

Tailored Dietary Approach for Individuals With Migraine

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Objectives: We examined the therapeutic potential of the Lifestyle Eating and Performance (LEAP) program to improve global symptom scores for frequency and severity in individuals with migraine.

Methods: The retrospective study analyzed de-identified data from individuals (n = 40) suffering from migraine counseled by dietitians in private practices. The LEAP program is based on the oligoantigenic diet principles and is built on selecting less immune reactive foods and chemicals from the Leukocyte Activation Assay-MRT (LAA-MRT) blood results. The LAA-MRT was conducted using Flow Cytometry Systems to characterize and quantify the volumetric change in each white blood cells population after being challenged and incubated with 150 food and chemical antigens. BMI was calculated as weight in kg/height in m². A global symptom survey was used to evaluate the frequency and severity of 13 domains of symptoms. The survey was quantified on a scale of 0 - 4, ranging from 0 to 248 points, with a higher score signifying a less desirable health state. Descriptive statistics and linear mixed models were performed using the SPSS V25.0. The study

received approval from an independent Institutional Review Board (IRB).

Results: Thirty-five (87.5%) were female, had a mean age 42.1 ± 11.3 years, and a BMI of 28.2 ± 7.3 kg/m². The average follow-up time seen by the dietitians was 82.3 ± 71.0 days. Linear mixed models showed a significant decrease in mean (standard error) overall global symptom scores pre- versus post-intervention (72.1 ± 4.5 vs. 31.5 ± 4.5 , $P < 0.001$) and for each of the 13 domains [constitutional (10.1 ± 0.7 vs. 4.9 ± 0.6 , $P < 0.001$); emotional/mental (9.5 ± 0.8 vs. 4.7 ± 0.7 , $P < 0.001$); head/ears (5.2 ± 0.5 vs. 2.1 ± 0.3 , $P < 0.001$); skin (2.9 ± 0.4 vs. 1.4 ± 0.3 , $P = 0.002$); nasal/sinus (6.4 ± 0.8 vs. 2.5 ± 0.4 , $P < 0.001$); mouth/throat (3.2 ± 0.5 vs. 1.1 ± 0.3 , $P < 0.001$); lungs (1.9 ± 0.4 vs. 0.8 ± 0.2 , $P = 0.020$); eyes (4.3 ± 0.5 vs. 1.9 ± 0.4 , $P < 0.001$); genitourinary (1.3 ± 0.3 vs. 0.6 ± 0.1 , $P = 0.013$); musculoskeletal (8.0 ± 0.8 vs. 3.9 ± 0.6 , $P < 0.001$); cardiovascular (1.1 ± 0.7 vs. 0.4 ± 0.1 , $P < 0.001$); digestive (12.4 ± 1.2 vs. $5.3 \pm .9$, $P < 0.001$); and weight management (5.5 ± 0.7 vs. 1.8 ± 0.3 , $P < 0.001$)].

Conclusions: The findings from this study highlight the role of LEAP program as a tailored dietary approach that alleviated overall symptoms in individuals with migraine.

Funding Sources: Oxford Biomedical Technologies, Inc.

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Abstract Presentation Number: P17-011-21

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BACKGROUND

- Migraine is a disabling disorder and burden of public health in the United States and is a condition that reduces individual's health-related quality of life.
- Existing pharmacologic therapy for migraine is far from ideal with poor adherence and overuse, elevated cost, and side effects.
- Food and food chemicals have been demonstrated as triggers for migraines.
- Furthermore, migraine episodes are influenced by gastrointestinal clinical symptoms and frequency.
- Diagnosis of food hypersensitivity and implementation of elimination diets based on documented oral food challenges are troublesome, time-consuming, and complicated for patients and health care providers.
- Identification of specific foods and food components that impact migraine activation continues to be one of the most elusive areas of migraine management.

OBJECTIVE

- We examined the therapeutic potential of the Lifestyle Eating and Performance (LEAP) program to improve global symptom scores for frequency and severity in individuals with migraine.

METHODS

- The retrospective study analyzed de-identified data from individuals (n=40) suffering from migraine counseled by dietitians in private practices.
- The LEAP program is based on the oligoantigenic diet principles and is built on selecting less immune reactive foods and chemicals from the Leukocyte Activation Assay-MRT (LAA-MRT) blood results.

METHODS (cont'd)

- The LAA-MRT was conducted using Flow Cytometry Systems to characterize and quantify the volumetric change in each white blood cells population after being challenged and incubated with 150 food and chemical antigens.
- BMI was calculated as weight in kg/height in m².
- A global symptom survey was used to evaluate the frequency and severity of 13 domains of symptoms.
- The survey was quantified on a scale of 0 - 4, ranging from 0 to 248 points, with a higher score signifying a less desirable health state.
- Descriptive statistics and linear mixed models were performed using the SPSS V25.0.
- The study received approval from an independent Institutional Review Board (IRB).

RESULTS

- Thirty-five (87.5%) were female, had a mean age 42.1±11.3 years, and a BMI of 28.2±7.3 kg/m². The average follow-up time seen by the dietitians was 82.3±71.0 days (Table 1).
- Linear mixed models showed a significant decrease in mean (standard error) overall global symptom scores pre- versus post-intervention (72.1±4.5 vs. 31.5±4.5, P< 0.001) and for each of the 13 domains (Table 2).

Table 1. Baseline Characteristics	N=40 M±SD
Gender (F) n (%)	35 (87.5)
Age (years)	42.1±11.3
BMI (kg/m ²)	28.2±7.3
Time follow-up (days)	82.3±71.0

Table 2. Measures Pre- and Post-Dietary Intervention

Symptom Survey Score	Pre-LEAP program M±SE	Post-LEAP program M±SE	P-value
Constitutional	10.1±0.7	4.9±0.6	<0.001
Emotional/mental	9.5±0.8	4.7±0.7	<0.001
Head/ears	5.2±0.5	2.1±0.3	<0.001
Skin	2.9±0.4	1.4±0.3	0.002
Nasal/sinus	6.4±0.8	2.5±0.4	<0.001
Mouth/throat	3.2±0.5	1.1±0.3	<0.001
Lungs	1.9±0.4	0.8±0.2	0.020
Eyes	4.3±0.5	1.9±0.4	<0.001
Genitourinary	1.3±0.3	0.6±0.1	0.013
Musculoskeletal	8.0±0.8	3.9±0.6	<0.001
Cardiovascular	1.1±0.7	0.4±0.1	<0.001
Digestive	12.4±1.2	5.3±0.9	<0.001
Weight management	5.5±0.7	1.8±0.3	<0.001

CONCLUSION

- The findings from this study highlight the role of the LEAP program as a tailored dietary approach that alleviated overall symptoms in individuals with migraine.
- Migraine patients would benefit from long-lasting dietary changes with the control of gastrointestinal symptoms.
- Moreover, understanding the association between migraine and gastrointestinal symptomatology is critical, as it could modify the clinical course of these conditions.