

Constipation

ABSTRACTS

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A European solution for digestive disorders.

Anon

Life Extension Magazine 1999 Oct; 5(9). Ft. Lauderdale, FL: Life Extension Foundation.

Changing bowel hygiene practice successfully: a program to reduce laxative use in a chronic care hospital.

Benton JM; O'Hara PA; Chen H; Harper DW; Johnston SF Sisters of Charity of Ottawa (SCO) Hospital, Ontario, Canada.

Geriatr Nurs (United States) Jan-Feb 1997, 18 (1) p12-7

Laxative use was significantly reduced in our long-term care facility when an interdisciplinary program based on a philosophy of prevention and health promotion was implemented. Specifically, increased fluid and fiber intake, timely toileting habits, and regular activity/exercise led to a halving of the number of patients receiving laxatives as required, relative to pre-program levels and relative to a control unit not receiving the program.

Calcium and fibre supplementation in prevention of colorectal adenoma recurrence: a randomised intervention trial. European Cancer Prevention Organisation Study Group.

Bonithon-Kopp C, Kronborg O, Giacosa A, Rath U, Faivre J. Registre Bourguignon des Tumeurs Digestives, Faculte de Medecine de Dijon, France.

Lancet 2000 Oct 14;356(9238):1300-6

BACKGROUND: Some epidemiological studies have suggested that high dietary intake of calcium and fibre reduces colorectal carcinogenesis. Available data are not sufficient to serve as a basis for firm dietary advice. We undertook a multicentre randomised trial to test the effect of diet supplementation with calcium and fibre on adenoma recurrence. **METHODS:** We randomly assigned 665 patients with a history of colorectal adenomas to three treatment groups, in a parallel design: calcium gluconolactate and carbonate (2 g elemental calcium daily), fibre (3.5 g ispaghula husk), or placebo. Participants had colonoscopy after 3 years of follow-up. The primary endpoint was adenoma recurrence. Analyses were by intention to treat. **FINDINGS:** 23 patients died, 15 were lost to follow-up, 45 refused repeat colonoscopy, and five developed severe contraindications to colonoscopy. Among the 552 participants who completed the follow-up examination, 94 stopped treatment early. At least one adenoma developed in 28 (15.9%) of 176 patients in the calcium group, 58 (29.3%) of 198 in the fibre group, and 36 (20.2%) of 178 in the placebo group. The adjusted odds ratio for recurrence was 0.66 (95% CI 0.38-1.17; $p=0.16$) for calcium treatment and 1.67 (1.01-2.76, $p=0.042$) for the fibre treatment. The odds ratio associated with the fibre treatment was significantly higher in participants with baseline dietary calcium intake above the median than in those with intake below the median (interaction test, $p=0.028$) **INTERPRETATION:** Supplementation with fibre as ispaghula husk may have adverse effects on colorectal adenoma recurrence, especially in patients with high dietary calcium intake. Calcium supplementation was associated with a modest but not significant reduction in the risk of adenoma recurrence.

The effects of the specific 5HT(4) receptor agonist, prucalopride, on colonic motility in healthy volunteers.

De Schryver AM, Andriessse GI, Samsom M, Smout AJ, Gooszen HG, Akkermans LM. Department of Gastroenterology, Gastrointestinal Research Unit, University Medical Center, Utrecht, The Netherlands. a.deschryver@digd.azu.nl

Aliment Pharmacol Ther 2002 Mar;16(3):603-12

BACKGROUND: Prucalopride is a selective and specific 5-hydroxytryptamine(4) receptor agonist that is known to increase stool frequency and to accelerate colonic transit. **AIM:** To investigate the effect of prucalopride on high-amplitude propagated contractions and segmental pressure waves in healthy volunteers. **METHODS:** After 1 week of dosing (prucalopride or placebo in a double-blind, randomized, crossover fashion), colonic pressures were recorded in 10 healthy subjects using a solid-state pressure catheter with six sensors spaced 10 cm apart. Subjects kept diary records of their bowel habits (frequency, consistency and straining). High-

amplitude propagated contractions were analysed visually, comparing their total numbers and using 10-min time windows. Segmental pressure waves were analysed using computer algorithms, quantifying the incidence, amplitude, duration and area under the curve of all detected peaks. RESULTS: When taking prucalopride, stool frequency increased, consistency decreased and subjects strained less. Prucalopride just failed to increase the total number of high-amplitude propagated contractions ($P=0.055$). The number of 10-min time windows containing high-amplitude propagated contractions was increased by prucalopride ($P=0.019$). Prucalopride increased the area under the curve per 24 h ($P=0.026$). CONCLUSIONS: The 5-hydroxytryptamine(4) receptor agonist prucalopride stimulates high-amplitude propagated contractions and increases segmental contractions, which is likely to be the underlying mechanism of its effect on bowel habits in healthy volunteers.

A multi-centre, general practice comparison of ispaghula husk with lactulose and other laxatives in the treatment of simple constipation.

Dettmar PW, Sykes J. Reckitt & Colman Products Ltd, Hull, UK.

Curr Med Res Opin 1998;14(4):227-33

An open, multi-centre study in general practice compared with efficacy, speed of action and acceptability of ispaghula husk (Fybogel Orange, Reckitt & Colman Products, UK), lactulose and other laxatives in the treatment of patients with simple constipation. A total of 65 GPs recruited 394 patients, of whom 224 (56.9%) were assigned to treatment with ispaghula and 170 (43.1%) to other laxatives (mainly lactulose) for up to four weeks. Thirteen patients withdrew before treatment started, so that 381 entered the study. Patients were assessed by their GP before entry and after two and four weeks of treatment. Patients also kept daily records of their bowel movements. After four weeks' treatment, ispaghula husk was assessed by the GPs to be superior to the other treatments in improving bowel function and in overall effectiveness, palatability and acceptability. Patients' reports of time to first bowel movement showed little difference between the treatments. Over 60% of patients in each treatment group passed a first motion within 24 hours, and over 80% within 36 hours. Ispaghula husk produced a higher percentage of normal, well-formed stools and fewer hard stools than other laxatives. Incidences of soiling, diarrhoea and abdominal pain were lower in the group receiving ispaghula husk. Overall, ispaghula husk was an effective treatment for simple constipation, and was associated with better stool consistency and a lower incidence of adverse events compared with lactulose or with other laxatives.

The mechanism of action of peppermint oil on gastrointestinal smooth muscle. An analysis using patch clamp electrophysiology and isolated tissue pharmacology in rabbit and guinea pig.

Hills JM, Aaronson PI. Smith Kline Beecham Pharmaceuticals Ltd., Welwyn, Herts, England.

Gastroenterology 1991 Jul;101(1):55-65

An investigation of the mechanism of peppermint oil action was performed using isolated pharmacological preparations from guinea pig large intestine and patch clamp electrophysiology techniques on rabbit jejunum. Peppermint oil relaxed carbachol-contracted guinea pig taenia coli (IC_{50} , 22.1 micrograms/mL) and inhibited spontaneous activity in the guinea pig colon (IC_{50} , 25.9 micrograms/mL) and rabbit jejunum (IC_{50} , 15.2 micrograms/mL). Peppermint oil markedly attenuated contractile responses in the guinea pig taenia coli to acetylcholine, histamine, 5-hydroxytryptamine, and substance P. Peppermint oil reduced contractions evoked by potassium depolarization and calcium contractions evoked in depolarizing Krebs solutions in taenia coli. Potential-dependent calcium currents recorded using the whole cell clamp configuration in rabbit jejunum smooth muscle cells were inhibited by peppermint oil in a concentration-dependent manner. Peppermint oil both reduced peak current amplitude and increased the rate of current decay. The effect of peppermint oil resembled that of the dihydropyridine calcium antagonists. It is concluded that peppermint oil relaxes gastrointestinal smooth muscle by reducing calcium influx.

The osmotic and intrinsic mechanisms of the pharmacological laxative action of oral high doses of magnesium sulphate. Importance of the release of digestive polypeptides and nitric oxide.

Izzo AA; Gaginella TS; Capasso F Department of Experimental Pharmacology, University of Naples Federico II, Italy.

Magnes Res (England) Jun 1996, 9 (2) p133-8

A common use for high doses of oral magnesium salts is to produce a laxative effect to treat constipation. In the intestinal lumen the poorly absorbable magnesium ions (and other ions such as sulphate) exert an osmotic effect and cause water to be retained in the intestinal lumen. This increases the fluidity of the intraluminal contents and results in a laxative action. Although the laxative action of magnesium is thought to be due to a local effect in the intestinal tract, it is also possible that released hormones such as cholecystokinin or activation of constitutive nitric oxide synthase might contribute to this pharmacological effect. Under normal circumstances the pharmacological administration of high doses of oral magnesium salts is safe and some salts--such as magnesium hydroxide--also have an antacid effect to neutralize stomach acid. However, high doses of magnesium or prolonged use may allow sufficient absorption into the systemic circulation to cause renal or other organ toxicity.

The prevalence of appendiceal fecaliths in patients with and without appendicitis. A comparative study from Canada and South Africa.

Jones BA, Demetriades D, Segal I, Burkitt DP.

Ann Surg 1985 Jul;202(1):80-2

Appendicitis is more common in developed than in developing societies and appendiceal fecaliths are thought to have an etiologic role in the disease. The geographic distribution of appendiceal fecaliths was investigated by systematic, intraoperative palpation of the appendix in patients in Toronto, Canada and Johannesburg, South Africa. The incidences of fecaliths found on pathologic sectioning of the appendix in appendicitis patients in both societies were compared. In the Canadian population, the prevalence of fecaliths in patients whose appendices were palpated incidentally was 32% versus 52% for those with appendicitis (p less than 0.01). In the African population, the prevalence of fecaliths in patients whose appendices were palpated incidentally was four per cent versus 23% for those with appendicitis ($p = 0.04$). The difference in prevalence of incidental appendiceal fecaliths in the two populations was statistically significant (p less than 0.005). The prevalence of fecaliths is higher in developed countries, such as Canada, than in developing countries, such as Africa, and is also higher in patients with than in those without appendicitis. These data support the theory that the low-fiber diets consumed in developed countries lead to fecalith formation, which then predisposes to appendicitis.

Gastrointestinal decontamination for enteric-coated aspirin overdose: what to do depends on who you ask.

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J Toxicol Clin Toxicol 2000;38(5):465-70

CONTEXT: Overdoses with enteric-coated preparation are common. The optimal means by which to limit drug absorption in such cases is controversial.

OBJECTIVE: To describe the recommendations for gastrointestinal decontamination issued by North American poison control centers for a hypothetical patient, (an adult male with normal vital signs), presenting 1 hour after ingesting 500 mg/kg of enteric-coated aspirin.

DESIGN: Telephone survey of 76 poison control centers in North America. Seven toxicologists who contributed to the American Academy of Clinical Toxicology/European Association of Poison Centres and Clinical Toxicologists position statements on gastrointestinal decontamination were also surveyed for informal comparison.

RESULTS: Most poison control centers (99%) and all of the toxicologists (100%) participated in the survey. Four centers (5 %) recommended syrup of ipecac and 38 (51%) recommended gastric lavage, compared with 0% and 0% of toxicologists, respectively. Seventy-three centers (97%) recommended at least one dose of activated charcoal, compared with 6 toxicologists (86%). Twenty-one poison centers (28%) recommended whole-bowel irrigation, compared with 3 toxicologists (43%). A total of 36 different courses of action were suggested by respondents at the poison centers. Some of these recommendations were potentially harmful.

CONCLUSIONS: Considerable variability exists in the recommendations of North American poison control centers for the gastrointestinal decontamination of patients with large, acute overdoses of enteric-coated aspirin.

Chitosan And Fat Absorption

Kanauchi O; Deuchi K; Imasato Y; Shizukuishi M; Kobayashi E Applied Bioresearch Center, Kirin Brewery Co. Ltd., Gunma, Japan. Biosci Biotechnol Biochem (JAPAN) May 1995, 59 (5) p786-90 We investigated the mechanism for the inhibition of fat digestion by chitosan, and the synergistic effect of ascorbate. The important inhibition characteristics of fat digestion by chitosan from observations of the ileal contents were that it dissolved in the stomach and then changed to a gelled form, entrapping fat in the intestine. The synergistic effect of ascorbate (AsA) on the inhibition of fat digestion by chitosan is thought not to be acid-dependent but due to the specificity of AsA itself, according to the data resulting from using preparations supplemented with sodium ascorbate (AsN). The mechanism for the synergistic effect is considered to be 1) viscosity reduction in the stomach, which implies that chitosan mixed with a lipid is better than chitosan alone, 2) an increase in the oil-holding capacity of the chitosan gel, and 3) the chitosan-fat gel being more flexible and less likely to leak entrapped fat in the intestinal tract.

Health help. Fluid + fiber = frequency.

Home Care Provid (United States) Jan-Feb 1996, 1 (1) p30

No abstract.

Fecal incontinence in children.

Loening-Baucke V Department of Pediatrics, University of Iowa Hospitals and Clinics, Iowa City 52242-1083, USA.

Am Fam Physician (United States) May 1 1997, 55 (6) p2229-38

Functional constipation is the cause of fecal incontinence in 95 percent of affected children, and anatomic or neurologic causes account for up to 5 percent of cases. The history and the physical examination (with emphasis on abdominal, rectal and neurologic examinations) are most helpful in identifying organic disease. In some children, anorectal manometry, a barium enema radiographic examination and a rectal biopsy are necessary to determine the etiology. Most children with fecal incontinence benefit from a strict treatment plan that includes defecation trials, a fiber-rich diet and laxative medications. Surgery followed by medical treatment is required in patients with Hirschsprung's disease and in some patients with anal stenosis or a history of surgical repair of an anorectal malformation.

[Magnesium: current concepts of its physiopathology, clinical aspects and therapy]

Mancinella A, Bartolucci E.

Acta Vitaminol Enzymol (Italy) 1982, 4 (1-2) p87-97

Functional constipation is not a life-threatening disease, but as a chronic state it worries the patient and causes him discomfort and often leads him to self-medication with potentially dangerous drugs. Ro 01-4709 contains as active substance dexpanthenol, which is the alcohol of pantothenic acid, a vitamin of the B-complex. In the cells, dexpanthenol is readily oxidized to pantothenic acid, which stimulates peristalsis when administered in therapeutically effective doses. Ro 01-4709 has already proven its efficacy in the prevention and treatment of adynamic ileus. Recently, several open and two double-blind studies have been carried out, investigating the efficacy of oral Ro 01-4709 in the treatment of chronic functional constipation. The two double-blind studies showed Ro 01-4709 to be superior to placebo in all parameters measured. The studies with an open design also demonstrated a favourable effect of Ro 01-4709 in the treatment of chronic functional constipation. Owing to its physiological action-which is in a favourable contrast to that of normal laxatives. Ro 01-4709 can be recommended for the treatment of functional constipation in pregnant women, children and the elderly.

Chronic constipation--is the work-up worth the cost?

Rantis PC Jr; Vernava AM 3rd; Daniel GL; Longo WE Department of Surgery, Saint Louis University School of Medicine, MO 63110-0250, USA.

Dis Colon Rectum (United States) Mar 1997, 40 (3) p280-6

BACKGROUND: Chronic constipation can be a disabling condition that may require colectomy. Evaluation has been included as a way to select appropriate patients for colectomy and may also be extensive, unrevealing, and costly.

AIMS: This study was undertaken to determine the cost and use of evaluation and outcome of patients with chronic constipation.

METHODS: Patients with chronic constipation were reviewed for severity of symptoms, diagnostic studies performed, treatment, and outcome. The costs of the diagnostic studies were determined at our institution. Fifty-one patients were identified with chronic constipation; all were referred by other physicians. Mean age was 54 (range, 21-81) years; 59 percent were females. Average number of bowel movements per week was two (range, 0-4), and average duration of symptoms was five years (range, 1-20). Forty-three of 51 (84 percent) colonoscopies or barium enemas were normal. Thirteen of 51 (25 percent) colonic transit studies were abnormal. Twenty-six of 51 (51 percent) patients underwent defecography; 12 (46 percent) were abnormal. Thirty-seven of 51 (74 percent) underwent anal manometry; 5 (14 percent) were abnormal. One of 18 (6 percent) rectal biopsies demonstrated Hirschsprung's disease. Overall, 8 patients (16 percent) were diagnosed with outlet obstruction, 12 (24 percent) with colonic inertia, and 31 (61 percent) with constipation of unclear etiology. Overall mean cost of diagnosis was \$2,752 (range, \$1,150-\$4,792). Fiber, cathartics, or biofeedback therapy was successful in 33 of 51 (65 percent) patients. Among the remaining 18 patients, 12 underwent surgery, of which 10 were successful. The remaining eight patients were constipated, despite treatment.

CONCLUSION: A cost of \$140,369 was expended on extensive diagnostic tests, from which 12 of 51 (23 percent) patients benefited. Exhaustive diagnostic evaluation of constipation is costly, and its benefits are unclear.

Fat binder: a study of safety in obese patients.

Rossner S, Abelin J:

MATS Medical AB, Stockholm, Sweden, 1995.

Abstract: L112 Biopolymer (L112 Fat Blocker) is an investigational drug extracted from shellfish. L112 Biopolymer has unique properties in its ability of binding fat from the food in the stomach and in the intestines. This leads to a correction and normalization of the LDL cholesterol and triglyceride levels in the blood. The HDL-cholesterol level in the blood increases. The fat sucked out of the food and remains in the digestional canal. Thus the blood takes up less fat which leads to less fat deposits in the body. The body absorbs fewer calories from the fat and the cholesterol and triglyceride levels in the blood are reduced, all in one natural process. L112 Fat Blocker is made of a special fibre-like substance derived from the shells of shrimps, crabs and other shellfishes. After chemical extraction the substance has got electrostatic properties and has unique fat binding properties. It has been tested by a Norwegian research laboratory. When given orally together with the food it immediately disperses into tiny particles. These have great affinity to fat and starts binding themselves to fat particles in the stomach and upper intestines. With increasing pH in the lower intestines the binding occurs probably through precipitation and the body cannot any longer absorb the fat through the intestinal wall or disperse it into the blood stream. The substance has been tested in clinical trials and shows a remarkable effect in reducing total cholesterol while allowing the HDL-cholesterol to increase. In one randomized double-blind study with placebo-control the weight reduction was 2.5 times better than diet alone. A preliminary review on L112 Biopolymer has been published elsewhere. When fat contents in the bowel increases, it makes the feces soft and smooth. This may be particularly positive for those who suffer from constipation. In this unicentre trial the fat content in feces and laboratory parameters, during treatment with L112 twice daily, will be investigated.

Constipation in the elderly.

Schaefer DC, Cheskin LJ. Johns Hopkins University School of Medicine, Baltimore, Maryland, USA.

Am Fam Physician 1998 Sep 15;58(4):907-14

Constipation affects as many as 26 percent of elderly men and 34 percent of elderly women and is a problem that has been related to diminished perception of quality of life. Constipation may be the sign of a serious problem such as a mass lesion, the manifestation of a systemic disorder such as hypothyroidism or a side effect of medications such as narcotic analgesics. The patient with constipation should be questioned about fluid and food intake, medications, supplements and homeopathic remedies. The physical examination may reveal local masses or thrombosed hemorrhoids, which may be contributing to the constipation. Visual inspection of the colon is useful when no obvious cause of constipation can be determined. Treatment should address the underlying abnormality. The chronic use of certain treatments, such as laxatives, should be avoided. First-line therapy should include bowel retraining, increased dietary fiber and fluid intake, and exercise when possible. Laxatives, stool softeners and nonabsorbable solutions may be needed in some patients with chronic constipation.

[A clinical study of the use of a combination of glucomannan with lactulose in the constipation of pregnancy]

Signorelli P; Croce P; Dede A Divisione di Ostetricia e Ginecologia, Ospedale di Codogno, Regione Lombardia, USL n. 25, Lodi.

Minerva Ginecol (Italy) Dec 1996, 48 (12) p577-82

RATIONAL: Constipation is a problem frequently encountered during pregnancy as is excessive weight gain. Treatments of common use to control constipation are endowed with some drawbacks and they are not active in controlling weight increase. A preparation of lactulose and glucomannan in previous studies proved very effective and well tolerated in patients affected by stypsis and evidenced also activity both in controlling excessive food intake and in correcting some metabolic imbalances regarding lipids and urea.

MATERIAL AND METHODS: 50 pregnant females affected by constipation were treated with sachets containing a preparation of glucomannan (1.45 g) and lactulose (4.2 g) in a posology of 2 (1-4) sachets a day for 1-3 months.

RESULTS: Treatment induced a return to normal frequency of weekly number of evacuations (4.9-5.8/week) and a parallel control of weight gain (within 20% of initial body weight). The latter finding seems to be related to hunger control induced by glucomannan at the gastric level which prevents an excessive food intake.

Effects of prucalopride on colonic transit, anorectal function and bowel habits in patients with chronic constipation.

Sluots CE, Poen AC, Kerstens R, Stevens M, De Pauw M, Van Oene JC, Meuwissen SG, Felt-Bersma RJ. Department of Gastroenterology, Academic Hospital Vrije Universiteit, Amsterdam, The Netherlands.

Aliment Pharmacol Ther 2002 Apr;16(4):759-67

BACKGROUND: There is a need for better tolerated drugs to normalize bowel function in chronic constipation. Prucalopride is a highly selective, specific, serotonin₄ receptor agonist with enterokinetic properties. **AIM:** To evaluate the effects of prucalopride on bowel function, colonic transit and anorectal function in patients with chronic constipation.

METHODS: Twenty-eight patients were enrolled in this double-blind, placebo-controlled, crossover study (prucalopride: 1 mg, n=12; 2 mg, n=16). Patients kept a bowel function diary. Colonic transit times and anorectal function (anal manometry, rectal sensitivity and rectal compliance) were assessed.

RESULTS: Prucalopride (1 mg) compared to placebo significantly increased the mean number of spontaneous complete, spontaneous and all bowel movements per week. Prucalopride (1 mg) significantly decreased the percentage of bowel movements with hard/lumpy stools and straining and increased the urge to defecate. Prucalopride (1 and 2 mg) decreased the mean total colonic transit time by 12.0 h (prucalopride 42.8 h vs. placebo 54.8 h; P=0.074). No statistically significant effects were found in any of the anorectal function parameters. Prucalopride was well tolerated. There were no clinically relevant changes in standard safety parameters.

CONCLUSIONS: Prucalopride significantly improves stool frequency and consistency, and the urge to defecate, and may decrease colonic transit times in patients with chronic constipation.

Constipation. Diagnosis and treatment.

Sweeney M Catholic Services for Children and Youth, St. Louis, MO, USA.

Home Care Provid (United States) Oct 1997, 2 (5) p250-5

Chronic constipation, the number one gastrointestinal complaint in the United States, is a serious condition that affects patient quality of life and accounts for the annual expenditure of millions of dollars by affected individuals, many of whom attempt to self-manage their condition. Because constipation has varied etiologies and treatment modes, it is imperative for the family nurse practitioner to know options for patients. Constipation complaints can indicate multiple diseases, and such patients can be among the most difficult diagnostic and therapeutic problems in clinical practice. Two of the primary care provider's duties to these patients are to educate them about bowel habits and to explain how different medications may either aid or exacerbate their symptoms. Constipation is a universal affliction of Western civilization. In the United States, this malady accounts for more than 2.5 million physician visits per year, is among the most frequent reasons for self-medication, and is particularly troublesome in the elderly population. Americans spend more than \$725 million annually on over-the-counter (OTC) laxatives in an attempt to self-treat the most common gastrointestinal complaint in the country. (7 Refs.)

Analysis of two novel classes of plant antifungal proteins from radish (*Raphanus sativus* L.) seeds.

Terras FR, Schoofs HM, De Bolle MF, Van Leuven F, Rees SB, Vanderleyden J, Cammue BP, Broekaert WF. F. A. Janssens Laboratory of Genetics, Catholic University of Leuven, Heverlee, Belgium.

J Biol Chem 1992 Aug 5;267(22):15301-9

Two novel classes of antifungal proteins were isolated from radish seeds. The first class consists of two homologous proteins (Rs-AFP1 and Rs-AFP2) that were purified to homogeneity. They are highly basic oligomeric proteins composed of small (5-kDa) polypeptides that are rich in cysteine. Both Rs-AFPs have a broad antifungal spectrum and are among the most potent antifungal proteins hitherto characterized. In comparison with many other plant antifungal proteins, the activity of the Rs-AFPs is less sensitive to the presence of cations. Moreover, their antibiotic activity shows a high degree of specificity to filamentous fungi. The amino-terminal regions of the Rs-AFPs show homology with the derived amino acid sequences of two pea genes specifically induced upon fungal attack, to gamma-thionins and to sorghum alpha-amylase inhibitors. The radish 2S storage albumins were identified as the second novel class of antifungal proteins. All isoforms inhibit growth of different plant pathogenic fungi and some bacteria. However, their antimicrobial activities are strongly antagonized by cations.

The treatment of chronic constipation in adults. A systematic review

J Gen Intern Med (United States) Jan 1997, 12 (1) p15-24

OBJECTIVE: To evaluate whether laxatives and fiber therapies improve symptoms and bowel movement frequency in adults with chronic constipation.

DATA SOURCES: English language studies were identified from computerized MEDLINE (1966-1995). Biological Abstracts (1990-1995), and Micromedex searches; bibliographies; textbooks; laxative manufactures; and experts.

STUDY SELECTION: Randomized trials of laxative or fiber therapies lasting more than 1 week that evaluated clinical outcomes in adults with chronic constipation.

MEASUREMENTS AND MAIN RESULTS: Two independent reviewers appraised each trial's characteristics including methodologic quality. There were 36 trials involving 1,815 persons from a variety of settings including clinics, hospitals and nursing homes. Twenty-three trials were 1 month or less in duration. Several laxative and fiber preparations were evaluated. Twenty trials had a placebo, usual care, or discontinuation of laxative control group, and 16 directly compared different agents. Laxatives and fiber increased bowel movement frequency by an overall weighted average of 1.4 (95% confidence interval [CI] 1.1-1.8) bowel movements per week. Fiber and bulk laxatives decreased abdominal pain and improved stool consistency compared with placebo. Most nonbulk laxative data concerning abdominal pain and stool consistency were inconclusive, though cisapride, lactulose, and lactitol improved consistency. Data concerning superiority of various treatments were inconclusive. No severe side effects for any of the therapies were reported.

CONCLUSIONS: Both fiber and laxatives modestly improved bowel movement frequency in adults with chronic constipation. There was inadequate evidence to establish whether fiber was superior to laxatives or one laxative class was superior to another.

Physiological role of dietary fiber: a ten-year review.

Trowell H, Burkitt D.

ASDC J Dent Child 1986 Nov-Dec;53(6):444-7

It is accepted nowadays that dietary fiber is an important constituent of the diet. There is growing evidence that the low fiber Western diets and the low consumption of whole grain products are important factors in several common diseases of the large bowel. Cereal fiber differs from that present in vegetables and fruit. A low intake of cereal fiber has been implicated in cancer of the large bowel, diverticular disease of the colon and coronary heart disease. High fiber diets are often prescribed for diabetes. Although fiber consumption by British and American consumers has decreased over the past century, consumption of whole wheat breads and fiber-rich breakfast cereals has received new attention during the past ten years.

Clinical response to dietary fiber treatment of chronic constipation.

Voderholzer WA; Schatke W; Muhldorfer BE; Klauser AG; Birkner B; Muller-Lissner SA Medizinische Klinik, Klinikum Innenstadt, University of Munich, Germany.

Am J Gastroenterol (United States) Jan 1997, 92 (1) p95-8

OBJECTIVES: To determine the clinical outcome of dietary fiber therapy in patients with chronic constipation.

METHODS: One hundred, forty-nine patients with chronic constipation (age 53 yr, range 18-81 yr, 84% women) at two gastroenterology departments in Munich, Germany, were treated with *Plantago ovata* seeds, 15-30 g/day, for a period of at least 6 wk. Repeated symptom evaluation, oroanal transit time measurement (radiopaque markers), and functional rectoanal evaluation (proctoscopy, manometry, defecography) were performed. Patients were classified on the basis of the result of dietary fiber treatment: no effect, n = 84; improved, n = 33; and symptom free, n = 32.

RESULTS: Eighty percent of patients with slow transit and 63% of patients with a disorder of defecation did not respond to dietary fiber treatment, whereas 85% of patients without a pathological finding improved or became symptom free.

CONCLUSION: Slow GI transit and/or a disorder of defecation may explain a poor outcome of dietary fiber therapy in patients with chronic constipation. A dietary fiber trial should be conducted before technical investigations, which are indicated only if the dietary fiber trial fails.

SUGGESTED READING

Endogenous nitric oxide modulates morphine-induced constipation.

Calignano A, Moncada S, Di Rosa M Department of Experimental Pharmacology, University of Naples Federico II, Italy.

Biochem Biophys Res Commun 1991 Dec 16;181(2):889-93

Administration of morphine in mice causes inhibition of the gastrointestinal transit of a charcoal meal. Morphine-induced constipation in mice seems to depend predominantly on action(s) on the central nervous system since N-methyl morphine, a quaternary derivative, inhibits intestinal transit only when administered intracerebroventricularly (i.c.v.). L- but not D-arginine, given intraperitoneally, reversed the constipation induced by both morphine and its quaternary analogue. L-arginine was ineffective when given i.c.v. and did not reverse atropine-induced constipation. These results suggest that L-arginine preferentially modulates opioid-induced constipation through a stereospecific and peripheral action(s). It is possible that the effect of L-arginine is achieved by increasing the amount of nitric oxide released by non-adrenergic, non-cholinergic nerves in the gut. Thus, L-arginine may represent a useful agent for the treatment of undesirable constipation associated with the use of narcotic analgesics.

Assessment of the effect of increased dietary fibre intake on bowel function in patients with spinal cord injury.

Cameron KJ; Nyulasi IB; Collier GR; Brown DJ Spinal Injuries Unit, Austin Hospital, Heidelberg, Victoria, Australia.

Spinal Cord (England) May 1996, 34 (5) p277-83

It is common for constipation to occur following severe spinal cord injury (SCI). Although a bowel management program including a high fibre diet is an integral part of rehabilitation, the effect of a high fibre diet on large bowel function in SCI has not been examined. The aims of this study were to assess the nutrient intake of SCI patients, to determine baseline transit time, stool weight and evacuation time and to assess the effect of addition of bran on large bowel function. Eleven subjects, aged 32 +/- 10.5 years participated in the study. The level of injury ranged from C4 to T12; only one patient had an incomplete injury. Baseline mean energy intake was 7823 +/- 1443 kJ/d, protein intake 93 +/- 21 g/d, carbohydrate intake 209 +/- 39 g/d and mean dietary fibre intake 25 +/- 8 g/d. Mean baseline stool weight was 128 +/- 55 g/d and bowel evacuation time was 13 +/- 7.4 min/d. Three subjects who consumed < 18 g dietary fibre/d had low stool weights of 60-70 g/d and two had very delayed transit times that were too slow to enable quantitation. Mean mouth to anus transit time was 51.3 +/- 31.2 h, mean colonic transit time 28.2 +/- 3.5 h, right colonic transit time 5.9 +/- 4.5 h, left colonic transit time 14.5 +/- 5.2 h and rectosigmoid colonic transit time 7.9 +/- 5.6 h. Following the addition of bran, dietary fibre intake significantly increased from 25 g/d to 31 g/d (< 0.001). However, the mean colonic transit time increased from 28.2 h to 42.2 h (< 0.05) and rectosigmoid colon transit time increased from 7.9 to 23.3 h (< 0.02). Stool weight, mouth to anus, left and right colon transit time and evacuation time did not change significantly. Results of this study suggest that increasing dietary fibre in SCI patients does not have the same effect on bowel function as has been previously demonstrated in individuals with 'normally functioning' bowels. Indeed the effect may be the opposite to that desired. This preliminary study highlights the need for further research to examine the optimal level of dietary fibre intake in SCI patients.

Mechanisms of constipation in older persons and effects of fiber compared with placebo.

Cheskin LJ, Kamal N, Crowell MD, Schuster MM, Whitehead WE Division of Digestive Diseases, Johns Hopkins Bayview Medical Center, Baltimore, MD 21224, USA. J Am Geriatr Soc 1995 Jun;43(6):666-9

OBJECTIVE: To investigate the mechanisms of constipation and the effect of fiber supplementation on physiology, mechanisms, stool parameters, and colonic transit times in a group of constipated older patients.

DESIGN: Single-blind, randomized, placebo-controlled fiber intervention with crossover.

SETTING: A university-based outpatient center.

PATIENTS: Ten community-living older men and women, healthy except for chronic constipation.

INTERVENTIONS: Patients were given either 24 g psyllium fiber or placebo fiber daily for 1 month, then crossed over to the other arm for an additional month. Structured testing, including total gut transit time and rectal and colonic manometry, was performed at the end of each intervention month. Patients recorded stool frequency, consistency, and weights daily.

RESULTS: The predominant mechanism for constipation in these patients was outlet delay caused by pelvic dyssynergia. Fiber decreased total gut transit time from 53.9 hours (placebo condition) to 30.0 hours (< .05). Stool weights and consistency were not

significantly improved by fiber, though there was a trend toward an increase in stool frequency (1.3 vs 0.8 bowel movements per day.) Pelvic floor dyssynergia was not remedied by fiber, even when constipation was clinically improved.

CONCLUSIONS: Fiber supplementation appeared to benefit constipated older patients clinically, and it improved colonic transit time, but it did not rectify the most frequent underlying abnormality, pelvic floor dyssynergia.

[Intake of dietary fiber and other nutrients by children with and without functional chronic constipation]

de Moraes MB; Vitolo MR; Aguirre AN; Medeiros EH; Antoneli EM; Fagundes-Neto U Departamento de Pediatria da Universidade Federal de Sao-Paulo-Escola Paulista de Medicina (UNIFESP-EPM).

Arq Gastroenterol (Brazil) Apr-Jun 1996, 33 (2) p93-101

The aim of this study was to evaluate the dietary fiber intake and the dietary habits of children with and without functional chronic constipation. We enrolled 58 children with functional chronic constipation and 58 controls without constipation matched for sex and age. Food and fiber intake were evaluated by 24 hour dietary recall and a complete clinical history was performed. The age of onset of constipation occurred during the first year of life in 55.4% of the patients while the median age of evaluation was 78 months. Soiling was found in 41.7% of patients. The median period of exclusive breast feeding was shorter ($P = 0.002$) in the constipation group (one month) than in the control group (three month). The proportion of constipation was similar for mothers of children of both groups as well as for siblings in both groups. The fathers of children with constipation presented higher frequency of constipation (12.3%) than the fathers of children in control group (1.8%), but the difference did not reach statistical significance ($P = 0.06$). The amount of food measured by 24 hour recall was similar in both groups. The calorie intake of constipated children (1526 +/- 585 calories/day) was lower ($P = 0.07$) than in the control group (1712 +/- 513 calories/day) but the difference did not reach statistical significance. The intake of protein, fat and iron was lower in the constipation group than in the control group. The volume of cow's milk intake was similar in both groups. The median of total dietary fiber intake in the constipation group (13.5 g/day) was statistically ($P = 0.009$) lower than in the control group (16.8 g/day). The daily intake of insoluble dietary fiber was also statistically lower ($P = 0.001$) in the constipation group (6.3 g) than in the control group (9.4 g). The intake of soluble dietary fiber was similar in both groups. The intake of dietary fiber per 1,000 calories of diet was 10.3 g in the constipation group and 10.4 in the control group ($P = 0.41$). There was a considerable intersection of individual values in fiber intake of the constipation and control groups, suggesting that low fiber intake acts in association with others factors on the genesis of constipation in children. However, the low intake of insoluble fiber, suggests that it plays an important role on the pathogenesis of chronic constipation in children.

Effectiveness of bran supplement on the bowel management of elderly rehabilitation patients.

Gibson CJ; Opalka PC; Moore CA; Brady RS; Mion LC

J Gerontol Nurs (United States) Oct 1995, 21 (10) p21-30

1. Constipation is a common problem in the elderly that affects up to 20% of those 65 years and older.
2. Patients receiving the fiber supplement had a significantly lower number of bowel agents per day as compared to the control patients.
3. Side effects from the additional fiber occurred in a subgroup of patients; thus, institution of additional fiber to the diets of ill, physically dependent patients is best done gradually and with close monitoring.

Comparison of the effects of magnesium hydroxide and a bulk laxative on lipids, carbohydrates, vitamins A and E, and minerals in geriatric hospital patients in the treatment of constipation.

Kinnunen O, Salokannel J Department of Internal Medicine, Health Centre Hospital, Oulu, Finland.

J Int Med Res 1989 Sep-Oct;17(5):442-54

In a crossover study the effects of magnesium hydroxide on serum lipids, carbohydrates, vitamins A and E, uric acid and whole blood minerals were compared with those of a bulk laxative containing plantago rind and sorbitol in 64 constipated, elderly long-stay patients, 55 of whom were receiving diuretics. Hypomagnesaemia occurred in 11 (17%) patients after bulk laxative and in two (2%) patients after magnesium hydroxide treatment. There was a slight reduction in low values of high-density lipoprotein cholesterol and high values of triglycerides after magnesium hydroxide treatment. There were no significant differences in plasma lipids, whole blood minerals or vitamins A and E using either laxative. Negative p correlations were found between the increase in serum concentrations of magnesium and glycosylated haemoglobin A1 (P less than 0.02) and the serum level of uric acid (P less than 0.01). These results suggest that the long-term effects of magnesium hydroxide and bulk laxative on the absorption of nutrients may not be

significantly different. Magnesium hydroxide, may have beneficial effects on lipid disorders, impaired glucose tolerance and hyperuricaemia in magnesium deficiency due to diuretics and thus may be a favourable laxative for use in bedridden geriatric patients receiving diuretics.

Constipation in children

Leung A.K.C.; Chan P.Y.H.; Cho H.Y.H. Alberta Children's Hospital, 1820 Richmond Rd. S.W., Calgary, Alta. T2T 5C7 Canada
American Family Physician (USA), 1996, 54/2 (611-630)

Constipation is a common childhood condition, estimated to occur in 5 to 10 percent of children. In most cases, the cause is functional. However, constipation may occasionally indicate a significant organic disorder, which can usually be determined by a thorough history and physical examination. Constipation that is present from birth or that begins in the neonatal period is most likely to be congenital in origin. Acute constipation usually has an organic cause, while chronic constipation usually has a functional cause. Failure to thrive and gross distention of the abdomen suggest the diagnosis of Hirschsprung's disease. Rectal examination of a child with constipation usually reveals a distended rectum that is full of stool. In patients with Hirschsprung's disease, the rectum is usually empty and tight. Laboratory Investigations are usually not necessary in patients with mild constipation. Treatment should be directed at the underlying cause. Functional constipation can be managed by changes in diet, regular bowel habits and, if necessary, pharmacologic therapy and biofeedback training.

Lack of influence of intestinal transit on oxidative status in premenopausal women.

Lewis S; Bolton C; Heaton K University Department of Medicine, Bristol Royal Infirmary. Eur J Clin Nutr (England) Aug 1996, 50 (8) p565-8

OBJECTIVE: There are reasons for believing that diet can alter the risk of malignancy by alteration of the body's oxidative status. Intestinal contents and enterohepatically recirculated substances are influenced by intestinal transit rate. A low fibre diet has been linked to the increase in constipation seen in countries consuming a westernized diet, as well as to the aetiology of many diseases. We studied the effects of altering intestinal transit rates and of wheat bran on oxidative status.

DESIGN: 40 premenopausal women were randomized to receive dietary supplements of wheat bran, senna or loperamide for the length of two menstrual cycles. Dietary records, whole gut transit time (WGTT) and plasma lipid peroxides, measured as TBARS (specifically malondialdehyde) were determined at the beginning and end of each intervention.

SETTING: University department of Medicine, Bristol Royal Infirmary.

RESULTS: 36 volunteers completed the study. WGTT increased in those receiving loperamide and decreased in those receiving senna. The decrease in WGTT was not significant in those receiving wheat bran. Diets did not change. There were no changes in TBARS, cholesterol, triglyceride or TBARS adjusted for cholesterol and triglyceride, during any intervention.

CONCLUSIONS: Dietary supplementation with wheat bran and pharmacological alteration of intestinal transit had no influence on oxidative status or on plasma cholesterol or triglycerides.

The connection between dietary fibre intake and chronic constipation in children

Mooren G.C.A.H.C.M.; Van Der Plas R.N.; Bossuyt P.M.M.; Taminiu J.A.J.M. ; Buller H.A. Academisch Medisch Centrum, Kinder AMC, Afd. Kindergastroenterologie/Voeding, Meibergdreef 9, 1105 AZ Amsterdam Netherlands

Nederlands Tijdschrift voor Geneeskunde (Netherlands), 1996, 140/41 (2036-2039)

Objective. Evaluation of the feeding patterns of children with chronic constipation, in particular dietary fibres, energy and fluid intake and their influence on colonic transit time. In addition, the effect of dietary recommendations regarding fibres was assessed.

Design. Prospective randomized study.

Setting. Department of Paediatric Gastroenterology and Nutrition, Academic Medical Centre, Amsterdam, the Netherlands.

Method. Children with at least 2 months of complaints related to constipation were enrolled and both dietary intake and colonic transit time were evaluated. After dietary and laxative treatment, in some combined with biofeedback training, and a follow-up of 6 months, a randomized sample were again evaluated regarding their transit times and dietary patterns.

Results. In 73 consecutive children mean fibre intake was the same as in healthy controls, although energy and fluid intake were

lower. Colonic transit time was increased compared with healthy controls and no relationship was established between fibre intake and transit time. At 6 months no significant increase in mean fibre intake was observed and no relationship was found between either transit time and change in fibre intake or cure and change in fibre intake. In the cured patients no increase of their mean fibre intake could be observed.

Conclusion. The amount of dietary fibres played no pathogenic part in chronic constipation. Dietary advice did not change the mean fibre content of the diet. In addition, changes in fibre intake had no effect on colonic transit time or cure.

Products for indigestion

Nathan A. Department of Pharmacy, King's College London, London United Kingdom

Pharmaceutical Journal (United Kingdom), 1996, 256/6892 (678-682)

Indigestion, after headache, is the ailment most likely to be treated with a nonprescription medicine. In 1994, sales of indigestion remedies increased by 11.7 per cent in volume terms (16.1 per cent by value), some of which was due to the POM to P switch of H2-receptor antagonists. P products account for only 8.5 per cent of total indigestion remedy sales.

Dietary fiber and laxation in postop orthopedic patients.

Ouellet LL; Turner TR; Pond S; McLaughlin H; Knorr S Clin Nurs Res (United States) Nov 1996, 5 (4) p428-40

The addition of wheat fiber in the diet of post-surgical orthopedic patients as a means of preventing constipation was studied using a quasi-experimental design. It was hypothesized that a 20 gm supplement of All Bran and natural bran would promote spontaneous bowel movements, reduce the incidence of constipation, and thus decrease the need for elimination interventions. The results show that the study group had more spontaneous bowel movements and required fewer elimination interventions than did the control group.

Acute hypermagnesemia after laxative use

Qureshi T.I.; Melonakos T.K. 15268 South Monroe Street, Monroe, MI 48161 USA Annals of Emergency Medicine (USA), 1996, 28/5 (552-555)

We present the case of a patient in whom hypotension, sudden cardiopulmonary arrest, and coma developed after a massive dose of a seemingly harmless cathartic agent. The diagnosis of hypermagnesemia was made 9 hours after the patient's admission, when the serum magnesium concentration was 21.7 mg/dL (8.9 mmol/L). The patient's condition improved with IV calcium, saline solution infusion, and cardiorespiratory support. The elimination half-life of magnesium in this case was 27.7 hours. Few cases have been reported in which patients have survived with serum levels greater than 18 mg/dL (7.4 mmol/L). This case provides evidence that hypermagnesemia may occur in patients with normal kidney function. The diagnosis of hypermagnesemia should be considered in patients who present with symptoms of hyporeflexia, lethargy, refractory hypotension, shock, prolonged QT interval, respiratory depression, or cardiac arrest.

Challenges in the treatment of colonic motility disorders

Reynolds J.C. Gastroenterology and Hepatology Div., Allegheny Univ. of Health Sciences, Broad and Vine Streets, Philadelphia, PA 19102 USA

American Journal of Health-System Pharmacy (USA), 1996, 53/22 Suppl. (S17-S26)

The pathophysiology and treatment of colonic motility disorders are reviewed. Colonic dysfunction is a common reason for patients to seek medical care, although patients' perceptions may not reflect abnormal function. Abnormalities in colonic function can result from a primary disorder of the large intestine or from metabolic, neurologic, collagen vascular, neoplastic, or infectious diseases. Irritable bowel syndrome, a common disorder of colonic motility, can be caused by alterations in colonic neuromuscular functions, afferent neural function, or psychosocial factors. Colonic dysmotility can also result from malabsorption of carbohydrates. The most severe form of altered colonic motility is acute colonic pseudo-obstruction. Diagnostic studies should be limited to tests appropriate for the patient's symptoms and apparent severity of disease. Most motility disorders are functional disorders and do not result in abnormal studies. Pharmacotherapy should be directed by objective measures, the most useful of which are measurement of whole gut transit time and quantification of the water content of stools. Treatment should be determined by the nature of the disorder and the symptoms involved. For constipation, treatment should begin with changes in diet, fluid and fiber intake, and concurrent medications. Irritant laxatives can have damaging effects and should not be used habitually; however, polyethylene glycol-based purgatives can be helpful. Newer prokinetic agents, such as cisapride, have been shown to promote colonic motility. For selected

patients with intractable constipation, surgery has a good success rate. For patients with functional diarrhea, opioid analogues can increase fluid absorption and delay transit.

Heartburn requiring frequent antacid use may indicate significant illness.

Robinson M, Earnest D, Rodriguez-Stanley S, Greenwood-Van Meerveld B, Jaffe P, Silver MT, Kleoudis CS, Wilson LE, Murdock RH Oklahoma Foundation for Digestive Research, University of Oklahoma Health Sciences Center, Oklahoma City 73109-5022, USA.

Arch Intern Med 1998 Nov 23;158(21):2373-6

BACKGROUND: Many otherwise healthy individuals with episodic heartburn self-medicate with over-the-counter antacids. We evaluated clinical characteristics of subjects who had never been medically diagnosed as having any upper gastrointestinal tract disorder and who used antacids for symptomatic relief of heartburn.

SUBJECTS AND METHODS: Subjects with at least 3 months of frequent heartburn relieved by antacids, and with heartburn on at least 4 of 7 days during the week prior to study entry, had their medical history and gastrointestinal pathological characteristics recorded. Tests included esophagogastroduodenoscopy, esophageal motility and sensitivity studies, and 24-hour pH monitoring.

RESULTS: Of 178 subjects screened, 13 were excluded on the basis of other gastrointestinal diseases at baseline, including diffuse esophageal spasm, peptic ulcer disease, dysplastic columnar metaplasia of the esophagus (Barrett's esophagus), and adenocarcinoma. Ten subjects were ineligible because of insufficient baseline heartburn. The remaining 155 eligible subjects had heartburn for an average of 11 years. Forty-seven percent had daily symptoms and 70% described heartburn severity as moderate, even though on endoscopy most (53%) had normal-appearing esophageal mucosa (grade 0 or 1). Esophageal acid sensitivity was present in 86% of subjects. Mean lower esophageal sphincter pressures and esophageal contractile amplitudes were at the lower limits of normal and total esophageal acid contact time was slightly increased.

CONCLUSIONS: Chronic heartburn can reflect a wide range of diagnostic findings, including important underlying pathological features, and may warrant a full medical examination to detect such abnormal conditions and to permit selection of appropriate therapy.

Constipation and fecal incontinence in the elderly population.

Romero Y; Evans JM; Fleming KC; Phillips SF Division of Gastroenterology and Internal Medicine, Mayo Clinic Rochester, Minnesota 55905, USA.

Mayo Clin Proc (United States) Jan 1996, 71 (1) p81-92

OBJECTIVE: To describe the assessment and management of constipation and fecal incontinence in elderly patients.

DESIGN: We reviewed pertinent publications in the recent medical literature and outlined effective management strategies for constipation and fecal incontinence in the geriatric population.

RESULTS: Constipation can be classified into two syndromes--functional constipation and rectosigmoid outlet delay. Evaluation consists of elicitation of a detailed history, directed physical examination, and selected laboratory tests. Management involves nonpharmacologic (such as exercise and fiber) and pharmacologic measures. Fecal incontinence in elderly patients can be due to stool impaction, medications, dementia, or neuromuscular dysfunction. Management options include modification of contributing disorders, pharmacologic therapy, and behavioral techniques.

CONCLUSION: Constipation and fecal incontinence are common and often debilitating conditions in elderly patients. Management should be highly individualized and dependent on cause, coexisting morbidities, and cognitive status. (73 Refs.)

Chronic idiopathic constipation: pathophysiology and treatment.

Velio P; Bassotti G Cattedra di Gastroenterologia, Universita degli Studi di Milano, IRCSS-Ospedale Maggiore di Milano, Italy. J Clin Gastroenterol (United States) Apr 1996, 22 (3) p190-6

Chronic constipation is common in the general population, especially in women, in its idiopathic form. However, confusion still surrounds its definition, despite recent efforts to standardize it. Constipation can be divided in two large subgroups-normal transit and slow transit. They have different pathophysiological bases still not completely understood. Most patients respond to simple therapeutic measures aimed at correcting dietary fiber intake and lifestyle. Others, however, need more aggressive treatment,

including laxatives, psychological therapy, and biofeedback. In a few patients with intractable constipation, surgery might be indicated to give relief.

Pediatric constipation.

Young RJ Gastroenterol Nurs (United States) May-Jun 1996, 19 (3) p88-95

The purpose of this article is to present an overview of pediatric constipation. Discussion of the definition from a medical and nursing point of view is included. Intestinal pathophysiology as well as etiological theories of pediatric constipation are reviewed. Current research to date and clinical treatment and experience in the area are presented. A rationale for further nursing research in this area is described. (93 Refs.)

CONSTIPATION

(Page 2)

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Table of Contents 

- > [Intake of dietary fiber and other nutrients by children with and without functional chronic constipation]
 - > The treatment of chronic constipation in adults. A systematic review
 - > Health help. Fluid + fiber = frequency.
 - > Fecal incontinence in children.
 - > Chronic constipation--is the work-up worth the cost?
 - > Changing bowel hygiene practice successfully: a program to reduce laxative use in a chronic care hospital.
 - > [A clinical study of the use of a combination of glucomannan with lactulose in the constipation of pregnancy]
 - > Clinical response to dietary fiber treatment of chronic constipation.
 - > Lack of influence of intestinal transit on oxidative status in premenopausal women.
 - > Dietary fiber and laxation in postop orthopedic patients.
 - > [The relationship between intake of dietary fiber and chronic constipation in children]
 - > Assessment of the effect of increased dietary fibre intake on bowel function in patients with spinal cord injury.
 - > Chronic idiopathic constipation: pathophysiology and treatment.
-

[Intake of dietary fiber and other nutrients by children with and without functional chronic constipation]

The aim of this study was to evaluate the dietary fiber intake and the dietary habits of children with and without functional chronic constipation. We enrolled 58 children with functional chronic constipation and 58 controls without constipation matched for sex and age. Food and fiber intake were evaluated by 24 hour dietary recall and a complete clinical history was performed. The age of onset of constipation occurred during the first year of life in 55.4% of the patients while the median age of evaluation was 78 months. Soiling was found in 41.7% of patients. The median period of exclusive breast feeding was shorter ($P = 0.002$) in the constipation group (one month) than in the control group (three month). The proportion of constipation was similar for mothers of children of both groups as well as for siblings in both groups. The fathers of children with constipation presented higher frequency of constipation (12.3%) than the fathers of children in control group (1.8%), but the difference did not reach statistical significance ($P = 0.06$). The amount of food measured by 24 hour recall was similar in both groups. The calorie intake of constipated children (1526 +/- 585 calories/day) was lower ($P = 0.07$) than in the control group (1712 +/- 513 calories/day) but the difference did not reach statistical significance. The intake of protein, fat and iron was lower in the constipation group than in the control group. The volume of cow's milk intake was similar in both groups. The median of total dietary fiber intake in the constipation group (13.5 g/day) was statistically ($P = 0.009$) lower than in the control group (16.8 g/day). The daily intake of insoluble dietary fiber was also statistically lower ($P = 0.001$) in the constipation group (6.3 g) than in the control group (9.4 g). The intake of soluble dietary fiber was similar in both groups. The intake of dietary fiber per 1,000 calories of diet was 10.3 g in the constipation group and 10.4 in the control group ($P = 0.41$). There was a considerable intersection of individual values in fiber intake of the constipation and control groups, suggesting that low fiber intake acts in association with others factors on the genesis of constipation in children. However, the low intake of insoluble fiber, suggests that it plays an important role on the pathogenesis of chronic constipation in children.

The treatment of chronic constipation in adults. A systematic review

Tramonte SM; Brand MB; Mulrow CD; Amato MG; O'Keefe ME; Ramirez G
Metropolitan Methodist Hospital, University of Texas Health Science Center at San Antonio, USA.
J Gen Intern Med (United States) Jan 1997, 12 (1) p15-24

OBJECTIVE: To evaluate whether laxatives and fiber therapies improve symptoms and bowel movement frequency in adults with chronic constipation.

DATA SOURCES: English language studies were identified from computerized MEDLINE (1966-1995). Biological Abstracts (1990-1995), and Micromedex searches; bibliographies; textbooks; laxative manufactures; and experts.

STUDY SELECTION: Randomized trials of laxative or fiber therapies lasting more than 1 week that evaluated clinical outcomes in adults with chronic constipation.

MEASUREMENTS AND MAIN RESULTS: Two independent reviewers appraised each trial's characteristics including methodologic quality. There were 36 trials involving 1,815 persons from a variety of settings including clinics, hospitals and nursing homes. Twenty-three trials were 1 month or less in duration. Several laxative and fiber preparations were evaluated. Twenty trials had a placebo, usual care, or discontinuation of laxative control group, and 16 directly compared different agents. Laxatives and fiber increased bowel movement frequency by an overall weighted average of 1.4 (95% confidence interval [CI] 1.1-1.8) bowel movements per week. Fiber and bulk laxatives decreased abdominal pain and improved stool consistency compared with placebo. Most nonbulk laxative data concerning abdominal pain and stool consistency were inconclusive, though cisapride, lactulose, and lactitol improved consistency. Data concerning superiority of various treatments were inconclusive. No severe side effects for any of the therapies were reported.

CONCLUSIONS: Both fiber and laxatives modestly improved bowel movement frequency in adults with chronic constipation. There was inadequate evidence to establish whether fiber was superior to laxatives or one laxative class was superior to another.

Health help. Fluid + fiber = frequency.

Kurgan A
Home Care Provid (United States) Jan-Feb 1996, 1 (1) p30

No abstract.

Fecal incontinence in children.

Loening-Baucke V

Department of Pediatrics, University of Iowa Hospitals and Clinics, Iowa City 52242-1083, USA.

Am Fam Physician (United States) May 1 1997, 55 (6) p2229-38

Functional constipation is the cause of fecal incontinence in 95 percent of affected children, and anatomic or neurologic causes account for up to 5 percent of cases. The history and the physical examination (with emphasis on abdominal, rectal and neurologic examinations) are most helpful in identifying organic disease. In some children, anorectal manometry, a barium enema radiographic examination and a rectal biopsy are necessary to determine the etiology. Most children with fecal incontinence benefit from a strict treatment plan that includes defecation trials, a fiber-rich diet and laxative medications. Surgery followed by medical treatment is required in patients with Hirschsprung's disease and in some patients with anal stenosis or a history of surgical repair of an anorectal malformation.

Chronic constipation--is the work-up worth the cost?

Rantis PC Jr; Vernava AM 3rd; Daniel GL; Longo WE

Department of Surgery, Saint Louis University School of Medicine, MO 63110-0250, USA.

Dis Colon Rectum (United States) Mar 1997, 40 (3) p280-6

BACKGROUND: Chronic constipation can be a disabling condition that may require colectomy. Evaluation has been included as a way to select appropriate patients for colectomy and may also be extensive, unrevealing, and costly.

AIMS: This study was undertaken to determine the cost and use of evaluation and outcome of patients with chronic constipation.

METHODS: Patients with chronic constipation were reviewed for severity of symptoms, diagnostic studies performed, treatment, and outcome. The costs of the diagnostic studies were determined at our institution. Fifty-one patients were identified with chronic constipation; all were referred by other physicians. Mean age was 54 (range, 21-81) years; 59 percent were females. Average number of bowel movements per week was two (range, 0-4), and average duration of symptoms was five years (range, 1-20). Forty-three of 51 (84 percent) colonoscopies or barium enemas were normal. Thirteen of 51 (25 percent) colonic transit studies were abnormal. Twenty-six of 51 (51 percent) patients underwent defecography; 12 (46 percent) were abnormal. Thirty-seven of 51 (74 percent) underwent anal manometry; 5 (14 percent) were abnormal. One of 18 (6 percent) rectal biopsies demonstrated Hirschsprung's disease. Overall, 8 patients (16 percent) were diagnosed with outlet obstruction, 12 (24 percent) with colonic inertia, and 31 (61 percent) with constipation of unclear etiology. Overall mean cost of diagnosis was \$2,752 (range, \$1,150-\$4,792). Fiber, cathartics, or biofeedback therapy was successful in 33 of 51 (65 percent) patients. Among the remaining 18 patients, 12 underwent surgery, of which 10 were successful. The remaining eight patients were constipated, despite treatment.

CONCLUSION: A cost of \$140,369 was expended on extensive diagnostic tests, from which 12 of 51 (23 percent) patients benefited. Exhaustive diagnostic evaluation of constipation is costly, and its benefits are unclear.

Changing bowel hygiene practice successfully: a program to reduce laxative use in a chronic care hospital.

Benton JM; O'Hara PA; Chen H; Harper DW; Johnston SF

Sisters of Charity of Ottawa (SCO) Hospital, Ontario, Canada.

Geriatr Nurs (United States) Jan-Feb 1997, 18 (1) p12-7

Laxative use was significantly reduced in our long-term care facility when an interdisciplinary program based on a philosophy of prevention and health promotion was implemented. Specifically, increased fluid and fiber intake, timely toileting habits, and regular activity/exercise led to a halving of the number of patients receiving laxatives as required, relative to pre-program levels and relative to a control unit not receiving the program.

[A clinical study of the use of a combination of glucomannan with lactulose in the constipation of pregnancy]

Signorelli P; Croce P; Dede A

Divisione di Ostetricia e Ginecologia, Ospedale di Codogno, Regione Lombardia, USL n. 25, Lodi.

RATIONAL: Constipation is a problem frequently encountered during pregnancy as is excessive weight gain. Treatments of common use to control constipation are endowed with some drawbacks and they are not active in controlling weight increase. A preparation of lactulose and glucomannan in previous studies proved very effective and well tolerated in patients affected by stypsis and evidenced also activity both in controlling excessive food intake and in correcting some metabolic imbalances regarding lipids and urea.

MATERIAL AND METHODS: 50 pregnant females affected by constipation were treated with sachets containing a preparation of glucomannan (1.45 g) and lactulose (4.2 g) in a posology of 2 (1-4) sachets a day for 1-3 months.

RESULTS: Treatment induced a return to normal frequency of weekly number of evacuations (4.9-5.8/week) and a parallel control of weight gain (within 20% of initial body weight). The latter finding seems to be related to hunger control induced by glucomannan at the gastric level which prevents an excessive food intake.

Clinical response to dietary fiber treatment of chronic constipation.

Voderholzer WA; Schatke W; Muhldorfer BE; Klauser AG; Birkner B; Muller-Lissner SA
Medizinische Klinik, Klinikum Innenstadt, University of Munich, Germany.
Am J Gastroenterol (United States) Jan 1997, 92 (1) p95-8

OBJECTIVES: To determine the clinical outcome of dietary fiber therapy in patients with chronic constipation.

METHODS: One hundred, forty-nine patients with chronic constipation (age 53 yr, range 18-81 yr, 84% women) at two gastroenterology departments in Munich, Germany, were treated with *Plantago ovata* seeds, 15-30 g/day, for a period of at least 6 wk. Repeated symptom evaluation, oroanal transit time measurement (radiopaque markers), and functional rectoanal evaluation (proctoscopy, manometry, defecography) were performed. Patients were classified on the basis of the result of dietary fiber treatment: no effect, n = 84; improved, n = 33; and symptom free, n = 32.

RESULTS: Eighty percent of patients with slow transit and 63% of patients with a disorder of defecation did not respond to dietary fiber treatment, whereas 85% of patients without a pathological finding improved or became symptom free.

CONCLUSION: Slow GI transit and/or a disorder of defecation may explain a poor outcome of dietary fiber therapy in patients with chronic constipation. A dietary fiber trial should be conducted before technical investigations, which are indicated only if the dietary fiber trial fails.

Lack of influence of intestinal transit on oxidative status in premenopausal women.

Lewis S; Bolton C; Heaton K
University Department of Medicine, Bristol Royal Infirmary.
Eur J Clin Nutr (England) Aug 1996, 50 (8) p565-8

OBJECTIVE: There are reasons for believing that diet can alter the risk of malignancy by alteration of the body's oxidative status. Intestinal contents and enterohepatically recirculated substances are influenced by intestinal transit rate. A low fibre diet has been linked to the increase in constipation seen in countries consuming a westernized diet, as well as to the aetiology of many diseases. We studied the effects of altering intestinal transit rates and of wheat bran on oxidative status.

DESIGN: 40 premenopausal women were randomized to receive dietary supplements of wheat bran, senna or loperamide for the length of two menstrual cycles. Dietary records, whole gut transit time (WGTT) and plasma lipid peroxides, measured as TBARS (specifically malondialdehyde) were determined at the beginning and end of each intervention.

SETTING: University department of Medicine, Bristol Royal Infirmary.

RESULTS: 36 volunteers completed the study. WGTT increased in those receiving loperamide and decreased in those receiving senna. The decrease in WGTT was not significant in those receiving wheat bran. Diets did not change. There were no changes in TBARS, cholesterol, triglyceride or TBARS adjusted for cholesterol and triglyceride, during any intervention.

CONCLUSIONS: Dietary supplementation with wheat bran and pharmacological alteration of intestinal transit had no influence on oxidative status or on plasma cholesterol or triglycerides.

Dietary fiber and laxation in postop orthopedic patients.

Ouellet LL; Turner TR; Pond S; McLaughlin H; Knorr S
Clin Nurs Res (United States) Nov 1996, 5 (4) p428-40

The addition of wheat fiber in the diet of post-surgical orthopedic patients as a means of preventing constipation was studied using a quasi-experimental design. It was hypothesized that a 20 gm supplement of All Bran and natural bran would promote spontaneous bowel movements, reduce the incidence of constipation, and thus decrease the need for elimination interventions. The results show that the study group had more spontaneous bowel movements and required fewer elimination interventions than did the control group.

[The relationship between intake of dietary fiber and chronic constipation in children]

Mooren GC; van der Plas RN; Bossuyt PM; Taminiou JA; Buller HA
Academisch Medisch Centrum-Het Kinder AMC, afd Kindergastroenterologie en Voeding, Amsterdam.
Ned Tijdschr Geneeskd (Netherlands) Oct 12 1996, 140 (41) p2036-9

OBJECTIVE: Evaluation of the feeding patterns of children with chronic constipation, in particular dietary fibres, energy and fluid intake and their influence on colonic transit time. In addition, the effect of dietary recommendations regarding fibres was assessed.

DESIGN: Prospective randomized study.

SETTING: Department of Paediatric Gastroenterology and Nutrition, Academic Medical Centre, Amsterdam, the Netherlands.

METHOD: Children with at least 2 months of complaints related to constipation were enrolled and both dietary intake and colonic transit time were evaluated. After dietary and laxative treatment, in some combined with biofeedback training, and a follow-up of 6 months, a randomized sample were again evaluated regarding their transit times and dietary patterns.

RESULTS: In 73 consecutive children mean fibre intake was the same as in healthy controls, although energy and fluid intake were lower. Colonic transit time was increased compared with healthy controls and no relationship was established between fibre intake and transit time. At 6 months no significant increase in mean fibre intake was observed and no relationship was found between either transit time and change in fibre intake or cure and change in fibre intake. In the cured patients no increase of their mean fibre intake could be observed.

CONCLUSION: The amount of dietary fibres played no pathogenic part in chronic constipation. Dietary advice did not change the mean fibre content of the diet. In addition, changes in fibre intake had no effect on colonic transit time or cure.

Assessment of the effect of increased dietary fibre intake on bowel function in patients with spinal cord injury.

Cameron KJ; Nyulasi IB; Collier GR; Brown DJ
Spinal Injuries Unit, Austin Hospital, Heidelberg, Victoria, Australia.
Spinal Cord (England) May 1996, 34 (5) p277-83

It is common for constipation to occur following severe spinal cord injury (SCI). Although a bowel management program including a high fibre diet is an integral part of rehabilitation, the effect of a high fibre diet on large bowel function in SCI has not been examined. The aims of this study were to assess the nutrient intake of SCI patients, to determine baseline transit time, stool weight and evacuation time and to assess the effect of addition of bran on large bowel function. Eleven subjects, aged 32 +/- 10.5 years participated in the study. The level of injury ranged from C4 to T12; only one patient had an incomplete injury. Baseline mean energy intake was 7823 +/- 1443 kJ/d, protein intake 93 +/- 21 g/d, carbohydrate intake 209 +/- 39 g/d and mean dietary fibre intake 25 +/- 8 g/d. Mean baseline stool weight was 128 +/- 55 g/d and bowel evacuation time was 13 +/- 7.4 min/d. Three subjects who consumed < 18 g dietary fibre/d had low stool weights of 60-70 g/d and two had very delayed transit times that were too slow to enable quantitation. Mean mouth to anus transit time was 51.3 +/- 31.2 h, mean colonic transit time 28.2 +/- 3.5 h,

right colonic transit time 5.9 +/- 4.5 h, left colonic transit time 14.5 +/- 5.2 h and rectosigmoid colonic transit time 7.9 +/- 5.6 h. Following the addition of bran, dietary fibre intake significantly increased from 25 g/d to 31 g/d ($P < 0.001$). However, the mean colonic transit time increased from 28.2 h to 42.2 h ($P < 0.05$) and rectosigmoid colon transit time increased from 7.9 to 23.3 h ($P < 0.02$). Stool weight, mouth to anus, left and right colon transit time and evacuation time did not change significantly. Results of this study suggest that increasing dietary fibre in SCI patients does not have the same effect on bowel function as has been previously demonstrated in individuals with 'normally functioning' bowels. Indeed the effect may be the opposite to that desired. This preliminary study highlights the need for further research to examine the optimal level of dietary fibre intake in SCI patients.

Chronic idiopathic constipation: pathophysiology and treatment.

Velio P; Bassotti G

Cattedra di Gastroenterologia, Università degli Studi di Milano, IRCSS-Ospedale Maggiore di Milano, Italy.
J Clin Gastroenterol (United States) Apr 1996, 22 (3) p190-6

Chronic constipation is common in the general population, especially in women, in its idiopathic form. However, confusion still surrounds its definition, despite recent efforts to standardize it. Constipation can be divided in two large subgroups-normal transit and slow transit. They have different pathophysiological bases still not completely understood. Most patients respond to simple therapeutic measures aimed at correcting dietary fiber intake and lifestyle. Others, however, need more aggressive treatment, including laxatives, psychological therapy, and biofeedback. In a few patients with intractable constipation, surgery might be indicated to give relief.

Continued on the next page...

CONSTIPATION (Page 3)

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Table of [Contents](#) 

- > Pediatric constipation.
- > Constipation and fecal incontinence in the elderly population.
- > Therapeutic availability of iron administered orally as the ferrous gluconate together with magnesium-L-aspartate hydrochloride.
- > The osmotic and intrinsic mechanisms of the pharmacological laxative action of oral high doses of magnesium sulphate. Importance of the release of digestive polypeptides and nitric oxide.
- > Small bowel obstruction caused by a medication bezoar: report of a case.
- > Challenges in the treatment of colonic motility disorders
- > Acute hypermagnesemia after laxative use
- > The connection between dietary fibre intake and chronic constipation in children
- > Constipation in children
- > Products for indigestion
- > Antacids drugs: Multiple but too often unknown pharmacological properties
- > Treatment of retentive encopresis with diet modification and scheduled toileting vs. mineral oil and rewards for toileting: A clinical decision
- > Comparison of the effects of magnesium hydroxide and a bulk laxative on lipids, carbohydrates, vitamins A and E, and minerals in geriatric hospital patients in the treatment of constipation.
- > [Magnesium: current concepts of its physiopathology, clinical aspects and therapy]
- > [Treatment of constipation with vitamin B5 or dexpanthenol]
- > Endogenous nitric oxide modulates morphine-induced constipation.
- > Effectiveness of bran supplement on the bowel management of elderly rehabilitation patients.



Pediatric constipation.

Young RJ
Gastroenterol Nurs (United States) May-Jun 1996, 19 (3) p88-95

The purpose of this article is to present an overview of pediatric constipation. Discussion of the definition from a medical and nursing point of view is included. Intestinal pathophysiology as well as etiological theories of pediatric constipation are reviewed. Current research to date and clinical treatment and experience in the area are presented. A rationale for further nursing research in this area is described. (93 Refs.)

Constipation and fecal incontinence in the elderly population.

Romero Y; Evans JM; Fleming KC; Phillips SF
Division of Gastroenterology and Internal Medicine, Mayo Clinic Rochester, Minnesota 55905, USA.
Mayo Clin Proc (United States) Jan 1996, 71 (1) p81-92

OBJECTIVE: To describe the assessment and management of constipation and fecal incontinence in elderly patients.

DESIGN: We reviewed pertinent publications in the recent medical literature and outlined effective management strategies for constipation and fecal incontinence in the geriatric population.

RESULTS: Constipation can be classified into two syndromes--functional constipation and rectosigmoid outlet delay. Evaluation consists of elicitation of a detailed history, directed physical examination, and selected laboratory tests. Management involves nonpharmacologic (such as exercise and fiber) and pharmacologic measures. Fecal incontinence in elderly patients can be due to stool impaction, medications, dementia, or neuromuscular dysfunction. Management options include modification of contributing disorders, pharmacologic therapy, and behavioral techniques.

CONCLUSION: Constipation and fecal incontinence are common and often debilitating conditions in elderly patients. Management should be highly individualized and dependent on cause, coexisting morbidities, and cognitive status. (73 Refs.)

Therapeutic availability of iron administered orally as the ferrous gluconate together with magnesium-L-aspartate hydrochloride.

Disch G; Classen HG; Spatling L; Leifert U; Schumacher E
Department of Pharmacology and Toxicology of Nutrition, University of Hohenheim, Stuttgart-Hohenheim, Germany.
Arzneimittelforschung (Germany) Mar 1996, 46 (3) p302-6

Since in vitro experiments had excluded interactions between Fe-gluconate (Fe-gluc) and magnesium-L-aspartate hydrochloride (MAH) in aqueous solutions the present in vivo studies seemed to be justified. Animal studies: Rats were kept on magnesium-(Mg)- and iron-(Fe)- sufficient and deficient diets. The intragastral administration of Fe-gluc significantly increased plasma Fe after 3 h, either given alone, or in combination with MAH (inducing hypermagnesemia). Same results were obtained when fortified diets were offered to Fe/Mg-deficient animals. Human studies: The combination of Fe-gluc (2 x 50 mg Fe per day, per os) plus MAH (2 x 7.5 mmol Mg per day, p.o.) was well tolerated by healthy volunteers. Single dose experiments revealed that Fe-gluc alone and in combination with MAH increased plasma Fe levels during 3 h to the same extent. Two groups of pregnant women with moderately reduced hemoglobin levels either received Fe-gluc (out-patients) or its combination with MAH (at least temporarily hospitalised because of preterm labor). Treatments were well tolerated. Hemoglobin levels did not further decrease, as expected without Fe supplements, during the course of pregnancy, thus indicating the therapeutic availability of the electrolytes in both study groups. Progesterone-induced constipation is frequently observed during pregnancy; hence stool softening reported by 50% of the women

receiving Fe-gluc plus MAH (versus 33% in the Fe-gluc group) can be regarded as desirable effect. It is concluded that MAH does not interfere with the enteral absorption of Fe-gluc when both electrolytes are orally administered together. Taking both electrolytes together instead of 2 to 3 h apart from each other, as actually recommended, means a less complicated dosage regimen and probably improves compliance.

The osmotic and intrinsic mechanisms of the pharmacological laxative action of oral high doses of magnesium sulphate. Importance of the release of digestive polypeptides and nitric oxide.

Izzo AA; Gagarella TS; Capasso F

Department of Experimental Pharmacology, University of Naples Federico II, Italy.

Magnes Res (England) Jun 1996, 9 (2) p133-8

A common use for high doses of oral magnesium salts is to produce a laxative effect to treat constipation. In the intestinal lumen the poorly absorbable magnesium ions (and other ions such as sulphate) exert an osmotic effect and cause water to be retained in the intestinal lumen. This increases the fluidity of the intraluminal contents and results in a laxative action. Although the laxative action of magnesium is thought to be due to a local effect in the intestinal tract, it is also possible that released hormones such as cholecystokinin or activation of constitutive nitric oxide synthase might contribute to this pharmacological effect. Under normal circumstances the pharmacological administration of high doses of oral magnesium salts is safe and some salts--such as magnesium hydroxide--also have an antacid effect to neutralize stomach acid. However, high doses of magnesium or prolonged use may allow sufficient absorption into the systemic circulation to cause renal or other organ toxicity. (35)

Small bowel obstruction caused by a medication bezoar: report of a case.

Tatekawa Y; Nakatani K; Ishii H; Paku S; Kasamatsu M; Sekiya N; Nakano H

Saiseikai Gose Hospital, Nara, Japan.

Surg Today (Japan) 1996, 26 (1) p68-70

We report herein the rare case of a 26-year-old woman who developed a small-bowel obstruction caused by a medication "bezoar" or enterolith, following the long-term ingestion of magnesium oxide cathartics for constipation. Medication bezoars resulting from laxatives or cathartics have rarely been reported and we were only able to find two other such cases in the literature.

Challenges in the treatment of colonic motility disorders

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American Journal of Health-System Pharmacy (USA), 1996, 53/22 Suppl. (S17-S26)

The pathophysiology and treatment of colonic motility disorders are reviewed. Colonic dysfunction is a common reason for patients to seek medical care, although patients' perceptions may not reflect abnormal function. Abnormalities in colonic function can result from a primary disorder of the large intestine or from metabolic, neurologic, collagen vascular, neoplastic, or infectious diseases. Irritable bowel syndrome, a common disorder of colonic motility, can be caused by alterations in colonic neuromuscular functions, afferent neural function, or psychosocial factors. Colonic dysmotility can also result from malabsorption of carbohydrates. The most severe form of altered colonic motility is acute colonic pseudo-obstruction. Diagnostic studies should be limited to tests appropriate for the patient's symptoms and apparent severity of disease. Most motility disorders are functional disorders and do not result in abnormal studies. Pharmacotherapy should be directed by objective measures, the most useful of which are measurement of whole gut transit time and quantification of the water content of stools. Treatment should be determined by the nature of the disorder and the symptoms involved. For constipation, treatment should begin with changes in diet, fluid and fiber intake, and concurrent medications. Irritant laxatives can have damaging effects and should not be used habitually; however, polyethylene glycol-based purgatives can be helpful. Newer prokinetic agents, such as cisapride, have been shown to promote colonic motility. For selected patients with intractable constipation, surgery has a good success rate. For patients with functional diarrhea, opioid analogues can increase fluid absorption and delay transit.

Acute hypermagnesemia after laxative use

Qureshi T.I.; Melonakos T.K.
15268 South Monroe Street, Monroe, MI 48161 USA
Annals of Emergency Medicine (USA), 1996, 28/5 (552-555)

We present the case of a patient in whom hypotension, sudden cardiopulmonary arrest, and coma developed after a massive dose of a seemingly harmless cathartic agent. The diagnosis of hypermagnesemia was made 9 hours after the patient's admission, when the serum magnesium concentration was 21.7 mg/dL (8.9 mmol/L). The patient's condition improved with IV calcium, saline solution infusion, and cardiorespiratory support. The elimination half-life of magnesium in this case was 27.7 hours. Few cases have been reported in which patients have survived with serum levels greater than 18 mg/dL (7.4 mmol/L). This case provides evidence that hypermagnesemia may occur in patients with normal kidney function. The diagnosis of hypermagnesemia should be considered in patients who present with symptoms of hyporeflexia, lethargy, refractory hypotension, shock, prolonged QT interval, respiratory depression, or cardiac arrest.

The connection between dietary fibre intake and chronic constipation in children

Mooren G.C.A.H.C.M.; Van Der Plas R.N.; Bossuyt P.M.M.; Taminiau J.A.J.M. ; Buller H.A.
Academisch Medisch Centrum, Kinder AMC, Afd. Kindergastroenterologie/Voeding, Meibergdreef 9, 1105 AZ Amsterdam
Netherlands
Nederlands Tijdschrift voor Geneeskunde (Netherlands), 1996, 140/41 (2036-2039)

Objective. Evaluation of the feeding patterns of children with chronic constipation, in particular dietary fibres, energy and fluid intake and their influence on colonic transit time. In addition, the effect of dietary recommendations regarding fibres was assessed.

Design. Prospective randomized study.

Setting. Department of Paediatric Gastroenterology and Nutrition, Academic Medical Centre, Amsterdam, the Netherlands.

Method. Children with at least 2 months of complaints related to constipation were enrolled and both dietary intake and colonic transit time were evaluated. After dietary and laxative treatment, in some combined with biofeedback training, and a follow-up of 6 months, a randomized sample were again evaluated regarding their transit times and dietary patterns.

Results. In 73 consecutive children mean fibre intake was the same as in healthy controls, although energy and fluid intake were lower. Colonic transit time was increased compared with healthy controls and no relationship was established between fibre intake and transit time. At 6 months no significant increase in mean fibre intake was observed and no relationship was found between either transit time and change in fibre intake or cure and change in fibre intake. In the cured patients no increase of their mean fibre intake could be observed.

Conclusion. The amount of dietary fibres played no pathogenic part in chronic constipation. Dietary advice did not change the mean fibre content of the diet. In addition, changes in fibre intake had no effect on colonic transit time or cure.

Constipation in children

Leung A.K.C.; Chan P.Y.H.; Cho H.Y.H.
Alberta Children's Hospital, 1820 Richmond Rd. S.W., Calgary, Alta. T2T 5C7 Canada
American Family Physician (USA), 1996, 54/2 (611-630)

Constipation is a common childhood condition, estimated to occur in 5 to 10 percent of children. In most cases, the cause is functional. However, constipation may occasionally indicate a significant organic disorder, which can usually be determined by a thorough history and physical examination. Constipation that is present from birth or that begins in the neonatal period is most likely to be congenital in origin. Acute constipation usually has an organic cause, while chronic constipation usually has a functional cause. Failure to thrive and gross distention of the abdomen suggest the diagnosis of Hirschsprung's disease. Rectal examination of a child with constipation usually reveals a distended rectum that is full of stool. In patients with Hirschsprung's disease, the rectum is usually empty and tight. Laboratory investigations are usually not necessary in patients with mild constipation. Treatment should be directed at the underlying cause. Functional constipation can be managed by changes in diet, regular bowel habits and, if necessary, pharmacologic therapy and biofeedback training.

Products for indigestion

Nathan A.
Department of Pharmacy, King's College London, London United Kingdom
Pharmaceutical Journal (United Kingdom), 1996, 256/6892 (678-682)

Indigestion, after headache, is the ailment most likely to be treated with a nonprescription medicine. In 1994, sales of indigestion remedies increased by 11.7 per cent in volume terms (16.1 per cent by value), some of which was due to the POM to P switch of H₂-receptor antagonists. P products account for only 8.5 per cent of total indigestion remedy sales.

Antacids drugs: Multiple but too often unknown pharmacological properties

Vatier J.; Vallot T.; Farinotti R.
Departement de Pharmacie Clinique, Faculte de Pharmacie, 92290 Chatenay-Malabry France
Journal de Pharmacie Clinique (France), 1996, 15/1 (41-51)

This report considers recent procedures for evaluating the pharmacological properties of antacids, and the basis of their use in the treatment of gastroduodenal disorders. The described pharmacologic methods evaluate:

(1) antacid capacity and antacid mechanisms in dynamic conditions by using 'the artificial stomach-duodenum' model, capable of simulating gastroduodenal flux regulation;

(2) the pharmacological properties conferring a protective effect on the gastric mucosa, in vivo, by measuring
(a) the reduction of pepsin activity,
(b) the transepithelial potential difference, and

(3) the molecular structure of adherent mucus glycoproteins and, in vitro, by assessing their ability to adsorb the duodenogastric reflux material. Three groups of antacids can be distinguished.

(a) The aluminium-containing antacids which release aluminium in acid medium develop a potent buffering capacity, an action prolonged by their adsorption to the gastric mucosa. They induce a mucoprotective adaptation and adsorb the gastroduodenal reflux material. Their mechanism of H⁺ consumption is similar to that of proteins, which are natural antacids, i.e. H⁺ captation in acid medium and release of H⁺ ions which are normally neutralised by alkaline secretions in the duodenum. These long-acting antacids are indicated in the treatment of duodenal ulcer disease, in its prevention, and in that of gastritis.

(b) Aluminium and magnesium hydroxide mixtures which form aluminium-magnesium combinations or magnesium and calcium associations mainly exert a neutralising activity with a strong pH rise, inducing rapid gastric emptying, and thereby reducing their activity duration. They do not exert protective effects on the gastric mucosa. They are indicated in the treatment of disorders related to hyperacidity or dyspeptic symptoms (gastrooesophageal reflux, pyrosis, slow gastric emptying, etc.).

(c) Finally, alginic acid and alginate-containing antacids develop a pH gradient between acid contents and its surface, thus protecting the gastric and oesophageal mucosa; these preparations are indicated in the treatment of gastrooesophageal reflux. Because these drugs are inexpensive and safe, they should be the first-time drugs of choice.

Treatment of retentive encopresis with diet modification and scheduled toileting vs. mineral oil and rewards for toileting: A clinical decision

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Section of Behavioral Pediatrics, Arkansas Children's Hospital, 1120 Marshall Street, Little Rock, AR 72202 USA
Ambulatory Child Health (United Kingdom), 1996, 1/3 (214-222)

Objective: This clinical trial compared the effectiveness of diet modification and scheduled toileting (DS group) to mineral oil and rewards for toileting (MR group) in a sample of retentive encopretic children,

Design: Twenty-five (23 male, 2 female) subjects were randomly assigned to either DS or MR in a 2 (group)x 3 (pre-test, post-test, 6-month follow-up) design.

Setting/sample: Subjects were treated in a gastroenterology clinic of a children's hospital, Eighty-five percent of the total sample had a history of chronic constipation, with an average of 3.7 soiling accidents and 2.6 appropriate bowel movements in the toilet

per week. Intervention: Treatments compared increased dietary fiber and scheduled toileting with mineral oil and contingency management,

Results: A majority of subjects, regardless of assigned group, showed increased normal bowel movements, and 58% remained accident free at six-month follow-up yielding comparable global outcomes. However, treatments differed in both immediate and long-term benefits and liabilities, as MR lead to more bowel activity including accidents.

Conclusions/implications for practice: How parents perceive the increase in soiling with mineral oil or slower progress with dietary changes alone may suggest optimal matches of children to treatments in present clinical decision making and in future research.

Comparison of the effects of magnesium hydroxide and a bulk laxative on lipids, carbohydrates, vitamins A and E, and minerals in geriatric hospital patients in the eatment of constipation.

Kinnunen O, Salokannel J

Department of Internal Medicine, Health Centre Hospital, Oulu, Finland.

J Int Med Res 1989 Sep-Oct;17(5):442-54

In a crossover study the effects of magnesium hydroxide on serum lipids, carbohydrates, vitamins A and E, uric acid and whole blood minerals were compared with those of a bulk laxative containing plantago rind and sorbitol in 64 constipated, elderly long-stay patients, 55 of whom were receiving diuretics. Hypomagnesaemia occurred in 11 (17%) patients after bulk laxative and in two (2%) patients after magnesium hydroxide treatment. There was a slight reduction in low values of high-density lipoprotein cholesterol and high values of triglycerides after magnesium hydroxide treatment. There were no significant differences in plasma lipids, whole blood minerals or vitamins A and E using either laxative. Negative p correlations were found between the increase in serum concentrations of magnesium and glycosylated haemoglobin A1 (P less than 0.02) and the serum level of uric acid (P less than 0.01). These results suggest that the long-term effects of magnesium hydroxide and bulk laxative on the absorption of nutrients may not be significantly different. Magnesium hydroxide, however, may have beneficial effects on lipid disorders, impaired glucose tolerance and hyperuricaemia in magnesium deficiency due to diuretics and thus may be a favourable laxative for use in bedridden geriatric patients receiving diuretics.

[Magnesium: current concepts of its physiopathology, clinical aspects and therapy]

Acta Vitaminol Enzymol (Italy) 1982, 4 (1-2) p87-97

Functional constipation is not a life-threatening disease, but as a chronic state it worries the patient and causes him discomfort and often leads him to self-medication with potentially dangerous drugs. Ro 01-4709 contains as active substance dexpanthenol, which is the alcohol of pantothenic acid, a vitamin of the B-complex. In the cells, dexpanthenol is readily oxidized to pantothenic acid, which stimulates peristalsis when administered in therapeutically effective doses. Ro 01-4709 has already proven its efficacy in the prevention and treatment of adynamic ileus. Recently, several open and two double-blind studies have been carried out, investigating the efficacy of oral Ro 01-4709 in the treatment of chronic functional constipation. The two double-blind studies showed Ro 01-4709 to be superior to placebo in all parameters measured. The studies with an open design also demonstrated a favourable effect of Ro 01-4709 in the treatment of chronic functional constipation. Owing to its physiological action-which is in a favourable contrast to that of normal laxatives. Ro 01-4709 can be recommended for the treatment of functional constipation in pregnant women, children and the elderly.

[Treatment of constipation with vitamin B5 or dexpanthenol]

Guillard O; Delmotte JS; Filoche B; Pommelet P
Med Chir Dig (France) 1979, 8 (7) p671-4

No abstract.

Endogenous nitric oxide modulates morphine-induced constipation.

Administration of morphine in mice causes inhibition of the gastrointestinal transit of a charcoal meal. Morphine-induced constipation in mice seems to depend predominantly on action(s) on the central nervous system since N-methyl morphine, a quaternary derivative, inhibits intestinal transit only when administered intracerebroventricularly (i.c.v.). L- but not D-arginine, given intraperitoneally, reversed the constipation induced by both morphine and its quaternary analogue. L-arginine was ineffective when given i.c.v. and did not reverse atropine-induced constipation. These results suggest that L-arginine preferentially modulates opioid-induced constipation through a stereospecific and peripheral action(s). It is possible that the effect of L-arginine is achieved by increasing the amount of nitric oxide released by non-adrenergic, non-cholinergic nerves in the gut. Thus, L-arginine may represent a useful agent for the treatment of undesirable constipation associated with the use of narcotic analgesics.

Effectiveness of bran supplement on the bowel management of elderly rehabilitation patients.

Gibson CJ; Opalka PC; Moore CA; Brady RS; Mion LC

J Gerontol Nurs (United States) Oct 1995, 21 (10) p21-30

1. Constipation is a common problem in the elderly that affects up to 20% of those 65 years and older.
2. Patients receiving the fiber supplement had a significantly lower number of bowel agents per day as compared to the control patients.
3. Side effects from the additional fiber occurred in a subgroup of patients; thus, institution of additional fiber to the diets of ill, physically dependent patients is best done gradually and with close monitoring.

Mechanisms of constipation in older persons and effects of fiber compared with placebo.

Cheskin LJ, Kamal N, Crowell MD, Schuster MM, Whitehead WE

Division of Digestive Diseases, Johns Hopkins Bayview Medical Center, Baltimore, MD 21224, USA.

J Am Geriatr Soc 1995 Jun;43(6):666-9

OBJECTIVE: To investigate the mechanisms of constipation and the effect of fiber supplementation on physiology, mechanisms, stool parameters, and colonic transit times in a group of constipated older patients.

DESIGN: Single-blind, randomized, placebo-controlled fiber intervention with crossover.

SETTING: A university-based outpatient center.

PATIENTS: Ten community-living older men and women, healthy except for chronic constipation.

INTERVENTIONS: Patients were given either 24 g psyllium fiber or placebo fiber daily for 1 month, then crossed over to the other arm for an additional month. Structured testing, including total gut transit time and rectal and colonic manometry, was performed at the end of each intervention month. Patients recorded stool frequency, consistency, and weights daily.

RESULTS: The predominant mechanism for constipation in these patients was outlet delay caused by pelvic dyssynergia. Fiber decreased total gut transit time from 53.9 hours (placebo condition) to 30.0 hours ($P < .05$). Stool weights and consistency were not significantly improved by fiber, though there was a trend toward an increase in stool frequency (1.3 vs 0.8 bowel movements per day.) Pelvic floor dyssynergia was not remedied by fiber, even when constipation was clinically improved.

CONCLUSIONS: Fiber supplementation appeared to benefit constipated older patients clinically, and it improved colonic transit time, but it did not rectify the most frequent underlying abnormality, pelvic floor dyssynergia.

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