Abstract

The Effect of Artificial Intelligence on the Nutritional Status of Children After Cardiac Surgery: Randomized Controlled Trial

Maryam Zahid; Ume Sughra

Al Shifa Eye Trust Hospital, Rawalpindi, Pakistan

Corresponding Author:
Maryam Zahid
Al Shifa Eye Trust Hospital
GT Road near ayub Park Rawalpindi
Rawalpindi
Pakistan
Phone: 92 3314689492
Email: maryamzahid343@gmail.com

Abstract

Background: Malnutrition is the most common problem in congenital heart disease patients. Health-based mobile apps play an important role in the planning and tracking of diet for better nutritional status.

Objective: The aim of this paper was to assess the effect of artificial intelligence on the nutritional status of children after cardiac surgery in comparison to the usual care group. We also aimed to assess the usefulness of a diet-related mobile app in comparison to the usual care group.

Methods: This is a two-arm randomized controlled trial, which was conducted at a tertiary care hospital, Rawalpindi. The study duration was 6 months from February 2021 until July 2021. The sample size was calculated to be 88. The intervention group was given a diet-related mobile app, and the usual care group was handed a pamphlet with diet instructions on discharge.

Results: The mean weight of all participants was 15 (SD 5.7) kg at the time of discharge. However, at the end of the 8th week, the mean weight of the participants in the usual care group was 16.5 (SD 7.2) kg and that of the intervention group was 17.1 (SD 5) kg. The average calories consumed by the usual care group was 972 (SD 252) kcal and 1000.75 (SD 210) kcal by the intervention group after 8 weeks of discharge. The average proteins consumed by the usual care group was 34.3 (SD 12.5) grams and 39 (SD 6.4) grams by the intervention group after 8 weeks of discharge. At the end of the intervention, the preferred diet planning tool for 79% of the participants was mobile app. At the 8th week, 93% of the participants considered the visual cues useful, 80% thought that the mobile app's language was understandable, 79% thought nutritional goal setting is a useful feature in the mobile app, and 55% thought the recipes provided in the app were useful.

Conclusions: This study showed strength for the future of scalable modern technology for self-nutrition monitoring. There was a slight increase in the weight and nutritional intake of both groups, as the intervention period was limited.

Trial Registration: ClinicalTrials.gov NCT04782635; https://www.clinicaltrials.gov/ct2/show/NCT04782635

(iproc 2022;8(1):e36480) doi: 10.2196/36480

KEYWORDS

artificial intelligence; diet-related mobile app; nutritional status; children; post-cardiac surgery; randomized controlled trial

Edited by Y Khader; this is a non–peer-reviewed article. Submitted 16.01.22; accepted 19.01.22; published 04.02.22.

Please cite as:
Zahid M, Sughra U
The Effect of Artificial Intelligence on the Nutritional Status of Children After Cardiac Surgery: Randomized Controlled Trial
iproc 2022;8(1):e36480
URL: https://www.iproc.org/2022/1/e36480
doi: 10.2196/36480
PMID:

XSL•FO
RenderX

©Maryam Zahid, Ume Sughra. Originally published in Iproceedings (https://www.iproc.org), 04.02.2022. This is an open-access article distributed under the terms of the Creative Commons Attribution License (https://creativecommons.org/licenses/by/4.0/), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work, first published in Iproceedings, is properly cited. The complete bibliographic information, a link to the original publication on https://www.iproc.org/, as well as this copyright and license information must be included.

XSL•FO
RenderX