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Chronic and persistent diarrhea in children and its treatment in ayurveda

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Abstract

Diarrhea is a leading cause of morbidity and mortality among children under five years of age in developing countries. More than 2 million deaths are estimated to result each year as a consequence of diarrheal disease in under-fives, 80% of these deaths occur in the first 2 years of life due to complication of diarrhea. Diarrhea is usually defined as passage of 3 or more loose or watery stools in 24 hour period, a loose stool being one that would take shape of a container. Prolongation of acute diarrhea for more than 14 days associated with weight loss is termed as persistent diarrhea (PD) and most important cause of persistent diarrhea is persistent infection with one or more enteric pathogens. Chronic diarrhea is defined as diarrhea at least 2 weeks duration or 3 attack of diarrhea during last 3 month. Chronic diarrhea is non-infectious and usually associated with celiac disease, tropical sprue, cystic fibrosis and metabolic disorder. Evaluation of persistent and chronic diarrhea in patients is done by clinical history with physical examination, sweat chloride test, endoscopic studies and hormonal studies. In Ayurveda Diarrhea is described with the name of "Atisara". *Atisara* term is made up of two terms "Ati" (excessive) and "sara" (passing of liquid matter through anus). It means excessive flow of watery stool through anus. Sushruta samhita stated that passing of watery stools in increased quantity is a characteristic feature of *Atisara*. Treatment of diarrhea in children is planned after seeing the *sama* and *nirama avastha* of the *dosha*. In *Amavastha* mainly *Deepana*, *Pachana*, *Langhana* are advised and in *Niramavastha*, *Stambhana* drugs are advised. In Ayurveda some traditional formulations and some single drug remedies have beneficial effects in chronic and persistent diarrhea.

Keywords: Chronic diarrhea, persistent diarrhea, herbal formulation, ayurveda

Introduction

Diarrhea is the third leading cause of childhood mortality in India, and is responsible for 13% of all deaths / year in children below 5 years of age Diarrhea accounts for more than 5-8 million deaths annually, majority of them are children below 5 years old in developing countries [1]. Diarrhea is one of the major health tasks to humans as it causes malnutrition, premature mortality and financial family burden [2]. Most of the diarrheal episodes occur during the first 2 years of life and highest incidence is in 6-11 months of age. Diarrhea is important health problem in all age groups and it is major cause of morbidity and mortality in backward and developing, third-world countries. It may be infectious or non-infectious [3]. Main cause of infectious diarrhea is bacteria, virus, fungus, protozoa, parasite etc. and they spreads through poor hygiene, contaminated food and contaminated water [4]. Main etiology of non-infectious diarrhea is antibiotic associated, chronic diarrhea, different toxin and mal-absorption etc. [5] Acute diarrheal episodes subside by 7 days; but persistent diarrhea and chronic diarrhea are defined when the duration are more than two weeks. Malnourished children are prone for persistent diarrhea after episode of acute diarrhea.

Persistent diarrhea in Children

Prolongation of acute diarrhea or dysentery for more than 14 days associated with weight loss is termed as persistent diarrhea. It is probably infectious origin. When the age of onset is before 3 months, it is often termed intractable diarrhea of infancy. Community studies show that in children below 4 years, 7% children affected from persistent diarrhea every year [6]. Sixty per cent of persistent diarrhea (PD) occurs before 6 months and 90% below 1 year of age [7]. A study report show 23% of children with shigella infection developed persistent diarrhea [8].

Risk factor of Persistent diarrhea: Major risk factor for persistent diarrhea is younger age, early introduction of animal milk, previous gastro intestinal infection, Unreasonable usage of antibiotics, and nonexistence of breast feeding.

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Causes of Persistent Diarrhea: The most important causes are -

1. Persistent infection with one or more enteric pathogens.
2. Secondary malabsorption of carbohydrates and fats.

3. Infrequently protein allergy/ dietary intolerance.

Clinical presentation: Persistent diarrhea has three clinical types -

1. Mild form	This form is characterized by several motions/ day without significant weight loss and dehydration.
2. Moderate form	This form is characterized by several motions/ day with marginal weight loss, without dehydration and non-tolerance to milk and milk products.
3. Severe form	This form is heralded by dehydration, weight loss and non-tolerance to milk and cereals, secondary infection often coexists with this category.

Diagnosis of Persistent diarrhea

The emergency risk factors arising out of dehydration, malnutrition and infection should be assessed. Stool examination for culture and reducing sugar with pH help is diagnosis.

This disease usually associated with specific conditions like celiac disease, tropical sprue, cystic fibrosis, congenital biochemical or metabolic disorders ^[9]. In a study on 137 children with chronic diarrhea, celiac disease was documented in 26%, parasitic infections in 9% and tuberculosis in 5% of children.

Chronic diarrhea in children

Chronic diarrhea is defined as diarrhea of at least 2 weeks duration or 3 attacks of diarrhea during last 3 months and usually non-infectious and associated with mal-absorption.

Causes of Chronic diarrhea: The common causes of chronic diarrhea are dividing according to age of children.

Infancy	<ul style="list-style-type: none"> • Post gastroenteritis malabsorption syndrome • Protein energy malnutrition • Cow milk intolerance / Soya protein intolerance • Primary / Secondary disaccharidase deficiency • Cystic fibrosis.
Childhood	<ul style="list-style-type: none"> • Excessive consumption of carbonated fluid. • Secondary disaccharidase deficiency • Intestinal parasites – Giardia and E. Histolytica • Post gastroenteritis mal-absorption syndrome • Celiac diseases • Cystic fibrosis • Intestinal infection – M. tuberculosis.
Adolescence	<ul style="list-style-type: none"> • Irritable bowel syndrome • Lactose intolerance • Inflammatory bowel syndrome – Crohn’s disease, ulcerative colitis • Giardiasis

Evaluation of patients with Chronic diarrhea: Evaluation of chronic diarrhea is done in 4 phase -

Phase -I	<ul style="list-style-type: none"> • Clinical history including specific amount of fluids ingested per day. • Physical examination including nutritional assessment. • Stool exam for pH, reducing substances and smear for parasites. • Stool culture • Hematology (CBC, ESR, Serum electrolyte, Serum urea and Creatinine)
Phase -II	<ul style="list-style-type: none"> • Sweat chloride • 72 hrs. stool collection for fat determination • Stool for phenolphthalein and magnesium sulfate • Breath H₂ test.
Phase -III	<ul style="list-style-type: none"> • Endoscopic studies • Small bowel biopsy • Barium studies • Sigmoidoscopy or colonoscopy
Phase -IV	<ul style="list-style-type: none"> • Hormonal studies as intestinal polypeptide, gastrin, secretin etc.

Diarrhea in Ayurveda

Diarrhea is described in Ayurvedic classics with the name of “*Atisara*”. Charaka Samhita has the complete description of *Atisara* in very elaborated form. *Atisara* has been a common problem in past and also in the present time. Sushruta ^[10] and Vagbhata ^[11] have mentioned that *Krimi* is also a causative factor for *Atisara*.

The term *Atisara* is combination of two words-

ATI = Excessive and SARA = Passing of liquid matter through anus

This means excessive flow of watery stool through anus. Dalhana on his commentary on Sushruta Samhita stated that passing of watery stools in increased quantity is a characteristic feature of *Atisara*.

Treatment of childhood diarrhea in Ayurveda:-

Planning of *Atisara chikitsa* is done after decision of *Sama* and *Nirama avastha* of the *dosha*.

- In *Amavastha* uses drugs which have property of *deepana*, *pachana* and *langhana*.

- In the *Niramavastha* uses the drugs which have *stambhana* properties.

Single drug remedies for Diarrhea

In Ayurveda many single drug remedies and compound formulation are described for different types of diarrhea.

- Ativisha (*A. heterophyllum* Wall.) along with Bilva (*A. marmelos*), Mocharasa, Lodhra (*Symplocos racemosa* Roxb.) and Dhataki (*Woodfordia fruticosa* Kurz.) seed decoction is effective in treatment of severe diarrhea ^[12].
- Diarrhea can be check by locally application of Amalaki paste (*Embllica officinalis*) filled with Adaraka (*Zingiber officinale* Rosc.) juice in periumbilical region ^[13].
- All type of diarrhea can be controlled by orally use of Pippali (*Piper longum* Linn.) with honey, Chitraka (*Plumbago zeylanica* Linn.) with buttermilk and Bilva fruit (*Aegle marmelos* Correa.) ^[14]
- Patha (*Cissampelos pareira* Linn.) and Daruharidra (*Berberis aristata*) crushed with rice water and dried under shade is administered with rice water for the treatment of all types of diarrhoea ^[12].
- Bhangra (*Cannabis sativa* Linn.) Jatiphala (*Myristica fragrans* Houtt.) and Indrayava seed (*Holarrhena antidysentrica* Linn.) are mix in 1:1:2: ratio and made into linctus. It checks all types of diarrhea ^[12].
- Decoction of Indrayava (seed of *H. antidysentrica*) and Patol (*Trichosanthes indica*) mixed with honey and sugar can check all type of diarrhea ^[15].

Compound formulation for Diarrhea

Ayurveda prescribed some traditional formulations for treatment of diarrhea in children.

1. **Balchaturbhadra Churna:** Balchaturbhadra Churna is effective in cough, cold and diarrhea (*Kasatisara*). Main ingredients are Mustha, Ativisha, Pippali and Karkatsringi ^[16].
2. **Gangadhar Churna:** It relief primary symptoms and stop progression of diarrhea. It consisted of Mustaka, Araluka, Shunthi, Lodhra, Sugandhbala, Bilva, Mocha rasa, Patha, Kutaj seed and Ativisha.
3. **Dhanya Panchak Kwatha:** It reduces frequency and improves consistency of stool. Main ingredients are Dhanyaka, Shunthi, Mustaka, Netrabala & Bilva. This Formulation possesses *Deepan*, *Pachana* and *Grahi* properties ^[17].

Discussion and Conclusion

Diarrhea is a very common problem in children throughout the world. Diarrhea is mainly three types acute, persistent and chronic. Most acute diarrheal episodes subside by 7 days; few last up to 14 days. Persistent diarrhea and chronic diarrhea are defined when the duration of diarrhea lasts for more than 14 days. Chronic diarrhea is usually non-infectious and associated with mal-absorption but persistent diarrhea is infectious in origin. Diarrhea is described in Ayurvedic classics with the name of "*Atisara*". In Ayurveda many single drugs such as Ativisha, Bilva, Mocharasa and Kutaj seed etc. are uses in different type of diarrhea. Balchaturbhadra Churna and Gangadhar Churna is compound formulation for control different type of diarrhea. Promotion of exclusive breastfeeding in early infancy, safe complementary feeding practices, access to safe drinking water and scientific management of acute diarrhea can significantly reduce the incidence of persistent diarrhea (PD) and chronic diarrhea.

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