


CHEMICAL AND HERBAL REMEDIES FOR CONSTIPATED PATIENTS: A REVIEW

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<p>*For Correspondence: Corresponding author email: neerajsitm@yahoo.com, Mob: +919897325740</p>	<p>Abstract Constipation is a condition in which the feces are dry and hard with infrequent difficult evacuation. In 5-25 % children and 2% of total population experiences great difficulty with elimination of food waste, accompanied with pain, fear, and avoidance, treated by laxatives, the agents that add bulk to intestinal contents or stimulation of intestinal secretion or motility. The foods like prunes, pears, bran cereals, chemicals like salts of magnesium, cellulose, plants like senna, encourage intestinal contractions and easier time moving of bowels. This systematic review contains a huge collection of references for chemicals, natural products, plants having laxative action and also provides the information about medical conditions and diseases responsible for constipation. Keywords: Constipation, laxative, stimulants, transit time, defecation.</p>
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INTRODUCTION

Laxatives are the agents that increase the ease and frequency of defecation by adding bulk to intestinal contents by retaining the water in bowel or by increasing motility or by stimulating intestinal secretion (Ashafa, 2011). Several types of laxative agent are used, including osmotic agents, bulking agents, stimulants and lubricating agents. Constipation is a condition of bowel idiopathic or originated by various identifiable disease processes and result into dry and hard feces which making evacuation difficult and result infrequent (Kumar *et al.*, 2007) or defined as less than 3 bowel movements per week or according to Rome II functional gastrointestinal disorders coordinating

committee and American college of gastroenterology chronic constipation task force specify that symptoms must have occurred for at least 12 weeks in the preceding of 12 months (Hsieh, 2005). Some conditions of body like metabolic, anorectic problems, fiber deficiency in body and certain drugs can cause constipation. Constipation occurs in diabetic patients with unknown pathogenesis or may be due to autonomic dysfunction with lack of synchronicity between gut musculature and sphincter (Bekele and Kabadi, 1996). In 5-25% of children feels pain, fear, avoidance and great difficulty in elimination of food waste (Alcantaraa and Mayer, 2008) while in order adults its prevalence is increased

due to decreased mobility and co-morbid medical trauma i.e. spinal cord injuries face the problem of constipation, distension, rectal bleeding, abdominal pain (Ebert, 2012), faecal incontinence (Coggrave *et al.*, 2006) while some other diseases like Parkinson disease, sialorrhea, dysphagia and Dysautonomia, this condition is very common (Evatt *et al.*, 2009). In two third patients with uremia may face edema to ulceration and other gastrointestinal mucosal abnormalities (Kang, 1993). Constipation is more common in women, lower socioeconomic populations of rural areas (Hsieh, 2005) due to various risk factors like dietary habits, physical inactivity, medication, age, gender and psychological behavior, presently 20-30% of

older peoples use laxative more than once in a week (Hara *et al.*, 2008).

DISEASES INDUCED CONSTIPATION

Diabetes mellitus may lower the peristaltic movements and secretion of gastrointestinal glands (Bekele and Kabadi, 1996) same as in hypothyroidism (Bennett and Heuckeroth, 2012). Uremia can produce mucosal abnormalities which may lead to ulceration (Kang, 1993) while Amyloidosis can decrease the secretion of endocrine cells that secrete hormone like serotonin and also alters motility of intestine (Sattianayagam *et al.*, 2009). Neuropathy and spinal cord injury impairs the sensory and motor function and slows the transit time.

Table-1: Diseases and conditions associated with constipation

Category	Disorder	Probable mechanism of constipation
Endocrine and metabolic diseases	Diabetes mellitus	Lowers peristaltic movement and secretion of GI glands
	Hypercalcemia	Manifests as polyuria, polydipsia, vomiting, dehydration
	Hyperparathyroidism	Causes smooth-muscle atony
	Hypothyroidism	Lowers peristalsis
	Uremia	Gastrointestinal mucosal abnormalities, ulceration
Myopathic conditions	Amyloidosis	Decreased intestinal endocrine cells that secrete hormones like serotonin, altered intestinal motility
	Myotonic dystrophy	Muscular disability
	Scleroderma	Low acid secretion
Neurologic diseases	Autonomic neuropathy	Weakness of nerves
	Cerebrovascular disease	Bowel dysfunction
	Hirschsprung's disease	Absence of ganglion cells in the distal bowel
	Multiple sclerosis	Abnormalities of colon and slow transit time
	Parkinson's disease	Dysautonomia-related gastrointestinal symptoms
	Spinal cord injury	Impaired sensory and motor functions.
Psychological conditions	Anxiety	Slow down colonic transit
	Depression	Slow down colonic transit
Structural abnormalities	Anal fissures, strictures	Decreased blood flow in midline portion of anus
	hemorrhoids	Swollen, inflamed veins in the anus or rectum
	Rectal prolapse or rectocele	Decrease the intestinal motility and prolonged alimentary transit time
	Colonic strictures	Structural abnormalities
	Inflammatory bowel disease	Inflammatory myopathy
	Obstructive colonic mass	May be due to colon cancer
Other	Pregnancy	Slower colonic transit may be due to progesterone

DRUG INDUCED CONSTIPATION

Medications are the important secondary cause of constipation and specially those drugs which affect central nervous system, nerve conduction and smooth muscle function. Such type of constipation can easily measurable by calculating colonic transit time, anorectal manometry, defecography or balloon expulsion test (Hsieh, 2005). The NSAIDs used to relieve pain but also reduces the mucous and bicarbonate secretion while antihistaminic inhibits gastric acid secretion (Souter 2006; McKay, 2012). Anticholinergics drugs like carbamazepine and diuretics may inhibits sodium channels (Ettinger, 1992) while sympathomimetics like ephedrine relaxes the smooth muscles of intestine and muscle relaxant, antimotility drugs like diphenxylate reduce peristalsis and ultimately constipation. Some drugs which may cause constipation during treatment are mentioned in table 2.

Table-2: Drugs which causes constipation

Class	Generic Name	Probable mechanism of constipation
Analgesic	NSAIDs	Reduce mucus and bicarbonate secretion
Antacids	Bismuth Sub silicate	Neutralizing the stomach acid and act as buffer
	Calcium and Aluminum salts	
Sympathomimetics	Ephedrine	Smooth muscle relaxation
Sympatholytics	Clonidine	Stimulates absorption and inhibits secretion of fluid and electrolytes and increase intestinal transit time
Anticholinergics	Benzotropine	Decreased Ach mediated stimulation of M ₂ receptors in the GI tract decreasing motility and secretions
Anticonvulsant	Carbamazepine	Stabilizes the inactivated state of sodium channels, potentiate GABA receptors made up of alpha1, beta 2, gamma 2 subunits
Antihistaminic	Diphenhydramine	Inhibition of gastric acid secretion
Antimotility	Diphenxylate	Reduce peristalsis
	Loperamide	
Antimuscarinic	Oxybutinin	CNS adverse events
	Tolteradine	
Benzodiazepines	Alprazolam	CNS adverse events
Calcium Channel Blocker	Verapamil	Reduced motility and may promote intestinal electrolyte and water absorption
Diuretics	Thiazides	Inhibition of sodium-chloride symporter
Ganglionic Blocker	Trimethaphan	CNS adverse events
	Camsylate	
Lipid Lowering	Cholestramine	-
	Pravastatin	
Muscle Relaxant	Cyclobenzaprine	Reduce peristalsis
	Metaxolone	
Opiate	Codeine	Predominately through mu and nu receptors-decreased propulsive peristaltic waves
	Morphine	
Psychotherapeutic	Phenothiazenes	CNS adverse events
Sedative-Hypnotic	Phenobarbital	CNS adverse events
	Zolpidem	
Iron	Ferrous salts	Possibly due to iron induced changes in intestinal bacterial

		flora
Other	Barium Sulfate	-
	Iron	
	Memantine	
	Phenelzine	
	Sucralfate	
	Vinca Alkaloids	

CHEMICALS WITH LAXATIVE EFFECT

The chemicals with natural and synthetic origin play an important role in the development of laxatives. Chemicals from natural origin like Bentonite, cellulose ethulose, lactulose, mannitol while chemicals from semi-synthetic and synthetic origin like carboxymethylcellulose, glycerin, liquid paraffin, sorbitol etc possess very good laxative action. Synthetic drugs like bisacodyl, bisoxatin, dantron, pentaerythritol and salts of magnesium and sodium like magnesium hydroxide, sodium picosulfate are widely used laxatives.

Table-3: Chemicals with laxative effect (Bass and Dennis, 1981; Bustos *et al.*, 1991; Sharif *et al.*, 2001; Faruqui and Joshi, 2012)

Chemical Name	Common Name	Type	Dose (Daily)	Side Effect
Bentonite	Clay	Bulk-Forming	5-10 mg	Intestinal Obstruction
Bisacodyl	Dulcolax	Contact	5-15 mg	Allergic Reaction
Bisoxatin	-	Contact	60 mg	Nausea
Carboxy methylcellulose	Cellulose Gum	Bulk-Forming	2-6 mg	Allergy
Cellulose	Natural Laxative	Bulk Laxative	30 g	Allergic
Dantron	Chrysazin	Stimulant	5-10 ml	Carcinogenic
Ethyl hydroxyl ethyl cellulose	Ethulose	Bulk-Forming	-	Abdominal Pain
Glycerin	Polyol		20 gm	
Lactulose	Chronulac	Osmotic	15-60 ml	Abdominal Cramp
Lactitol	-	Osmotic	20 g	Bloating
Liquid Paraffin	Mineral Oil	Lubricant	10-30 ml	Abdominal Pain
Magnesium Citrate	Citromag	Osmotic	17.45 g	Low Blood Pressure
Magnesium Hydroxide	Milk of Magnesia	Osmotic	35-45 ml	Anemia
Magnesium Oxide	PSMC	Osmotic	240 ml	Diarrhea
Magnesium Sulfate	Epsom Salts	Osmotic	10-15 gm	Jejunum Injury
Maltitol	Maltisweet	Osmotic	30-50 mg	High Glucose
Mannitol	Mannite	Osmotic	10-20 mg	Poorly Absorbed
Methylcellulose	-	Bulk-Forming	1-4 mg	Abdominal Pain
Olestra	-	Osmotic	20-40gm	Cramps
Oxyphenisatin	-	Contact	4 mg	Liver Damage
Pentaerythritol	-	Osmotic	5-15 gm	Irritation
Polycarbophil	-	Bulk Forming	4 mg	Abdominal Pain
Polyethylene Glycol	Macrogol	Osmotic	17-34 gm	Stomach Pain
Sodium picosulfate	Dulcolax Perles	Stimulant	20-30 mg	Diarrhea
Sorbitol	Glucitol	Osmotic	30-150 ml	Weight Loss

FOODS LAXATIVE

Some foods like prunes, pears, bran cereals and fiber rich material making stools bulkier and helps to encourage intestinal contractions which results in prevention and dealing of constipation. The pear and prune juice can make stools soft and easily to eliminate form colon. Some foods with laxative action are enumerated in table 4.

Table-4: Foods with laxative action

Food	Examples	Laxative Action	Food	Examples	Laxative Action
Fruits	Bananas	Bulk- laxative	Flowers	Broccoli	Stimulant
	Apples	Bulk- laxative		Cauliflower	Stimulant
	Melons	Digestive	Leaves	Aloe Vera	Stimulant
	Berries	Colon cleanse		Barley	Digestive
	Prunes	Colon cleanse		Bitter Gourd	Digestive
	Avocados	Bulk- laxative		Wheatgrass	Digestive
	Tomatoes	Bulk- laxative		Kale	Digestive
Seeds	Flaxseed	Digestive		Spinach	Digestive
	Pumpkin	Digestive		Dandelion	Nutritive
	Almonds	Nutritive		Spirulina	Nutritive
	Walnuts	Digestive		Mustard	Digestive
	Hemp	Bulk-forming		Onions	Digestive
	Sunflower	Digestive	Chicory	Nutritive	
	Sesame	Nutritive	Senna	Stimulant	
	Chia	Digestive	Garlic	Stimulant	
	Siberian	Digestive	Arugula	Nutritive	
	Cedar Nuts	Digestive	Rhizome	Ginger	Stimulant
Natural oils	Hemp	Demulcent		Turmeric	Stimulant
	Flax-Seed	Lubricant	Roots	Carrots	Bulk- laxative
	Avocado Seed	Lubricant			
	Olive	Lubricant			
	Coconut	Lubricant			

PLANTS USED TRADITIONALLY AS LAXATIVES

Senna leaves powder, Triphala, Isabgol husk are widely used as laxative in treatment of constipation from ancient time. The plants as laxative are easily available, economic and have lesser side effects as compare to semi-synthetic or synthetic agents. In Asian countries the dry fruits of *Ocimum americanum*, *Scaphism scaphingerum* containing mucilage, banana and papaya containing pectin while rhizome of a *Amorphophallus species* containing high quantity of glucomannan polysaccharides are widely used as bulk laxatives. The plants containing anthraquinone glycosides are senna (*Cassia angustifolia* and *Cassia fistula*) and seeds of *Senna tora* are used as stimulant laxative while leaves of *Senna alata* possess astringent property. The plants which are used as laxative traditionally are surmised in table 5.

Table-5: Plants used as traditional laxative

Biological source	Local name	Part used	Reference
<i>Actaea spicata</i>	Baneberry	Root	Madaan <i>et al.</i> , 2011
<i>Aegle marmelos</i>	Bael	Fruit Pulp	Govinda and Asdaq, 2011
<i>Alocasia indica</i>	Giant Taro	Leaves	Mulla <i>et al.</i> , 2009
<i>Aloe vera</i>	Ghritakumari	Leaves	Odes and Madar, 1991
<i>Amaranthus viridis</i>	Amaranth	Whole Plant	Ratnasooriya <i>et al.</i> , 2012
<i>Ammoniac baccifera</i>	Jangli Mendi	Whole Plant	Lavanya <i>et al.</i> , 2009
<i>Anthocephalus cadamba</i>	Kadamba	Bark	Nagakannan <i>et al.</i> , 2011
<i>Anthocleista djalonensis</i>	Cabbage Tree	Root	Bassey <i>et al.</i> , 2009
<i>Aquilaria crassna</i>	Agar Wood	Leaves	Sattayasai <i>et al.</i> , 2012
<i>Balanites aegyptiaca</i>	Hingot	Fruit Kernel	Yadav and Panghal, 2010
<i>Baliospermum montanum</i>	Danti	Seeds	Mali and Wadekar, 2008
<i>Bauhinia variegata</i>	Orchid Tree	Leaves	Rajani and Ashok, 2009
<i>Benincasa hispida</i>	Petha	Fruit	Rachchh and Jain, 2008
<i>Cajanus cajan</i>	Arhar	Leaves	Pal <i>et al.</i> , 2011
<i>Calotropis procera</i>	Madar	Whole Plant	Mohanraj <i>et al.</i> , 2010
<i>Cardiospermum halicacabum</i>	Balloon Vine	Roots	Rao <i>et al.</i> , 2006
<i>Carum carvi</i>	Caraway	Fruits	Sadiq <i>et al.</i> , 2010
<i>Cassia fistula</i>	Cascara	Fruits	Panda <i>et al.</i> , 2011
<i>Cassia occidentalis</i>	Badikanodi	Leaves	Basha <i>et al.</i> , 2011
<i>Celosia argentea</i>	Crested Celosia	Leaves	Sharma <i>et al.</i> , 2010
<i>Citrus sinensis</i>	Mosambi	Fruit	Rani <i>et al.</i> , 2009
<i>Cocculus hirsutus</i>	Vasanvel	Roots	Badole <i>et al.</i> , 2006
<i>Coffea arabica</i>	Coffee	Leaves	Bisht and Sisodia, 2010
<i>Colocasia esculenta</i>	Aravi	Corm	Prajapati <i>et al.</i> , 2011
<i>Crataeva nurvala</i>	Varuna Chhal	Root, Bark	Haque <i>et al.</i> , 2008
<i>Curcuma amada</i>	Mango Ginger	Rhizome	Policegoudra, 2011
<i>Drymaria cordata</i>	Laijabori	Leaves	Barua <i>et al.</i> , 2011
<i>Embelia ribes</i>	Vidang	Fruit	Rani <i>et al.</i> , 2009
<i>Emblica officinalis</i>	Amla	Fruit	Gopa <i>et al.</i> , 2012
<i>Enicostemma littorale</i>	White Head	Whole Plant	Abirami <i>et al.</i> , 2011
<i>Erythrina indica</i>	Mandara	Leaves	Jesupillai <i>et al.</i> , 2008
<i>Globularia alypum</i>	Ain Larneb	Leaves	Khalifi <i>et al.</i> , 2005
<i>Hedychium spicatum</i>	Kapoorkachari	Rootstocks	Verma and Padalia, 2010
<i>Hibiscus esculentus</i>	Lady's-Fingers	Roots	Sunilson <i>et al.</i> , 2008
<i>Leucaena leucocephala</i>	Subabul	Seed Gum	Gamal-Eldeen <i>et al.</i> , 2007
<i>Luffa cylindrical</i>	Luffa	Fruit	Sharma <i>et al.</i> , 2012
<i>Musa paradisiaca</i>	Plantain	Fruits	Savali <i>et al.</i> , 2011
<i>Nyctanthes arbor-tristis</i>	Night Jasmine	Leaves	Hukkeri <i>et al.</i> , 2006
<i>Olea europaea</i>	Olive	Fruits	Ghanbari <i>et al.</i> , 2012
<i>Opuntia vulgaris</i>	Prickly Pear	Whole Plant	Pal and Mitra, 2010
<i>Oxystelma esculentum</i>	Dudhialata	Whole Plant	Srivastava <i>et al.</i> , 1991
<i>Phyllanthus emblica</i>	Amla	Fruits	Sawant <i>et al.</i> , 2010
<i>Physalis Minima</i>	Rasbhari	Berries	Patel <i>et al.</i> , 2011
<i>Piper betel</i>	Paan	Leaves	Nair and Chanda, 2008

<i>Pluchea lanceolata</i>	Rasana	Leaves	Bhagwat <i>et al.</i> , 2010
<i>Pongamia pinnata</i>	Indian Beech	Root, Bark	Chopade <i>et al.</i> , 2008
<i>Prunus amygdalus</i>	Almond	Nuts	Kulkarni <i>et al.</i> , 2010
<i>Rhododendron arboretum</i>	Burans	Seed Oil	Verma <i>et al.</i> , 2011
<i>Rose alba</i>	Semi-Plena	Flower	Naikwade <i>et al.</i> , 2009
<i>Sesbania grandiflora</i>	Gaach-Munga	Leaves	Rajasekaran&Murugesan, 2003
<i>Solanum nigrum</i>	Nightshade	Whole Plant	Thenmozhi <i>et al.</i> , 2011
<i>Sphaeranthus indicus</i>	Gorakmundi	Whole Plant	Galani <i>et al.</i> , 2010
<i>Spinacia oleracea</i>	Spinach	Whole Plant	Nagar <i>et al.</i> , 2011
<i>Terminalia chebula</i>	Harra	Fruit	Chen <i>et al.</i> , 2011
<i>Trichosanthes cucumerina</i>	Serpent	Fruits	Shah <i>et al.</i> , 2012
<i>Turnera aphrodisiaca</i>	Damiana	Leaves	Kumar <i>et al.</i> , 2008
<i>Xanthium strumarium</i>	Cocklebur	Whole Plant	Kamboj and Saluja, 2010

SYSTEMIC REVIEWS OF LAXATIVE PLANTS

Various researchers systematically screen many plants for their laxative action and now a day used in many pharmaceutical preparations. The table 5 provides a systematic collection of plants which are validated for laxative action.

Table-5: Systematic reviews of laxative action in plants

Author/year	Plant	Common Name	Part	Dose (mg/kg)	Quality Rating
Mondal <i>et al.</i> , 2010	<i>Acacia suma</i>	Magali	Bark	400	Good
Uddin <i>et al.</i> , 2012	<i>Alocasia macrorrhiza</i>	Manakachu	Leaves	400	Average
Wintola <i>et al.</i> , 2010	<i>Aloe ferox</i>	Red Aloe	Leaves	200	Average
Ashafa <i>et al.</i> , 2011	<i>Aloe vera</i>	Aloe	Leaves	200	Good
Chaudhary <i>et al.</i> , 2012	<i>Amaranthus spinosus</i>	Edlebur	Plant	500	Poor
Chowdhury and Rashid, 2003	<i>Amoora rohituka</i>	Pithraj	Bark	400	Good
Suresh <i>et al.</i> , 2007	<i>Cassia auriculata</i>	Aavartaki	Pods	200	Average
Agrawal <i>et al.</i> , 2012	<i>Cassia fistula</i>	Amaltas	Fruit	1000	Good
Yele <i>et al.</i> , 2010	<i>Cassia sophera</i>	Kasunda	Leaves	200	Average
Arshad <i>et al.</i> , 2012	<i>Chrozophora prostrata</i>	Nilkanthi	Plant	300	Poor
Sharma <i>et al.</i> , 2011	<i>Citrullus lanatus</i>	Watermelon	Fruit	1000	Poor
Falodun and Agbakwuru, 2004	<i>Euphorbia Heterophylla</i>	Lechosa	Leaves	700	Average
Kane <i>et al.</i> , 2009	<i>Euphorbia thymifolia</i>	Dudhiya	Plant	200	Good
Najeeb-ur-Rehman <i>et al.</i> , 2012	<i>Fumaria parviflora</i>	Homaira	Aerial	100	Poor
Kumar <i>et al.</i> 2007	<i>Linum usitatissimum</i>	Linseed	Seeds	25	Average
Meite <i>et al.</i> , 2010	<i>Mareya micrantha</i>	Oyia	Leaves	400	Poor
Fabri <i>et al.</i> , 2012	<i>Mitracarpus frigidus</i>	Girdlepod	Aerial	1000	Average
Kambale <i>et al.</i> , 2012	<i>Moringa pterygosperma</i>	Drumstick	Roots	200	Average
Pandya <i>et al.</i> , 2011	<i>Oxystelma esculentum</i>	Dudhialata	Plant	400	Average
Singh and Chetia, 2013	<i>Pongamia pinnata</i>	Karanja	Bark	400	Good
Arezoomandan <i>et al.</i> , 2011	<i>Rosa damascena</i>	Sudburg	Petals	1500	Good
Ospino <i>et al.</i> , 2000	<i>Senna spectabilis</i>	Cassia	Leaves	35	Poor
Mondal <i>et al.</i> , 2009	<i>Spondias pinnata</i>	Makok	Bark	300	Good
Bhattacharya and Haldar, 2012	<i>Trichosanthes dioica</i>	Parwal	Root	200	Good
Vishal <i>et al.</i> , 2009	<i>Viola odorata</i>	Banafshah	Aerial	400	Good
Adnaik <i>et al.</i> , 2008	<i>Vitex negundo</i>	Nirgundi	Leaves	200	Poor

MANAGEMENT OF CONSTIPATION

Dietary and lifestyle modification

The dynamic lifestyle with physical exercise each day with schedule enough time for a bowel movement, drinking of more fluids and setup of a regular to time to use the toilet may improves the constipation problems from daily life. Some yoga poses and avoidance of fatty or fried foods, alcohol, chocolate, coffee, tea, spicy foods, vinegar and tomatoes also helps in management of constipation.

High fiber diet

High fiber diet helps to reduce heart disease, diabetes and also reduces the risk of so many potential health benefits. Diet with insoluble fibers helps in regular stool pass, prevent from diarrhea, hemorrhoids, fecal incontinence and 40-50% reduction in coronary artery disease, and stroke prevention of type 2 diabetes.

Adequate fluid intake

Water facilitates the flow of food through intestine by lubricating it and can helps in prevention and alleviation of chronic constipation. The best source of fluids is food, fruits, vegetable juices, clear source and herbal teas.

Regulars Exercise

Exercise prevents absorption of water from stool into body by decreasing the time taken by food to move through the large intestine. Aerobic respiration increases the heart rate and breathing which helps to stimulate peristalsis and contraction of intestinal muscles which results in quick movement of stool out. Some studies of reveled that regular physical exercise helps in management of constipation.

Laxative poisoning

Laxative poisoning may occurs when anybody accidently or intentionally inquest more than therapeutic dose of laxative and

may results in nausea, vomiting, abdominal cramping, diarrhea in adult patients while dehydration and electrolyte imbalance are very common in children. Sometime laxatives like methylcellulose carboxyl methyl cellulose, polycarbophil or psyllium may block the intestine if not taken with plenty of water (Kudo, 1998).

Laxative abuse

The most common abuse of laxative is by peoples who take these products for weight loss but it is very serious to produce disturbance in electrolyte and mineral balance of magnesium, sodium, potassium and phosphate which are essential components in proper functioning of muscles and nerves. Laxative abuse may cause dehydration, weakness, blurry vision, termers, fainting, and kidney damage and in extreme conditioning may cause death. Laxative abuse may also results in laxative dependency where colon stops responding to usual doses of laxatives and larger concentration are required to produce desired bowel movement which may results in internal organ damage and finally colon infection, irritable bowel syndrome or liver damage may precipitated. Laxative abusers can be divided into two groups firstly the group of individuals suffering from anorexia or bulimia nervosa in which prevalence of laxative abuse is 10-60% of individuals. The second group is individuals of middle or order aged who regularly used laxatives and become resistant to its action.

Sometimes threatening medical disorder includes electrolyte and mineral balance of body, renal and cardiovascular disorders may also associated with laxative abuse in which rennin aldosterone system is activated due to loss of fluid and minerals which leads to edema and weight gain after removal of laxative.

DISCUSSION

Laxatives are the agents used to treat constipation in which intestinal secretion lowers, stool is dry and motility of intestine decreased (Ashafa, 2011). According to Rome II criteria, constipation is defined as the symptoms must possess for one week per month during 12 month period. The incidence of constipation is over 10 % worldwide and over 15% in India while 2% of the population suffering from recurrent and constant constipation and more common in women. In adults approximately 50 % are self-reported constipated while 5-28 % children are felling difficulty in defecation or accompanied with fear and pain (Smeltzer, 2004). The chronic functional constipation is also affected by physical activity, dietary habit, socioeconomic level, age, gender and psychological parameters (Peppas, 2008). The peoples with neurological disorders, spinal cord injury have a high risk of faecal incontinence and constipation with a privilege of 27-62 % of patients. The mucosal abnormalities in gastrointestinal tract may results in ulceration occur in about 75% patients dying of uremia (Kang, 1993). The diseases and medical conditions like endocrine and metabolic disorders, Myopathic, psychological conditions and structural abnormalities of intestinal tract may results in serious constipation while some drug class which are used in

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