactive nitrogen species (RNS). The defect affects metabolism, mitochondrial, neurological, and gastrointestinal systems. According to Griffiths and Levy (2017), with the requirement for more energy to grow, the stress destroys the brain coordinative system creating an avenue for children to contract schizophrenia and bipolar disorder. The autistic impact on mitochondria system is supported by the Mitochondrial DNA (mtDNA) mutations. Children with the autistic condition suffer from the mitochondria dysfunction and lower the vital energy generation required in the brain. The regeneration of the condition is inherited from an autistic mother to the fetus as mitochondrial functional cells are encoded by a nuclear DNA.

On the other hand, gastrointestinal (GI) system dysfunction among the autistic varies with 80 percent of patients with autism having the problem. Wasilewska and Klukowski (2015) add that the inflammatory bowel disease that affects the gastrointestinal system increases the permeability of the autistic patients. Reports on the assessment of children with autistic condition in the United States indicate that over 20 percent of the population has intestinal permeability conditions. The neurological system supports the brain system functions from where autism initially develops.

Minicolumns in the brain structure are vital units of cognition. Over 20 percent of individuals with autism condition have a narrower Minicolumns in the brain.

A theoretical assumption by psychological scientists' sets three autopsies in which autism is assumed to affect cognitive normality of engineers, mathematicians and physicists' families. The aspect creates controversy and discriminative assessment as metabolic functioning ascertains variants in the genetic system as the main source of autism (Frye, 2015). Therefore, the assessment on the impact of autism in the five major body systems is an overall focus on some issues and total neglect of other traits. The general justification of the disorder must exist to prove that every system is uniquely affected by autism.

Conclusion

The effects of autism on metabolic, immunological, mitochondrial, and gastrointestinal and neurological body systems have the capability of paralyzing the whole human system. The prevalence of this condition in the identified systems stems from the genetic and environmental etiologies. The genetic variant common in the metabolic system for autistic patients threatens the general population as it's encoded in the DNA nuclear. Conclusively, autism affects different body systems with the neurological coordination considered the main system whose functioning is adequately paralyzed. The combination of genetic variants, psychological disorders, oxidative stress, biological factors, and dysfunction of the human organs represent the explanations on how autism affects the body systems.

References

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