Innovative Gastro-absorption method

A novel cleansing system in prevention and treatment
Intestinal detox & pharmacotherapy

“One should always accept as most-likely the simplest explanation”
Pharmacotherapy circulus vitiosus

intoxication/allergy

Get rid of intoxication/allergy = get rid of the disease.

intoxication/allergy

disease
Pharmacotherapy circulus vitiosus

- Intoxication
- Pharmacotherapy
- Pharmacotherapy
- Allergy
The simplest way to do it

Detoxification

Invasive
- Plasmapheresis
- Hemosorption
- Hemodialysis

Noninvasive

Enteral Adsorption
1 – toxins;
2 – enteral adsorbent binding toxins;
3 – mucosa.
Universal mechanism of Intoxication

• Lipopolysaccharide (LPS) is an exogenous pyrogen (external fever-inducing substance).
• LPS can be found in the outer wall of Gram-negative bacteria and is released only when the bacteria are destroyed, hence it is also called endotoxin (“endo” means "inside", inside the bacteria).
• The main reservoir of Gram-negative microflora is the distal intestine (Helmut Brade, 1999).

Endotoxin

- Pyrogenic (fever-causing), cell wall component (lipopolysaccharide) of Gram-negative bacteria.
- Heat-stable
The vicious cycle of systemic inflammation and its spread from one compartment to another

Cavaillon J.-M., 2006
Known Endotoxin Areas

- Elevated airborne concentrations are prevalent in sewage treatment plants
- Swine operations
- Cotton textile mills
- Poultry houses
- Water damaged buildings or in the presence of a contaminated humidifier
Elevated airborne endotoxin concentrations

**Health Effects**

- Produces airway inflammation (chest tightness & wheezing)
- Associated with increased severity of child and adult asthma
- Exposure during childhood may reduce allergic responses later in life
- Cause of Humidifier Fever
- May be associated with Building-Related Symptoms
Universal mechanism of Intoxication

- Endotoxins are in large part responsible for the dramatic clinical manifestations of infections with pathogenic Gram-negative bacteria.
- Epidemiological studies have previously shown that increased endotoxin load, which can be a result of increased populations of endotoxin producing bacteria in the intestinal tract, is associated with certain obesity-related patient groups (Moreno-Navarrete, JM et al., 2011).

Universal mechanism of detoxification

- Enterosgel adsorbes selectively lipopolysaccharides.
- Large lipopolysaccharide molecules coprecipitate in the gel and are excreted.
- A daily dose of PMSPH (Enterosgel) binds 410 mg of lipopolysaccharide (LPS)

Toxic metabolites eliminated from a body

Enterosorption detoxifies body

- Body toxins
- Blood albumin
- Metabolites on albumin
- Albumin sites are free
- Toxins on albumin

Intestine
- Endotoxins
- Enterosgel
- Endotoxins with Enterosgel
- Toxins

Toxic metabolites eliminated from a body
Enterosgel does not contain substances that can cause allergic or toxic reactions.

Enterosgel is not absorbed, is not metabolized and excreted unchanged.

Enterosgel mechanism

- The adsorption of harmful substances in the intestine
- Protection of the intestinal mucosa
- Stimulation of regeneration of mucosa
- The normalization of intestinal microbiota
- Distant effect on organs
The main clinical effects of Enterosorption

- mitigates or prevents toxic and allergic reactions;
- helps stop diarrhea or shortens the duration of diarrhea;
- relieves symptoms of indigestion (dyspepsia);
- accelerates the elimination of alcohol from the body;
- helps restore beneficial intestinal microflora;
- protects gastrointestinal mucous membrane and promotes healing of its lesions;
- reduces the toxic load on the liver and kidneys.
Diarrhea
Epidemiology

People of all ages can get diarrhea. In the United States, adults average one bout of acute diarrhea each year,¹ and young children have an average of two episodes of acute diarrhea each year.²

Diarrhoea is the passage of 3 or more loose or liquid stools per day, or more frequently than is normal for the individual.

It is usually a symptom of gastrointestinal infection, which can be caused by a variety of bacterial, viral and parasitic organisms.
Bacterial infections

Several types of bacteria consumed through contaminated food or water can cause diarrhea. Common culprits include *Campylobacter, Salmonella, Shigella*, and *Escherichia coli (E. coli)*.
Traveler’s diarrhea can be a problem for people traveling to developing countries in Africa, Asia, Latin America, and the Caribbean.
During the period 2007-2010, Tadjikistan (Central Asia) registered 23 death of botulism caused by home-processed vegetables salads and meat products...

"IN CASE OF POISONING SYMPTOMS, YOU SHOULD IMMEDIATELY CALL OR GO TO THE EMERGENCY CARE CENTRE. BEFORE THE DOCTOR COMES, DO GASTRIC LAVAGE AND TAKE ADSORBENTS (SUCH AS ACTIVATED CHARCOAL, ENTEROSGEL OR SMECTA).»

(WHO, 2013)
Enterosorption for "zone of risk" travellers

1. period of being in the "zone of risk"
2. during the period of rehabilitation in ecologically favorable region.
Viral infections. Many viruses cause diarrhea, including rotavirus, norovirus, cytomegalovirus, herpes simplex virus, and viral hepatitis. Infection with the rotavirus is the most common cause of acute diarrhea in children. Rotavirus diarrhea usually resolves in 3 to 7 days but can cause problems digesting lactose for up to a month or longer.

Often there is about children
Efficiency of enterosorbents in the treatment of diarrhea in children

STUDY DESIGN Randomized controlled clinical trial (n = 125).

99 children with atopic dermatitis treated with diosmectit (smectit, n = 53) or polymethylsiloxane polyhydrate (enterosgel, n = 46) in moderate to heavy diarrhea.

26 patients (control).

USENKO D.V. et al. ENTEROSORBENTS IN TREATMENT OF ACUTE ENTERIC INFECTIONS IN CHILDREN WITH ATOPIC DERMATITIS. Pharmateka - 2015, 10 p. 61-65 (in Russian)
Efficiency of enterosorbents in the treatment of diarrhea in children

STUDY DESIGN Randomized controlled clinical trial (n = 125).

<table>
<thead>
<tr>
<th>Symptoms</th>
<th>Experimental group, n=99</th>
<th>Control group (n=26)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Smecta (n=53)</td>
<td>Enterosgel (n=46)</td>
</tr>
<tr>
<td>Intoxication, days</td>
<td>3.1±0.4*</td>
<td>3.4±0.3*</td>
</tr>
<tr>
<td>Fever, days</td>
<td>2.8±0.4*</td>
<td>2.9±0.4</td>
</tr>
<tr>
<td>Vomiting, from the initiation of treatment</td>
<td>1.4±0.2</td>
<td>1.9±0.2</td>
</tr>
<tr>
<td>Exsicosis I-II degree, days from initiation of treatment</td>
<td>2.3±0.2</td>
<td>1.6±0.1* #</td>
</tr>
<tr>
<td>Bloating, days from initiation of treatment</td>
<td>3.1±0.2*</td>
<td>2.8±0.1*</td>
</tr>
<tr>
<td>Diarrhea</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total days</td>
<td>5.6±0.6*</td>
<td>5.6±0.5*</td>
</tr>
<tr>
<td>Days from initiation of treatment</td>
<td>3.2±0.5*</td>
<td>3.4±0.4*</td>
</tr>
</tbody>
</table>

Note: significant differences, p<0.05: * - with comparison group; # - with Diosmectit group

USENKO D.V. et al. ENTEROSORBENTS IN TREATMENT OF ACUTE ENTERIC INFECTIONS IN CHILDREN WITH ATOPIC DERMATITIS. Pharmateka - 2015, 10 p. 61-65 (in Russian)
Efficiency of enterosorbents in the treatment of diarrhea in children

STUDY DESIGN Randomized controlled clinical trial (n = 125).

**Results:** After 5-7 days of treatment, complete clinical recovery was achieved in 73.6% of patients taking diosmectit, and 76.1% taking Enterosgel. In the control group, the proportion of such patients was significantly higher - 43.4% versus 26.4 and 23.9% (p <0.05, Fisher's ratio test). Duration of exsicosis symptoms significantly decreased in the subgroup of patients receiving synthetic enterosorbent (Enterosgel) (p <0.05, Student's t test).

USENKO D.V. et al. ENTEROSORBENTS IN TREATMENT OF ACUTE ENTERIC INFECTIONS IN CHILDREN WITH ATOPIC DERMATITIS. Pharmateka - 2015, 10 p. 61-65 (in Russian)
Food intolerances and allergy. Some people have difficulty digesting certain ingredients, such as lactose, the sugar found in milk and milk products. Some people may have diarrhea if they eat certain types of sugar substitutes in excessive quantities.
### \textit{H. pylori} eradication rate on the results of 13C-urea test

<table>
<thead>
<tr>
<th>Groups</th>
<th>Gastric ulcer (n = 12)</th>
<th>Duodenum ulcer (n = 48)</th>
<th>Total (n = 60)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control (n = 30)</td>
<td>6 (85.7%)</td>
<td>19 (82.6%)</td>
<td>25 (83.3%)*</td>
</tr>
<tr>
<td></td>
<td>(n = 7)</td>
<td>(n = 23)</td>
<td></td>
</tr>
<tr>
<td>Enterosgel (n = 30)</td>
<td>4 (80%)</td>
<td>24 (96%)*</td>
<td>28 (93.3%)</td>
</tr>
<tr>
<td></td>
<td>(n = 5)</td>
<td>(n = 25)</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>10 (83.3%)</td>
<td>43 (89.6%)</td>
<td>53 (88.3%)</td>
</tr>
</tbody>
</table>

Tkach S.M. \textit{Эффективность энтеросорбента энтеросгель в комплексной антихеликобактерной терапии пептических язв}  
O.O. Bogomolets National medical university, Kiev, Ukraine  
\textit{Issued: Consilium medicum Ukraine. 2011;5(4):12–13}
Enterosgel by *Helicobacter pylori* eradication

Study desing

Open, comparative, controlled, randomized study

Ulcer standard treatment (60 cases)

Control (30) – *H. pylori* + (28)

*H. pylori* + (30)

Biopsy gastric mucosa

Biopsy gastric mucosa

Biopsy gastric mucosa

Enterosgel 15,0 10 days

14 day

21 day

*H. pylori* + (23)

*H. pylori* + (10)
Enterosgel by *Helicobacter pylori* eradication

Study design
Open, comparative, controlled, randomized study

*Hp*-positive ulcer standard treatment (60 cases)

- 60 patients (37 men and 23 women) 18-60 years old with *Hp*-positive gastric ulcers (n = 12) and 12 duodenal ulcers (n = 48).

- Experimental group - 30 patients (25 patients with 12 ulcers of the duodenum, and 5 patients with benign gastric ulcers). Enterosgel was given 1 tablespoon (15 g) 3 times a day for 1.5 hours before or 1.5-2 hours after taking food and medicine.

- Control (30) - 23 patients with ulcers of the duodenum 12 and 7 patients with gastric ulcers.
Food allergy
Dietary restrictions!? 

1. Dietary restrictions
   Pharmacotherapy

2. Disbalance of micronutrients
   Immune disorders

3. Exacerbation/complications
   Pathomorphosis

EAACI Food Allergy and Anaphylaxis Guidelines
Diagnosis and management of food allergy
(http://www.eaaci.org/attachments/EAACI-%20Food-%20Allergy-%20Management%20&%20Diagnosis.pdf)
Inappropriate or unnecessarily lengthy dietary eliminations should be avoided as such restrictions may impair the quality of life, affect normal growth, and incur unnecessary health care costs.
<table>
<thead>
<tr>
<th>Recommendations</th>
<th>Evidence level</th>
<th>Grade</th>
<th>Key references</th>
</tr>
</thead>
<tbody>
<tr>
<td>(A) Acute management</td>
<td>III, V</td>
<td>C, D</td>
<td>(5), Expert opinion</td>
</tr>
<tr>
<td>The patient at risk of severe reactions should be properly and timely identified.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Antihistamines and mast cell stabilizers</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>There is evidence to support the benefits of antihistamines for children and adults with acute non-life-threatening symptoms from food allergy.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The prophylactic application of antihistamines is not recommended.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mast cell stabilizers are not recommended for the prophylactic treatment of food allergy.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(B) Long-term management strategies</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(B1) Elimination diet</td>
<td>IV</td>
<td>D</td>
<td>(51, 52, 64)</td>
</tr>
<tr>
<td>A sufficient elimination diet should be based on a formal allergy diagnosis identifying the food allergen(s) responsible of the patient’s symptoms/reactions. The indications should be re-evaluated at appropriate intervals.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Appropriate dietary avoidance is the key treatment in the management of food allergy.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patients with food allergy who are on long-term elimination diets should have access to appropriate dietetic counseling, ideally by a dietitian with competencies in food allergy, and regular monitoring of growth (in children).</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Extensively hydrolyzed cow’s milk formulas with documented hypoallergenicity can be recommended as first choice for the treatment of cow’s milk allergy, especially in infants and young children. Amino acid formulas can also be recommended especially for the subgroup of patients with more severe symptoms.</td>
<td>I</td>
<td>A</td>
<td>(55, 57, 59, 84)</td>
</tr>
<tr>
<td>Soy formulas should not be recommended before 6 months of age and at any age in the presence of gastrointestinal symptoms. From 6 to 12 months, it can be considered on a case-by-case basis.</td>
<td>I</td>
<td>B</td>
<td>(5)</td>
</tr>
<tr>
<td>Currently, probiotic supplements cannot be recommended for the management of food allergy.</td>
<td>I</td>
<td>D</td>
<td>(5, 69)</td>
</tr>
<tr>
<td>(B2) Education and risk assessment</td>
<td>V</td>
<td>D</td>
<td>Expert opinion</td>
</tr>
<tr>
<td>Patients and caregivers need to be informed about the foods that should be avoided and practical advice given on avoidance measures, how to recognize a further reaction and the self-management of these reactions.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The diagnosis of food allergy should, with permission, be communicated to all relevant caregivers.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patients/caregivers should be encouraged to join an appropriate patient support organization.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All patients with food allergy require a management plan with appropriate education for the patient, caregiver including school.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education should cover allergen avoidance, symptom recognition, and indication for specific treatment and administration of specific medication.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Absolute indications with adrenaline autoinjector include previous anaphylaxis to any food, food allergy associated with persistent or severe asthma, and exercise-induced</td>
<td>IV</td>
<td>D</td>
<td>Expert opinion, refer to the Anaphylaxis Guidelines.</td>
</tr>
</tbody>
</table>
Food allergy & Enterosorption

STUDY DESIGN Randomized controlled clinical trial (n = 77).

The **experimental group** (67 patients) were administered conventional treatment: exclusion of allergenic foods from the diet, as well as desloratadine, calcium gluconate, and Enterosgel 15 g 2 times a day for 10 days. The **control group** included 10 practically healthy volunteers aged from 17 to 45 years, were given a course of Enterosgel, 15 g 2 times a day for 10 days.

### Humoral immunity factors before and after enterosorption

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Groups</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Healthy subjects (n = 10) (average value)</td>
</tr>
<tr>
<td></td>
<td>Patients with food allergy (n = 67) (average value)</td>
</tr>
<tr>
<td>Before treatment</td>
<td>After treatment</td>
</tr>
<tr>
<td>Before treatment</td>
<td>After treatment</td>
</tr>
<tr>
<td>IgE total (IU/ml)</td>
<td>67.0</td>
</tr>
<tr>
<td>IgM (g/l)</td>
<td>2.1</td>
</tr>
<tr>
<td>IgG (g/l)</td>
<td>9.3</td>
</tr>
<tr>
<td>IgA (g/l)</td>
<td>2.3</td>
</tr>
<tr>
<td>IgG4 (g/l)</td>
<td>0.45</td>
</tr>
<tr>
<td>CIC (optical density units)</td>
<td>34.9</td>
</tr>
</tbody>
</table>

Note: * p < 0.05.


Kolomichenko Institute of Otolaryngology Academy of Medical Sciences of Ukraine, Kiev, Ukraine

Imunologija ta Alergologija: nauka i praktyka [Immunology and Allergology: science and practice]. 2010;3-4:137‒140 (in Russian)
Serum cytokine concentrations in patients with food allergy and in healthy subjects before and after enterosorption

<table>
<thead>
<tr>
<th>Cytokine concentration (pg/ml)</th>
<th>Groups</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Healthy subjects (n = 10) (average value)</td>
</tr>
<tr>
<td></td>
<td>Patients with food allergy (n = 67) (average value)</td>
</tr>
<tr>
<td></td>
<td>Before treatment After treatment</td>
</tr>
<tr>
<td>IFN-alfa</td>
<td>2.8</td>
</tr>
<tr>
<td>IFN-gamma</td>
<td>68.0</td>
</tr>
<tr>
<td>IL-5</td>
<td>2.5</td>
</tr>
<tr>
<td>IL-6</td>
<td>42.6</td>
</tr>
</tbody>
</table>

Note: * p < 0.05.

Food allergy & Enterosorption

STUDY DESIGN Randomized controlled clinical trial (n = 77).

Conclusion

Enterosgel was shown to have beneficial effect on the allergy status and promote normalization of total serum IgE levels, early interferon, and pro-allergic cytokine (Interleukin-5) concentrations in patients with food allergy manifesting by angioedema.

ATOPIC ECZEMA vs. DERMATITIS

A more appropriate term is eczema. The subgroup related to allergic asthma and rhinoconjunctivitis, i.e. eczema in a person of the atopic constitution, should be called atopic eczema.
The experimental group (40 children) with complicated forms of AD with fungal infection. 68% of the examined children had moderately severe course of the disease, whereas 32% of them showed severe course. 47% of the children had food allergen sensitization, 25% had indoor allergen sensitization, and 28% had polyvalent sensitization. All have complicated forms of AD with fungal infection.
The experimental group patients received Enterosgel combined with the standard conventional treatment. Enterosgel was administered for 2–3 weeks. The children under 5 years of age were administered 1 teaspoon 3 times a day (15 g/day). Those between 5 years and 14 years of age were administered 2 teaspoons 3 times a day (30 g/day). Whereas, the adolescents (over 14 years of age) were administered 1 tablespoon 3 times a day (45 g/day). The control group (20 children) received the conventional treatment.

T. G. Malanicheva, L. A. Khaertdinova
Enterosorption in the Treatment of Pediatric Atopic Dermatitis Complicated by Fungal Infection
Atopic dermatitis & Enterosorption

STUDY DESIGN Randomized controlled clinical trial (n = 60).

**Figure.** SCORAD dynamics depending on the treatments given in the children with AD complicated by fungal infection.

T. G. Malanicheva, L. A. Khaertdinova

*Enterosorption in the Treatment of Pediatric Atopic Dermatitis Complicated by Fungal Infection*

Atopic dermatitis & Enterosorption

STUDY DESIGN Randomized controlled clinical trial (n = 60).

**Figure.** Changes in total serum IgE levels in complicated forms of AD in the children with fungal infection before and after treatment, IU/ml

<table>
<thead>
<tr>
<th></th>
<th>Before treatment</th>
<th>After treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total serum IgE levels, IU/ml</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experimental group</td>
<td>350</td>
<td>120</td>
</tr>
<tr>
<td>Control group</td>
<td>330</td>
<td>165</td>
</tr>
</tbody>
</table>

T. G. Malanicheva, L. A. Khaertdinova

*Enterosorption in the Treatment of Pediatric Atopic Dermatitis Complicated by Fungal Infection*

Conclusion

This study has shown the clinical effectiveness of intestinal adsorption (enterosorption) with Enterosgel in 40 children with secondarily infected atopic dermatitis (AD). The overall clinical effectiveness rate was 87.5% for the children who received Enterosgel. Exacerbation reduced down by 1.8 times to 14 days (from former 26 days), and obtaining 4.5 times lower value for the SCORAD index (reduced down from 54 to 12).

T. G. Malanicheva, L. A. Khaertdinova
Enterosorption in the Treatment of Pediatric Atopic Dermatitis Complicated by Fungal Infection
Russia, MoH standards (guidance, 2006)

- MoH Order N 432 issued 30 May 2006
- ON APPROVAL OF THE STANDARD CARE IN PATIENTS WITH ATOPIC DERMATITIS
- Enterosgel is recommended for treatment of GIT diseases by patients with ATOPIC DERMATITIS

http://www.webapteka.ru/phdocs/doc11292.html
Enterosgel recommended for
Lichen simplex chronicus and prurigo
L28.0 Lichen simplex chronicus
Circumscribed neurodermatitis
Lichen NOS
L28.1 Prurigo nodularis
L28.2 Other prurigo
Prurigo:NOS
Hebra
mitis
Urticaria papulosa

Enterosgel 1 tablespoon (15 g)
2 times a day (at the morning and evening)
2-3 weeks.

ISBN 978-5-9517-0051-3
Diarrhea

Causes

Reaction to medicines. Antibiotics, cancer drugs, and antacids containing magnesium can all cause diarrhea.
AIDS & Diarrhea treatment

STUDY DESIGN Randomized controlled clinical trial (n = 69).

- The experimental group - 46 patients (19 women and 27 men),
- a traditional therapy of diarrheal and intoxication syndromes was conducted as well as two 2-week courses of Enterosgel: the first - along with start of HAART therapy (within the first two weeks of HAART); the second - 1.5 months after the start of HAART (HAART lasting 7 and 8 weeks), if no adverse reactions (AR) occurred. With the development of AR (diarrhea, nausea, vomiting, rash, intoxication syndrome) the second course of Enterosgel was assigned from the onset of AR. Enterosgel was administered at a dose of one tablespoon 3 times a day 2 hours after meal.

- Control group – 23 patients (7 women and 16 man) were only under HAART and traditional therapy.

- A term of monitoring was two months.

Yurchenko, A.V. et al. APPLICATION OF ENTEROSGEL ENTEROSORBENT FOR TREATMENT OF INTOXICATION AND DIARRHEA SYNDROMES IN PATIENTS WITH AIDS DURING ANTIRETROVIRAL THERAPY. - Modern drugs and technologies. - № 7 (63) 2009.
AIDS & Diarrhea treatment

STUDY DESIGN Randomized controlled clinical trial (n = 69).

Yurchenko, A.V. et al. APPLICATION OF ENTEROSGEL ENTEROSORBENT FOR TREATMENT OF INTOXICATION AND DIARRHEA SYNDROMES IN PATIENTS WITH AIDS DURING ANTIRETROVIRAL THERAPY. - Modern drugs and technologies. - № 7 (63) 2009.
Conclusion

Application of enterosorbent in the patients with AIDS in the development of adverse reactions to antiretroviral therapy promotes more rapid reduction of diarrhea and intoxication syndrome.

No adverse reactions caused by Enterosgel has been identified during its application as a part of complex therapy of pathological conditions in HIV-infected patients.

Yurchenko, A.V. et al. APPLICATION OF ENTEROSGEL ENTEROSORBENT FOR TREATMENT OF INTOXICATION AND DIARRHEA SYNDROMES IN PATIENTS WITH AIDS DURING ANTIRETROVIRAL THERAPY. - Modern drugs and technologies. - № 7 (63) 2009.
In many cases, the cause of diarrhea cannot be found.

As long as diarrhea goes away on its own within 1 to 2 days, finding the cause is not usually necessary.
Diarrhea
Causes

Sometimes it’s more serious.
A study in 35 patients with nonspecific ulcerative colitis (NUC) in the period of exacerbation in age from 30 to 45 years, to evaluate the impact of detoxification therapy (Enterosgel).

The experimental group (20 patients) who along with basis-NUC therapy as a detoxifier prescribed Enterosgel for 14 days.

The control group (15 patients) received only conventional treatment.

All patients underwent research of toxin binding capacity of albumin and globulins.
The increase in the level of total blood albumin (left) and effective blood albumin (right) after therapy with ENTEROSORPTION.

Left columns of the group ENTEROSGEL, right - control. Increasing the effective concentration of albumin (arrow).
The experimental group (132 patients) with ALD who concomitantly to the standard therapy received Enterosgel orally or through a nasogastric tube, 1 tablespoon (15 g) 3–4 times a day (up to 60 g/day), 1–1.5 hours before or 2 hours after a meal for 14 days.

The control group (50 patients) with ALD received standard therapy alone.
Enterosgel Detoxification in Alcoholic Liver Disease (ALD)

STUDY DESIGN: Randomized controlled clinical trial (n = 182).

Parameters of endogenous intoxication in patients of the control group (mean ± SEM)

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Control group (n = 50)</th>
<th>Healthy subjects (n = 20)</th>
</tr>
</thead>
<tbody>
<tr>
<td>TAC (g/l)</td>
<td>35.50 ± 3.22&lt;sup&gt;a&lt;/sup&gt;</td>
<td>47.50 ± 1.55</td>
</tr>
<tr>
<td></td>
<td>31.03 ± 3.07&lt;sup&gt;a&lt;/sup&gt;</td>
<td>40.22 ± 2.15&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>40.22 ± 3.07&lt;sup&gt;a&lt;/sup&gt;</td>
<td>40.22 ± 2.15&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Toxin-binding capacity of albumin (mg/mg protein)</td>
<td>0.036 ± 0.004&lt;sup&gt;a&lt;/sup&gt;</td>
<td>0.039 ± 0.005&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>0.031 ± 0.002&lt;sup&gt;a&lt;/sup&gt;</td>
<td>0.039 ± 0.005&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>0.039 ± 0.005&lt;sup&gt;a&lt;/sup&gt;</td>
<td>0.09 ± 0.010</td>
</tr>
<tr>
<td>EGT (% of positive results)</td>
<td>68</td>
<td>48</td>
</tr>
<tr>
<td></td>
<td>59</td>
<td>0</td>
</tr>
</tbody>
</table>

<sup>a</sup> p < 0.05 vs healthy subjects.

TAC - total albumin concentration
EGT ethanol gelation test (as a criterion of the degree of accumulation of tissue destruction' products).

Enterosgel Detoxification in Alcoholic Liver Disease (ALD)

STUDY DESIGN: Randomized controlled clinical trial (n = 182).

Parameters of endogenous intoxication in patients of the experimental group (mean ± SEM)

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Experimental group (n = 132)</th>
<th>Healthy subjects (n = 20)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Study days</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2–3</td>
<td>6–7</td>
</tr>
<tr>
<td><strong>TAC (g/l)</strong></td>
<td>35.50 ± 3.05&lt;sup&gt;a&lt;/sup&gt;</td>
<td>31.00 ± 2.75&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td><strong>Toxin-binding capacity of albumin (mg/mg protein)</strong></td>
<td>0.035 ± 0.007&lt;sup&gt;a&lt;/sup&gt;</td>
<td>0.036 ± 0.006&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td><strong>EGT (% of positive results)</strong></td>
<td>67</td>
<td>55</td>
</tr>
</tbody>
</table>

<sup>a</sup> p < 0.05 vs healthy subjects.

TAC - total albumin concentration

EGT ethanol gelation test (as a criterion of the degree of accumulation of tissue destruction' products).

Enterosgel Detoxification in Alcoholic Liver Disease (ALD)

STUDY DESIGN: Randomized controlled clinical trial (n = 182).

CONCLUSIONS
Patients with ALD demonstrated significant decompensation of toxin-binding capacity of peripheral blood albumin. Results of the study demonstrate effectiveness of enterosorption in restoration of normal functioning of natural detoxification systems in patients with ALD. The use of intestinal adsorbent Enterosgel in the combination therapy of patients with ALD reduces the concentration of toxic products of tissue destruction, thereby maintaining detoxification capacity of albumin at optimal level even at low values of its concentration in the blood serum.

ON APPROVAL OF THE STANDARD CARE IN PATIENTS WITH ACUTE INTOXICATIONS

Enterosgel is recommended for treatment of ACUTE INTOXICATIONS

SUMMARY: the unabsorbed substances removal activities are expound in the Part III of Protocols of Medical aid rendering in cases of acute poisoning.

Key words: acute poisoning, therapy, stomach sanitization, enterosorption, patient’s skin preparation, patient’s eye preparation
The wide range of indications for ENTEROSGEL® is explained by the important role that the health status of the GIT plays in the onset and development of various disorders.
Indications

Enterosgel

- acute diarrhea of any cause, such as bacterial, viral (including rotaviral), food poisoning, antibiotic-associated, irritable bowel syndrome, etc.;
- chronic diarrhea of any cause, such as malabsorption syndrome, chronic inflammatory bowel disease, etc.;
- indigestion (dyspepsia);
- disturbances in the intestinal microflora (e.g. caused by antibiotics);
- gastric and duodenal ulcers;
- poisoning, including alcohol and narcotics intoxication;
- chronic hepatic and renal diseases accompanied by their failure;
- allergic diseases (bronchial asthma, food allergy, urticaria, etc.);
- diseases of the skin (atopic dermatitis, eczema, acne vulgaris);
- toxicosis during pregnancy.
Enterosgel® is used in healthy humans for the following purposes:

- prophylaxis of atherosclerosis and coronary heart disease (to reduce blood cholesterol levels);
- prophylaxis of chronic intoxication in people living in poor environmental conditions or working in places where they are exposed to occupational hazards (by helping to eliminate radionuclides, salts of heavy metals from the body);
- prophylactic detoxification of the body.

Enterosgel® increases body resistance and promotes general health improvement.
Dosage

Adult:
• 15 g (1 sachet or 1 tablespoon) 3 times per day (45 g/day).

Children:
• older than 5 years: 10–15 g (2–3 teaspoons) 3 times per day (30–45 g/day);
• 1–5 years: 5–10 g (1–2 teaspoons) 3 times per day (15–30 g/day);
• under 1 year of age: 1,7 g (1/3 teaspoon) before feeding, up to 6 times per day (up to 10 g/day). The single dose of Enterosgel® may be mixed before use with breast milk, water, juice or a semi-liquid baby food (in the ratio 1:3).
Adverse Reactions & Upper Dosing Limit

• In general, has a good safety profile. Some of the adverse reactions associated with Enterosgel at a higher rate include nausea and constipation.

• To date, no upper dosing limit has been established for Enterosgel.

• Enterosgel is well tolerated in higher doses by patients.
Precautions

• The long term safety data for Enterosgel (20 years) showed no serious adverse reactions. Enterosgel can be taken during pregnancy and breastfeeding. Enterosgel is not excreted in human milk.

• Administration precautions:

• Shake the tube well before use. When squeezing Enterosgel® out of the tube some amount of liquid may appear.

• Storage parameters:
Store at temperatures of 4–25°C. Keep out of the reach and sight of children. Avoid drying out after opening the package. Do not freeze! Use this product within 30 days of opening the tube.

• Shelf life:
Three years. Not to be used beyond the expiry date indicated on the package.
• MoH Order N 312 issued 08.05.2009
• ON APPROVAL OF THE STANDARD CARE IN Code ICD-10: L 40.5 Arthropathic psoriasis
• Enterosgel is recommended for treatment of Arthropathic psoriasis

Ukraine, MoH standards (guidance, 2009)

- MoH Order N 312 issued 08.05.2009
- ON APPROVAL OF THE STANDARD CARE IN:
- Code ICD-10 : L 24 - Irritant contact dermatitis
- Code ICD-10 : L 30 - Other and unspecified dermatitis

Ukraine, MoH standards (guidance)

- MoH Order N 471 issued 10 September 2007
- ON APPROVAL OF THE STANDARD CARE IN CHILDREN WITH CHRONIC VIRAL HEPATITIS (Code ICD 10 B.18)
- Enterosgel is recommended for treatment of CHRONIC VIRAL HEPATITIS

Russian society of obstetricians-gynecologists (Guidance, 2014)

Enterosgel recommended for

- O23.0. Infections of kidney in pregnancy.
- O86. Other puerperal infections.
Ukraine, MoH standards (guidance, 2003)

- MoH Order N 582 issued 15.12.2003
- ON APPROVAL OF THE STANDARD CARE IN MISCARRIAGE
- Enterosgel is recommended for treatment of women for MISCARRIAGE

http://z-l.com.ua/ua/new582/
Ukraine, MoH standards (guidance, 2004)

- MoH Order N 436 issued 31.08.2004
- ON APPROVAL OF THE STANDARD CARE IN CHILDREN WITH ACUTE AND CHRONIC GLOMERULONEPHRITIS
- Enterosgel is recommended for treatment of ACUTE AND CHRONIC GLOMERULONEPHRITIS by children

http://mozdocs.kiev.ua/view.php?id=3433
в случае почечной недостаточности, для лечения уремической интоксикации: Enterosgel 1 столовую ложку 3 раза в день.

In case of renal insufficiency, for the treatment of uremic intoxication: Enterosgel 1 tablespoon, 3 times a day.
How to use

or
- Elimination of toxins;
- Support of detoxification and drainage;
- Termination of delivery of toxins.

AHTT by different diseases

In classical homeopathy Enterosgel makes aggravation barely noticeable, and the treatment is comfortable and effective.

AHTT & Enterosgel

- The regeneration of the mucosa;
- The normalization of microbiota;
- Increased levels of sIgA;
- Sorption and elimination of toxins from the intestines.
Gracias por su atención!