Clinical Trial Protocol
Iranian Registry of Clinical Trials

16 Sep 2026

The effects of probiotic supplementation on intestinal permeability, inflammatory factors and clinical status in pediatrics with severe sepsis: a randomized double blind clinical trial

Protocol summary

Study aim
Determining the effect of probiotic supplementation on intestinal permeability biomarkers, inflammatory factors and clinical status of children with severe sepsis

Design
A phase 2 randomized double blind, controlled, parallel clinical trial on 44 patients. Stratified Permuted Block Randomization according to NPO status will be performed.

Settings and conduct
The current study will be conducted on children with severe sepsis in a children's medical center. The study subjects will be assigned to two probiotic supplement and placebo groups based on the NPO variable using the Stratified Permuted Block Randomization method. For children in the intervention group, Kidilact probiotic supplement (Kidilact VSL#3) will be prescribed two sachets of 1 gram per day for 7 days, and for the placebo group, a placebo that is completely similar to the probiotic supplement in terms of shape and color. At the beginning and end of the study, 5 ml of venous blood will be taken from the patients to evaluate biochemical indicators, and anthropometric and clinical characteristics will also be collected.

Participants/Inclusion and exclusion criteria
Inclusion criteria: Age between 1 and 12 years; Diagnosis of severe sepsis Exclusion criteria: Admission more than 72 hours in the PICU; Ileus, overt gastrointestinal bleeding, anatomic obstruction; Gastrointestinal diseases; Probiotic use one month before entering the study; Use of steroids and other immunosuppressive drugs; Suffering from immunosuppressive diseases; Severe acute malnutrition; Discharged from the hospital; Gastrointestinal and allergic reactions; Disagreement of the patient's parents

Intervention groups
Intervention group: Probiotics (Kidilact: including several probiotic bacteria. Control group: Placebo (Corn starch)

Main outcome variables
Serum Zonulin; Serum LPS-Binding Protein; Serum IL-6; Serum IL-10; Serum CRP

General information

Reason for update

Acronym

IRCT registration information
IRCT registration number: **IRCT20170202032367N10**
Registration date: **2023-08-15, 1402/05/24**
Registration timing: **prospective**

Last update: **2023-08-15, 1402/05/24**
Update count: **0**

Registration date
2023-08-15, 1402/05/24

Registrant information

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Hossien Imani

Name of organization / entity
Tehran University of Medical Sciences

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Recruitment status
Recruitment complete

Funding source

Expected recruitment start date
2023-08-23, 1402/06/01

Expected recruitment end date
2024-03-20, 1403/01/01

Actual recruitment start date
empty
Actual recruitment end date
empty
Trial completion date
empty

Scientific title
The effects of probiotic supplementation on intestinal permeability, inflammatory factors and clinical status in pediatrics with severe sepsis: a randomized double blind clinical trial

Public title
Probiotic supplementation and sepsis
Purpose
Treatment
Inclusion/Exclusion criteria
Inclusion criteria:
Aged 1-12 years old Diagnosis of severe sepsis according to pediatric sepsis consensus conference 2005 criteria in children admitted to PICU
Exclusion criteria:
PICU admission more than 72 hours Ileus, overt gastrointestinal bleeding, anatomic obstruction of the gastrointestinal tract (eg, volvulus, intestinal atresia), recent esophageal or gastrointestinal surgery Gastrointestinal diseases such as celiac disease, inflammatory bowel disease (IBD), short bowel syndrome (SBS), irritable bowel syndrome (IBS) Use of feeding routes leading to jejunum such as jejunostomy Probiotic use one month before entering the study Use of steroids and other immunosuppressive drugs Suffering from immunosuppressive diseases such as malignant tumors, acquired immunodeficiency syndrome, etc. Severe acute malnutrition (According to the World Health Organization: Z-Score weight for height/length and BMI less than -3 SD average child growth standards WHO
Age
From **1 year** old to **12 years** old
Gender
Both

Phase
3
Groups that have been masked

- Participant
- Care provider
- Investigator
- Outcome assessor
- Data analyser
- Data and Safety Monitoring Board

Sample size
Target sample size: **44**
Randomization (investigator's opinion)
Randomized
Randomization description
Random allocation will be done by Stratified Permuted Block Randomization method. Stratification is done based on the NPO variable. Eligible people who meet the criteria for entering the study, are selected, and then the two groups are randomly divided into 4 or 6 intervention blocks at a ratio of 1:1. Then, the list of blocks is divided equally between the two strata. Block randomization (4 or 6 people in each block) is done using the website www.randomization.com. In this way, the letters A and B will be spread between the patient codes. Numbers will be assigned to patients according to the order of participants' entry, and patients will be enrolled in the study based on special letters (A and B).
Blinding (investigator's opinion)
Double blinded
Blinding description
Blinding of patients: due to the fact that in this study, the patients are children under 12 years old and usually do not have optimal GCS, people in each group do not know the type of intervention. In order to blind the researcher, the probiotic supplements and placebo will be delivered to the supervisor by the bio-fermentation company. Probiotic and placebo supplements are similar in appearance and packaging.
Placebo
Used
Assignment
Parallel
Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee
Name of ethics committee
Children's Medical Center-Tehran University of Medical sciences
Street address
Children's Medical Center, Dr Gharib St, Keshavarz Blvd, Tehran, Iran
City
Tehran
Province
Tehran
Postal code
1419733151
Approval date
2023-08-09, 1402/05/18
Ethics committee reference number
IR.TUMS.CHMC.REC.1402.084

Health conditions studied

1

Description of health condition studied
Severe sepsis
ICD-10 code
R65.2
ICD-10 code description
Severe sepsis

Primary outcomes

1

Description
Serum Zonulin
Timepoint
Measurement of the serum level of zonulin in the initial study (before the start of the intervention) and 7 days after the start of probiotic consumption
Method of measurement
ELISA

2

Description
Serum LPS-Binding Protein
Timepoint
Measurement of the serum level of lipopolysaccharide binding protein (LBP) in the initial study (before the start of the intervention) and 7 days after the start of probiotic consumption
Method of measurement
ELISA

3

Description
Serum IL-6
Timepoint
Measurement of the serum level of Interleukin 6 (IL-6) in the initial study (before the start of the intervention) and 7 days after the start of probiotic consumption
Method of measurement
ELISA

4

Description
Serum IL-10
Timepoint
Measurement of the serum level of Interleukin 10 (IL-10) in the initial study (before the start of the intervention) and 7 days after the start of probiotic consumption
Method of measurement
ELISA

5

Description
Serum CRP
Timepoint
Measurement of the serum level of C-reactive protein (CRP) in the initial study (before the start of the intervention) and 7 days after the start of probiotic consumption
Method of measurement
ELISA

Secondary outcomes

1

Description
Duration of starting nutrition
Timepoint
The effect of probiotic supplementation on the length of starting nutrition duration of the study (7 days)
Method of measurement
Questionnaire forms

2

Description
The number of days to reach the nutritional goal
Timepoint
The effect of probiotic supplementation on the number of days to reach the nutritional goal duration of the study (7 days)
Method of measurement
Questionnaire forms

3

Description
Nutrition intolerance
Timepoint
The effect of probiotic supplementation on nutrition intolerance duration of the study (7 days)
Method of measurement
Questionnaire forms

4

Description
Need to vasoactive agents
Timepoint
The effect of probiotic supplementation on need to vasoactive agents duration of the study (7 days)
Method of measurement
Questionnaire forms

5

Description
The length of vasoactive use
Timepoint
The effect of probiotic supplementation on the length of vasoactive use duration of the study (7 days)
Method of measurement
Questionnaire forms

6

Description
Vasoactive inotropic score
Timepoint
The effect of probiotic supplementation on vasoactive inotropic score duration of the study (7 days)
Method of measurement
Calculation

7

Description

Need to mechanical ventilation

Timepoint

The effect of probiotic supplementation on need to mechanical ventilation duration of the study (7 days)

Method of measurement

Questionnaire forms

8

Description

The length of using mechanical ventilation

Timepoint

The effect of probiotic supplementation on the length of using mechanical ventilation duration of the study (7 days)

Method of measurement

Questionnaire forms

9

Description

Antibiotics use

Timepoint

The effect of probiotic supplementation on antibiotics use duration of the study (7 days)

Method of measurement

Questionnaire forms

10

Description

The length of antibiotic use

Timepoint

The effect of probiotic supplementation on the length of antibiotic use duration of the study (7 days)

Method of measurement

Questionnaire forms

11

Description

Treatment-related infection incidence

Timepoint

The effect of probiotic supplementation on treatment-related infection incidence duration of the study (7 days)

Method of measurement

Questionnaire forms

12

Description

Type of treatment-related infection

Timepoint

The effect of probiotic supplementation on type of treatment-related infection duration of the study (7 days)

Method of measurement

Questionnaire forms

13

Description

Change in incidence of Multiple Organ Dysfunction Syndrome (MODS)

Timepoint

The effect of probiotic supplementation on change in incidence of Multiple Organ Dysfunction Syndrome (MODS) duration of the study (7 days)

Method of measurement

Calculation

14

Description

The length of PICU stay

Timepoint

The effect of probiotic supplementation on the length of PICU stay duration of the study (7 days)

Method of measurement

Questionnaire forms

15

Description

Mortality

Timepoint

The effect of probiotic supplementation on mortality duration of the study (7 days)

Method of measurement

Questionnaire forms

Intervention groups

1

Description

Intervention group: Probiotic (KidiLact ZistTakhmir Company); Lactobacillus rhamnosus, Lactobacillus rotrilactobacillus Acidophilus, Lactobacillus bulgarico, Lactobacillus caseibifidobacterium infantis, Bifidobacterium brohbifidobacterium, Bifidobacterium bifidombifidobacterium, Lactistreptococcus thermophilus, 109 CFU per sachet, 1 gram, twice a day; Probiotics will be given in doses of one sachet twice a day with an interval of 12 hours for 7 days orally or through enteral feeding through a Nasogastric or Orogastric tube depending on the clinical condition of the patients. became. To prepare the supplement, mix the contents of one sachet in 5 ml of sterile water and use immediately.

Category

Treatment - Drugs

2

Description

Control group: placebo (corn starch); Placebo wasgiven in doses of one 1 gram sachet twice a day with an interval of 12 hours for 7 days orally or through enteral feeding through Nasogastric or Orogastric tube depending on the clinical condition of the patients. will be. To prepare, mix the contents of one sachet in 5 ml of sterile water and use immediately.

Category

Placebo

Recruitment centers

1

Recruitment center

Name of recruitment center
Children's medical center

Full name of responsible person
Masoud Mohammadpour

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Sponsors / Funding sources

1

Sponsor

Name of organization / entity
Tehran University of Medical Sciences

Full name of responsible person
Hossein Imani

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chool of Nutritional Sciences & Dietetics, Tehran University of Medical Sciences, No: 44 Hojjat-dost Alley, Naderi St.

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Grant name

Grant code / Reference number

Is the source of funding the same sponsor organization/entity?
Yes

Title of funding source
Tehran University of Medical Sciences

Proportion provided by this source
100

Public or private sector
Public

Domestic or foreign origin
Domestic

Category of foreign source of funding
empty

Country of origin

Type of organization providing the funding
Academic

Person responsible for general inquiries

Contact

Name of organization / entity
Tehran University of Medical Sciences

Full name of responsible person
Maryam Safabakhsh

Position
PhD student

Latest degree
Master

Other areas of specialty/work
Nutrition

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Sharing plan

Deidentified Individual Participant Data Set (IPD)
No - There is not a plan to make this available

Justification/reason for indecision/not sharing IPD
There is no more information

Study Protocol
No - There is not a plan to make this available

Statistical Analysis Plan
No - There is not a plan to make this available

Informed Consent Form
No - There is not a plan to make this available

Clinical Study Report
No - There is not a plan to make this available

Analytic Code
No - There is not a plan to make this available

Data Dictionary
No - There is not a plan to make this available