LETTER TO THE EDITOR

LIST DO REDAKCJI

CHATGPT-ASSISTED INTRODUCTION OF EXERCISE ADVICE TO PATIENTS WITH PHENYLKETONURIA: RESTRICTIONS AND ADVANTAGES

WPROWADZENIE PORAD WSPOMAGANYCH PRZEZ CHATGPT DOTYCZĄCYCH ĆWICZEŃ FIZYCZNYCH DLA PACJENTÓW Z FENYLOKETONURIĄ: OGRANICZENIA I KORZYŚCI

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Dear Editor,

Phenylketonuria (PKU), the inborn error in amino-acid metabolism, is one of the consanguineous marriage-related prevalent disorders. It is a genetic defect in the capability of the body to metabolize the essential amino acid, phenylalanine (Phe). Accumulated levels of Phe cause neurological complications, intellectual disabilities, anxiety/depression, and/or executive functioning defects/deficits [1].

Exercise is very important for a healthy lifestyle, especially in PKU patients who are advised to be included in a regular exercise program (to limit PKU-related complications) in

line with diet recommendations (reduced consumption of natural protein and Phe-containing food in addition to restitution with protein supplements) [2].

Lifestyle modification programs are recommended for patients suffering from chronic diseases [3], including PKU. These lifestyle recommendations may be suitable for all PKU patients. Artificial intelligence (AI) tools, especially ChatGPT (a prevalent language-model Internet program that processes a person's natural language-like inquiries and generates AI-based responses that resemble human responses in the field of healthcare) [4,5], are technology-based programs assisting in introducing exercise advice to PKU patients.

The main advantage of ChatGPT is its assistance in introducing exercise advice according to every patient's medical/lifestyle history, basic (demographic) characteristics, and psychological condition. Also, besides its ability to identify or anticipate complications such as cardiovascular, muscular, or neurological complications and how to reduce them, another advantage of this AI-based program is its ability to track patients' progress over time in addition to adjusting exercise recommendations as possible.

However, other restrictions or concerns may limit its use by patients, such as the ethical implications of recommending exercise advice to patients without the supervision of healthcare professionals, the probability of falsely introduced exercise advice, the confidentiality of PKU patients' data, and possibilities for hacks of patients' data which must be solved by computer engineers to improve privacy and security concerns of ChatGPT. Future research is important to detect the ChatGPT program's strengths and limitations in assisting or introducing a piece of exercise advice to PKU patients.

References:

1. Afifi ZEM, Seddik SA, Eldaleel MMA, Abd El Fatah SAM. Quality of life of children with phenylketonuria at primary health care center in Cairo Egypt: an exploratory cross-sectional study. Vulnerable Children and Youth Studies. 2023; 18(2): 282-297. https://doi.org/10.1080/17450128.2022.2129120

2. González-Lamuño D, Morencos C, Arrieta FJ, Venegas E, Vicente-Rodríguez G, Casajús JA, et al. Supplementation for performance and health in patients with phenylketonuria: an exercise-based approach to improving dietary adherence. Nutrients. 2024; 16: 639. https://doi.org/10.3390/nu16050639

3. Ismail AM. Is there an effect of lifestyle changes (exercise and diet control) on the suggested connection between dry eye syndrome and psoriasis?. Health Prob Civil. Forthcoming 2024. https://doi.org/10.5114/hpc.2024.140002

4. Ismail AMA. ChatGPT: an expected excellent future technology in enhancing patient care education and physiotherapists' continuous training. Eur J Physiother. 2024; 26(1): 62-63. https://doi.org/10.1080/21679169.2023.2230245

5. Ismail AMA. Chat GPT in tailoring individualized lifestyle-modification programs in metabolic syndrome: potentials and difficulties?. Ann Biomed Eng. 2023; 51(12): 2634-2635. https://doi.org/10.1007/s10439-023-03279-x