What's the 'best buy' for treatment of constipation? Results of a systematic review of the efficacy and comparative efficacy of laxatives in the elderly

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SUMMARY

Constipation is a common cause of general practice consultations in elderly people, and laxative use is common among this group of patients. However, there appears to be little evidence to guide laxative treatment in this population. This paper reports the results of a systematic review of randomized controlled trials of the efficacy of laxatives in the treatment of constipation in the elderly. While the results of the review suggest that laxatives can improve bowel movement frequency, stool consistency, and symptoms of constipation, with a few exceptions, the relevant trials have serious methodological shortcomings. However, the review finds little evidence of marked differences in effectiveness between laxatives and, in particular, there appears to be no evidence to support the current National Health Service (NHS) trend towards prescribing the more expensive stimulant laxatives. This is an area where good quality trial evidence is now needed.

Keywords: constipation; laxatives; systematic review; elderly.

Introduction

CONSTIPATION is a common reason for general practice (GP) consultations in adults.[1] It adversely affects the quality of life of the sufferer,[2] and accounts for a significant proportion of the National Health Service (NHS) drug bill.[3,4] The prevalence is greater than 10% in the United Kingdom general population,[5] about 20% among elderly people living in the community,[6] and higher still among those living in nursing homes.[7] Laxative use, like constipation, becomes more frequent with age. At around £43 billion per year in England, expenditure on the four main types of laxative (bulk, osmotic, stimulant, and softener) is higher than on antihypertensives, and is increasing owing to the rising volume and price of prescriptions.[3,4] The problem of constipation increases markedly with age: its prevalence is higher among older patients,[6] GP consultations for constipation are more common,[8] and laxatives are more frequently used by the elderly.[9] Constipation also has a major influence on the quality of life of the elderly.[10] The high prevalence of the condition in these patients, and the widespread use of laxatives, suggest that further investigation of the efficacy of laxatives in this subgroup would be worthwhile.

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Submitted: 10 November 1997; final acceptance: 11 November 1998.

Method

A systematic review of randomized controlled trials (RCTs) of the efficacy of laxatives in elderly patients was carried out.

Sources

The following databases were searched up until the end of July 1998: MEDLINE (1966+), EMBASE (1982+), PSYCHLIT (1974+), Biological Abstracts (1990+), the Cochrane Trials register, CINAHL International Pharmaceutical Abstracts (1985+), DHSS Data, IDID Drug File, Ageline, and an alternative therapies database called AMED. Search items included constipat*, defecation, bowel function$, bowel habit$, bowel pattern$, bowel movement$, bowel symptom$, evacuation, laxative*, all relevant MESH headings and laxative names from the British National Formulary.[11] Other laxative names identified from review articles were also used as search terms (full details of the search strategy are available from the authors). In addition, a recent systematic review of constipation in adults was used as a source of trials.[12] This review included some trials of laxatives in elderly patients, but did not analyse this subgroup of patients separately. Manufacturers of British and United States laxative products and experts were contacted to attempt to identify published and unpublished studies. Cost-effectiveness information was searched for in Current Contents, Clinical Medicine, MEDLINE, and the NHS Economic Evaluation Database.

Inclusion criteria

Randomized controlled trials in any language were included if all participants were 55 years or older and were treated for chronic constipation with any oral laxative. A trial was included if it reported that the patients had been chronically constipated. A cut-off point for age was used because, in many studies, while the mean age of participants is high, much younger patients are often included and no separate subgroup analysis is performed for the older patients. Studies of constipation as a result of some other pathology were excluded. Inclusion criteria were applied and data were extracted by two reviewers. Data on a range of outcomes were reported in the trials; however, the outcomes most commonly reported were bowel movement frequency, stool consistency, and pain, and these will be discussed in detail. Other outcomes were reported less frequently and are noted in Tables 1 and 2 (e.g. loose stools, need for enemas).

Appraisal of trials

The methodological quality of the trials was assessed using a six-item scale previously used in a review of trials of constipation.[12] This six-item scale assessed reporting of inclusion criteria (whether appropriately described or not), randomization method (method described or randomization only stated), standardized assessment of adverse effects, double-blind design, description of withdrawals, and statistical analysis (whether adequate details

of analysis given). Two reviewers independently assessed quality, with disagreements resolved by consensus. Data pooling used mean differences weighted by the inverse variance.[13]

Results

Trials comparing a laxative with placebo or usual diet

Ten trials were found (367 patients; mean age = 74 years: Table 1),[14-23] most of which reported data on bowel movement frequency; some also included information on outcomes such as stool consistency and changes in symptoms.

Bowel movement frequency. None of the four trials of bulk laxatives found significant increases in frequency with treatment,[14-17] perhaps because of lack of statistical power. Small improvements in frequency were observed with both stimulant[18] and osmotic laxatives.[21,22]

Stool consistency. The bulk laxative psyllium was reported to improve consistency compared with placebo or normal diet in one of two trials using this treatment,[14,15] and bran was reported to improve consistency in another trial.[16] Stimulant laxatives were also reported to improve consitency,[18,19] as were osmotic laxatives.[22]

Other symptoms. Bulk, stimulant, and osmotic laxatives were all reported to improve other symptoms of constipation when compared with placebo or normal diet.[5,17,20-22] An overall pooling of outcome data from all trials was not possible; mainly because only four of these trials presented adequate statistical information, and also because there was considerable variability in how some outcomes were assessed. A meta-analysis of the four relevant trials is not therefore presented, as the results are unlikely to be reliable.

Trials comparing laxatives

Ten trials were found that compared laxatives (mean age = 77 years: Table 2).[18,24-32] These are discussed below according to whether the comparison involved two drugs within the same class (e.g. two different types of bulk laxative), or two different classes of laxative (e.g. a comparison between a bulk and an osmotic laxative).

Within-class comparisons. Comparisons between two bulk laxatives and between two stimulant formulations showed no major differences in frequency or consistency.[18,24] A comparison of the osmotic laxatives, lactitol and lactulose, found a small difference in frequency.[31] One trial found slightly greater frequency with lactulose than Sorbitol, but no difference in most other outcomes.[32]

Between-class comparisons. A bulk/stimulant laxative, Agiolax, improved frequency more than an osmotic (lactulose), and loose stools were more common in one trial with this treatment.[26,27] The pooled frequency data from these trials show an overall increase in 1.9 bowel movements per week with Agiolax than with another bulk/stimulant combination, Lunelax.[25] There was some evidence that frequency and consistency could be improved with a stimulant plus softener compared with a stimulant alone.[28] A softener was also found to improve frequency (though not consistency) compared with a stimulant,[29] while osmotic laxative magnesium hydroxide was found to be more effective in improving frequency and consistency, compared with a bulk plus osmotic laxative (Laxamucil).[30]

Cost-effectiveness

Two studies were found,[27,30] one of which was an RCT carried out in the United Kingdom. This found that senna plus fibre (Agiolax) was more cost-effective than an osmotic agent (lactulose) on a cost-per-stool basis (10.3 pence versus 39.7 pence), with no difference in adverse effects.[27] A United States trial comparing lactulose and Sorbitol concluded that Sorbitol was more cost-effective.[30]

Methodological quality of trials

Methodological quality of most of the trials was low, with some exceptions (Table 1). Many were not double-blinded and often did not involve standardized assessment of adverse effects. A particular problem with many trials was lack of statistical power, so that many of these small trials would have been unable to detect clinically significant differences between treatments if they had existed.

Discussion

This systematic review has found some evidence that laxatives can improve outcomes such as bowel movement frequency, stool consistency, and other symptoms in elderly people with constipation. However, there has been little assessment of the effectiveness of laxatives in settings other than hospitals and nursing homes, and there have been relatively few comparisons of different treatments. Non-significant trends favouring treatment were shown in most placebo-controlled trials, and two trials suggested that a bulk plus stimulant combination was more effective than an osmotic laxative. However, the quality of many trials was low and, as most studies were small, there is a possibility of publication bias. In some trials, the outcomes appear not to have been determined a priori, but may have been reported as a result of *post hoc* statistic testing. Type 1 error may therefore be a possibility for some studies reporting significant improvements in outcomes that were not pre-defined.

The results of this review are more limited than those of the recent systematic review of laxatives in all adults, reflecting the relative lack of trial evidence relating to elderly patients.[12] The systematic review of laxatives in adults reported that, in 13 of 20 studies, laxative agents produced statistically significant increases in bowel movement frequency compared with control groups. This corresponded to an increase in bowel movement frequency of 1.4 per week (95% confidence interval = 1.1–1.8). Eight out of 10 trials also found a significant improvement in symptoms. The current review, however, is mainly able to highlight the absence of good trial evidence evaluating the efficacy of this treatment in the elderly, who are the main users of these treatments.

Taken together, these two reviews also permit some examination of current laxative prescribing practice. From PACT prescribing data, it appears that NHS expenditure on stimulant laxatives is increasing, mainly owing to the increased prescribing of more expensive stimulants such as co-danthramer and co-danthrusate (Figure 1). The costs of one week of laxative treatment varies widely; for example, the stimulant laxative co-danthramer suspension costs up to £2.63 for a week's treatment (£3 for co-danthramer capsules), compared with 42p or less for senna tablets.[11] From the current review and the earlier systematic review in all adults, it appears that there is no good evidence to support the routine prescribing of these laxatives in preference to cheaper alternatives.

More generally, it is unclear what constitutes effective management of constipation. Laxatives may not be appropriate in all

Table 1. Randomized controlled trials comparing laxative with placebo or normal diet.

Study, country, laxative	Study sample: number randomized, definition of constipation	Design, length of study, primary outcomes defined a priori	Results	Losses to follow-up and reasons where given, nature of outcome assessment (methodological score)
Cheskin et al (1995)[14] USA	10 community-living patients; mean age = 66 years	Treatment: Psyllium 6 g QID Control: placebo 4 weeks	Frequency: 9.1 vs 5.6 (P = 0.1) Consistency: consistency scores 2.7 vs 3.0 (ns)	Dropouts = 30%: 3 patients failed to tolerate a catheter and dropped out, or did not complete the treatment
Bulk	<3 BM/week and/or feeling of incomplete evacuation and/or hard stool with straining >25% of time	Frequency, consistency, stool weight	Stool weight: 175 g vs 173 g	Unblinded (4)
Ewerth et al (1980)[15] Sweden	10 patients with diverticuli; mean age = 68 years	Treatment: Psyllium 6 g BID	Frequency: 6.9 vs 7.1 (P>0.05; ns)	Dropouts: 10% (1 patient owing to subsequent disease diagnosis)
Bulk	Infrequent (3–4 day interval) and painful defecation	Control: Placebo 8 weeks	Consistency improved with treatment (P = 0.02)	Double blinded (3)
		Frequency, self-report of consistency, stool weight, other symptoms (diarrhoea, pain, flatulence, dyspepsia)	Stool weight: 121 g/day vs 109 g/day; no details Overall number of symptoms less in treated group, 16 vs 2; no other details or analysis	
Finlay (1988)[16] UK	12 nursing home patients; mean age = 80 years	Treatment: Bran 1.5 g QD	Frequency: no difference in mean number of days on which defecation occurred (17 vs 13.5; P = 0.3)	Dropouts = 33% (3 deaths in treatment group, 1 in control group)
Bulk	Chronic constipation with need for regular laxative, suppositories and/or manual evaluation	Control: Normal diet 6 weeks	Consistency 'improved'	Unblinded (3)
		Frequency, general impression of consistency, use of laxatives	No difference in need for laxatives (P = 0.7)	
Rajala et al (1988)[17] Finland	51 hospitalized patients; mean age = 78 years; defecation less than once daily and with difficulty	Treatment: Yoghurt and bran 150 ml BID	Frequency: 5.8 vs 4.5 (P = 0.3)	Dropouts = 33%
		Control: Yoghurt 2 weeks	Abdominal pain and overall symptoms reported to be improved with treatment	Double blind (4)
Bulk		Frequency, possible side-effects (e.g. pain), need for laxatives	Need for laxatives: 1.3 vs 1.7 (P = 0.46)	
Marchesi et al (1982)[18] Italy	14 hospitalized patients; mean age = 71 years	Treatment: Cascara 2400 mg and boldo 500 mg QD	Frequency: 6.0 vs 3.4 (P<0.05)	Dropouts not stated
Stimulant	Stated to be constipated	Control: Placebo 3 weeks	Consistency reported improved in treated group	Unblinded (3)
Stern (1966)[19] USA	25 nursing home patients; mean age >71 years	Treatment: Prucara 2 tablets BID Control: Placebo 3 weeks	Improvement in consistency and control: 88% vs 0% (95% CI of difference = 61–100)	Dropouts not stated
Stimulant		Consistency, control over defecation, side effects, tolerability	Side-effects in 1 treated patient (4%)	Double blind (3)
Hyland and Foran (1968)[20] UK	40 hospitalized patients; mean age >60 years	Treatment: Dioctyl sodium 100 mg TID	Frequency: 3.3 vs 2.5 (P = 0.06)	Dropouts = 60% (5 unrelated deaths; 1 patient could not tolerate placebo tablets)
		Control: Placebo 4 weeks	Consistency: often more softening with treatment.	
Softener	Persistent chronic constipation for months before trial	Frequency, consistency, overall impression of symptom improvement	Overall symptom improvement significantly greater with treatment (P<0.05)	Double blind (4)

Table 1. (cont). Randomized controlled trials comparing laxative with placebo or normal diet.

Study, country, laxative	Study sample: number randomized, definition of constipation	Design, length of study, primary outcomes defined a priori	Results	Losses to follow-up and reasons where given, nature of outcome assessment (methodological score)
Sanders (1978)[21] USA	55 nursing home patients; mean age = 85 years	Treatment: Lactulose 30 ml QD	Frequency: 4.9 vs 3.6 (P<0.05)	Dropouts = 22% (treatment group not stated)
Osmotic	≤3 BM/week and ≥1 other symptom	Control: Placebo 12 weeks Frequency, consistency, symptoms	Reduction in symptoms significantly greater with lactulose (P = 0.04)	(3)
Vanderdonckt et al (1990)[22] Belgium	43 nursing home patients; mean age = 84 years	Treatment: Lactitol 20 g QD	Frequency: 4.9 vs 3.6 (P<0.001)	Dropouts = 9% (4/5 discontinued treatment)
		Control: Placebo 4 weeks	Consistency: Improved with treatment (P<0.001)	
Osmotic	≤3 BM/week and ≥1 symptom such as hard stools, pain	Frequency, consistency, symptoms	Symptom score lower with treatment (P = 0.04) Less need for laxatives (P<0.05)	Double blind (6)
Wesselius de Casparis et al (1968)[23] Netherlands	103 patients, setting not stated; mean age >60 years	Treatment: Lactulose 15 ml QD	Use of laxatives: 14% versus 40% (P<0.02)	Dropouts not stated
		Control: Placebo		
Osmotic	Chronic constipation, and regular laxative use	Use of laxatives		Double blind (3)

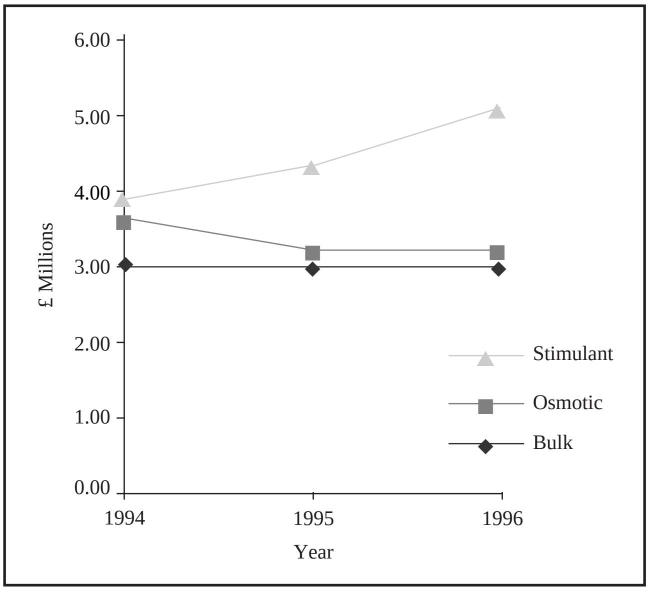

Figure 1. Total costs of prescribed laxatives in England: 1994–1996 (PACT data: PACT is a trademark and the PACT data has been reproduced with permission from the Prescription Pricing Authority).

constipated elderly people: for mobile older people, lifestyle changes involving changes in diet, increasing fluid intake, and increasing exercise may be sufficient.[33] However, the underlying reasons for constipation differ widely among patients,[34] and the clinical manifestations of the problem also vary.[35] Treatment will also depend on both the underlying causes and severity of the constipation, and, while some patients may initially simply require reassurance, dietary advice, and advice about exercise and fluid intake rather than pharmacological treatment,[35] others will require other laxative treatment, depending on severity. Thus, mild constipation can probably be managed by increasing fibre in the diet, while more severe constipation may require treatment with pharmacological laxatives, after exclusion of any underlying pathology.[36] Only a very small minority with intractable constipation will require referral for further investigations.[33]

Unfortunately, it is unclear from this review whether much of the evidence that GPs require to inform such a decision about treatment is not available. If more were known about the effectiveness and cost-effectiveness of laxatives and dietary interventions, an evidence-based approach to the management of this common problem could be advanced. However, there is a lack of clear evidence from good quality RCTs, and the clinical significance of some of the outcomes from existing studies is unclear. In particular, while small but statistically significant changes in frequency and consistency can be demonstrated, the clinical significance is not known. It is also difficult to be sure that the reported changes in outcomes (such as an increase in frequency of one bowel movement per week) are likely to have any significant impact on the quality of life of the sufferer. In the interim, in the absence of evidence of major differences in effectiveness between different laxatives, a stepped approach to laxative treatment may be appropriate, involving initial treatment with cheaper laxatives before proceeding to the more expensive alternatives.

It follows that more research is required into the effectiveness of methods of preventing and treating constipation. In particular, observational studies have claimed high effectiveness and acceptability for dietary supplements; for example, fibre and fruit mixtures. Formal experimental evaluations of these and other

Table 2. Randomized controlled trials directly comparing different laxatives in elderly patients.

Study, country	Comparison	Study sample: number randomized, definition of constipation	Design, duration of study, primary outcomes defined a priori	Results	Losses to follow-up and reasons where given, nature of outcome assessment (methodological score)
Chokhavatia et al (1988)[24] USA	Bulk vs bulk	Outpatients; n = 42; age range = 55–81 Symptoms of constipation controlled by laxatives	Treatment 1: Calcium polycarbophil 2 g QD Treatment 2: Psyllium 9.5 g QD (3 weeks) Frequency, consistency, straining, laxative preference	Frequency: 8.3 vs 9.1 (P = 0.04) Consistency score: 2.6 vs 2.5 (P<0.05) Straining score: 1.6 vs 1.4 (P<0.05) Preferences: No difference regarding efficacy or bloating. More patients preferred treatment 1 as it produced less gas (P = 0.01)	Dropouts = 7% for reasons unrelated to the study Unblinded (3)
Marchesi (1982)[18] (1) Italy	Stimulant vs stimulant	Hospital; n = 14; mean age = 75 years Stated to be constipated	Treatment 1: Cascara 2400 mg and boldo 500 mg QD Treatment 2: Cascara 2400 mg and boldo 500 mg QD and Inositolo 1750 mg and vitamin B_{12} 350 mg (3 weeks) Frequency	Frequency: 5.4 vs 6.0 (P = 0.6)	Dropouts = 0% Unblinded (3)
Marchesi (1982)[18] (2) Separate arm of Marchesi (1) trial Italy	Stimulant vs stimulant	Hospital; n = 14; mean age = 75 years Stated to be constipated	Treatment 1: Cascara 2400 mg and boldo 500 mg QD Treatment 2: cascara 120 mg and boldo 12 mg QD and Inositol 250 mg and vitamin B_{12} 50 mg (3 weeks) Frequency	Frequency: 5.2 vs 6.0 (P = 0.6)	Dropouts = 0% Unblinded (3)
Doffoel et al (1990)[31] France	Osmotic vs osmotic	Nursing home; n = 60; mean age = 79 years History of chronic constipation (mean = 16.5 years)	Treatment 1: Lactitol 15 g/day Treatment 2: Lactulose 15 ml/day (665 g/l) increased as necessary (2 weeks) Frequency, consistency, undesirable side-effects, acceptability	Frequency: 5.5 vs 4.9 (P = 0.0001) Consistency: percentage of normal consistency = 85% vs 83% (ns) Side-effects: No difference in flatulence, cramps, or nausea Tolerability: 'Similar' in both groups	Dropouts = 3% (no reasons) Unblinded (4)
Lederle et al (1990)[32] USA	Osmotic vs osmotic	Nursing home; n = 31; mean age = 72 years ≥1 year history of chronic constipation (≤3 BM/week and BM <once per day with current laxative regimen and ≥ 1 chronic symptom such as straining, hard stool)	Treatment 1: Lactulose 30 ml Treatment 2: Sorbitol 30 ml (4 weeks) Frequency, consistency, symptoms (bloating, cramps, flatulence, nausea, diarrhoea, faecal incontinence, other), use of laxatives, health status (health perceptions, mental health, social functioning, fatigue, health distress), laxative preference	Frequency: 7.0 vs 6.7 (P<0.05) Consistency: No significant group differences in overall symptoms or need for other laxatives Consistency: 60% vs 67% of BM reported normal (P>0.30) Symptom scores: Only nausea different (1.4 vs 0.8; P<0.05) Laxative use: 171 ml vs 167 ml (P = 0.3) Health status: No difference in any health status subscale (P>0.1). No difference in treatment preference (P = 0.3)	Dropouts = 3% (1 patient receiving lactose) Double blinding described (6)

Table 2. (cont). Randomized controlled trials directly comparing different laxatives in elderly patients.

Study, country	Comparison	Study sample: number randomized, definition of constipation	Design, duration of study, primary outcomes defined a priori	Results	Losses to follow-up and reasons where given, nature of outcome assessment (methodological score)
Pers and Pers (1983)[25] Sweden	Bulk + stimulant vs bulk + stimulant	Hospital; n = 20; mean age = 83 years Chronic constipation necessitating laxative treatment	Treatment 1: Agiolax 1 sachet QD Treatment 2: Lunelax 1 sachet QD (2 weeks) Frequency, side-effects, taste and ease of swallowing	Frequency: 3.3 vs 3.9 (P<0.05) No difference reported in side effects, taste, or ease of swallowing No difference in number of enemas required	Dropouts = 5% (1 case of diarrhoea, treatment group not stated) Unblinded (3)
Kinnunen et al (1993)[26] Finland	Osmotic vs bulk + stimulant	Nursing home; n = 20; mean age = 82 years >3 months with bowel frequency <2 times/week	Treatment 1: Lactulose 30 ml QD Treatment 2: Agiolax 20 ml QD (5 weeks) Frequency, consistency, bisacodyl use	Frequency: 2.2 vs 4.5 (P<0.001) Consistency: Loose stools more common with Agiolax (P<0.05) Greater need for laxatives during Lactulose treatment	Dropouts = 17% (2 with lactulose, 1 with Agiolax; also 1 MI and 2 transfers [uncategorized]) Unblinded (4)
Passmore et al (1993)[27] UK	Osmotic vs bulk + stimulant	Nursing home; n = 85; mean age = 83 years History of chronic constipation (<3 BM/week) or need for regular laxatives	Treatment 1: Lactulose 15 ml BID Treatment 2: Agiolax 10 ml QD (5 weeks) Frequency, consistency, ease of evacuation, symptoms, adverse effects	Frequency: 4.2 vs 5.6 (P = 0.006) Consistency score: 3.1 vs 3.4 (P = 0.005) 'Ease' score: 2.9 vs 3.1 (P = 0.02) No difference in adverse effects	Dropouts = 9% (3 poor compliance, 3 withdrawn, 1 poor health, 1 incomplete data) Double blind (6)
Williamson et al (1975)[28] UK	Stimulant + softener vs stimulant	Nursing home; n = 40; mean age = 76 years Constipated, already receiving laxatives	Treatment 1: Dorbanex 10 ml QD Treatment 2: Sodium picosulphate 20 ml QD (laxoberal) (2 weeks) Frequency, consistency, stool size, adverse effects	Frequency: 6.7 vs 6.0 (P<0.05) Consistency: Percentage of soft bowel movements 83% vs 68% (P<0.01) Size: Percentage of very large bowel movements 7% vs 12% (P = 0.9) Side effects: 11% vs 39.5% (P = 0.004)	Dropouts = 5% Unblinded (2)
Fain et al (1978)[29] (1) USA	Stimulant vs softener	Nursing home treatment; n = 47; mean age = 82 years History of chronic constipation of several years' duration	Treatment 1: Dioctyl sodium sulphosuccinate (Colace) QD Treatment 2: Dioctyl calcium sulphosuccinate (Surfak) (3 weeks) Frequency, consistency, incidence of impaction, adverse effects, and complaints	Frequency: 1.95 vs 2.8 (P < 0.02) Consistency: Unchanged, no group differences Impaction: No results Adverse effects: none in either group	Dropouts = 2% (1 patient, missing data) Unblinded (3)
Fain et al (1978)[29] (2) Separate arm of Fain (1) trial USA	Stimulant vs softener	Nursing home; n = 47; mean age = 82 years As above	Treatment 1: Dioctyl sodium sulphosuccinate (Colace) BID Treatment 2: Dioctyl calcium sulfosuccinate (Surfak) (3 weeks)	Frequency: 2.929 vs 2.8 (P = 0.6) Consistency: No differences Impaction: No results Adverse effects: None in either group; little overall difference between Colace QID and Colace BID	Dropouts = 2% (1 patient, missing data) Unblinded (3)
Kinnunen and Salokannel (1987)[30] Finland	Osmotic vs bulk	Nursing home; n = 64; mean age = 81 years Constipated, needing laxative treatment	Treatment: Magnesium hydroxide 20 ml QD Treatment: Laxamucil 9 gm QD (8 weeks) Frequency, consistency, need for laxatives	Frequency: 3.3 vs 2.6 (P = 0.04) Consistency score: 1 vs 0.8 (P<0.01) Need for laxatives: 2.3 vs 3.3 doses/4 weeks (P<0.01)	Dropouts = 5% (unable to swallow Laxamucil) Unblinded (3)

Agiolax = Plantagins ovata 2.6 g + Ispaghula 0.11 g + Senna 0.62 g; Lunelax = Ispaghula 3.3 g + Senna 25 mg; Laxamucil = Plantain 800 mg/gm + Sorbitol 190 mg/gm; Dorbanex = Danthron + Poloxalkol; Golytely = sodium 125 mmol/l + Potassium 10 mmol/l + Sulphate 80 mmol/l + Bicarbonate 20 mmol/l + Polythylene glycol 80 mmol/l. Boldo: Chilean bark extract (folk remedy); BM/week = bowel movements per week.

treatments are now needed, including standardized assessments of the impact of treatment in symptoms and quality of life of the sufferer. In particular, trials comparing different approaches to the management of this common condition are required.

Conclusion

Despite their frequent use and cost to the NHS, it is not clear which laxatives are most effective, or cost-effective, in the elderly. However, it appears that there is no good evidence to support the current trend toward increased prescribing of the more expensive laxatives. Therefore, until more research is available, it will not be possible to recommend a 'best buy for constipation' in elderly patients.

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