Introduction

- According to the American Psychiatric Association, autism spectrum disorder (ASD) is a complex developmental condition that involves persistent challenges in social interaction, speech and nonverbal communication, and restricted/repetitive behaviors. The expression of ASD and the severity of symptoms are different in each person [1,2].
- According to Centers for Disease Control and Prevention (CDC, 2014), about 1 in 59 children in USA have been identified with ASD [3].
- Children with ASD often have digestive problems and significant nutritional deficiencies [4]. In several nutritional and dietary intervention studies, it has been demonstrated that, by addressing underlying digestive conditions, one can alleviate expression of some autistic symptoms [5].

Aim

Objective of the study was to investigate the potential of low carbohydrate diet (SCD/GAPS) and supplements in reducing some autistic spectrum disorder (ASD) symptoms in children.

Methods

- A prospective qualitative case-control 3-month interventional study of nutritional and dietary treatment
- 17 children from Latvia and UK with ASD (diagnosed or not)
- The intervention - a low carbohydrate diet plan - Specific Carbohydrate Diet / Gut and Psychology Syndrome diet (SCD/GAPS) - and a few nutritional supplements (ω-3 fatty acids, acetyl L-carnitine, probiotics, vitamin D, vitamin C)
- An ABC score decreased by 29%
- The Gluten-Free / Casein-Free diet (GF/CF) is the most frequently used dietary intervention for ASD [6].
- Low carbohydrate diet has not been extensively studied in regard to ASD, and its potential in reducing ASD symptoms in children is explored in this study.

Results

Gastrointestinal symptoms (6-GSI)

- Constipation, diarrhea, bloating, abdominal pain, consistency and smell of feces were evaluated by parents three times during the study
- Almost all children (15 out of 17) had gastrointestinal symptoms – flatulence, constipation, unformed stools, abdominal pain
- Gastrointestinal symptoms improved in both groups, especially, abdominal pain and bloating

Comparison between groups

- Intervention group showed 13% improvement in each symptom in the intervention group compared to the control group

Autism Treatment Evaluation Checklist (ATEC)

- Four subscales of symptoms were evaluated by parents at the beginning and end of the study
- Speech / Communication
- Sociability
- Sensory / Cognitive Awareness
- Health / Physical Behaviour
- By the end of the study, overall ATEC score decreased by 23% in the intervention group, with the largest improvement in Socialising and Health/Behaviour symptom subgroups
- Intervention group showed 13-43% improvement during the study period (3 months)

Conclusions

- The study confirmed that SCD/GAPS diet, complemented with vitamins/minerals, can improve behaviour, reduce hyperactivity and sensory sensitivity, and improve speech perception/understanding and socialisation of children with ASD
- SCD/GAPS diet and the use of recommended vitamins/supplements could be a safe and effective approach to help reduce some symptoms of children with ASD

References

5. J.B. Adams et al., Nutrients 2018, 10 (3), 369

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- Lotus Pharma (Latvia) for providing Vitamin C
- Innopharma (Denmark) and Vesellia Pharma (Latvia) for providing Vitamin D3

New Carbohydrate Diet (SCD/GAPS) for Children with Autistic Spectrum Disorder

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Parent Global Impressions (PGI-2)

- Parents reported 40-80% compliance with SCD/GAPS dietary guidelines
- Overall PGI-2 evaluation showed 43 % improvement in the Intervention group in comparison to the Control group (14 %)

Improvement

- Overall the Intervention group showed 13-43 % improvement during the study period (3 months)

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Aberrant Behaviour Checklist (ABC)

- Five subscales of symptoms were evaluated by parents at the beginning and end of the study
- Irritability
- Lethargy
- Stereotypy
- Hyperactivity
- Inappropriate speech
- ABC score decreased by 29% in the Intervention group, with the largest improvement in the Irritability and Hyperactivity subgroups

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