Efficacy of senna versus lactulose in terminal cancer patients treated with opioids
Agro Y, Sacristan A, Gonzalez M, Ferrari M, Portugues A, Calvo M J

Record Status
This is a critical abstract of an economic evaluation that meets the criteria for inclusion on NHS EED. Each abstract contains a brief summary of the methods, the results and conclusions followed by a detailed critical assessment on the reliability of the study and the conclusions drawn.

Health technology
Laxatives (senna and lactulose) for terminal cancer patients treated with opioids.

Type of intervention
Treatment.

Economic study type
Cost-effectiveness analysis.

Study population
Patients aged 18 years or over in a palliative care programme with a clearly documented terminal disease, a life expectancy of less than six months, and caregivers. The mean age was 67.8 years (range: 41 - 93 years) and 63.7% were males.

Setting
Hospital. The economic study was carried out in Spain.

Dates to which data relate
Effectiveness and resource use data were collected during the period July 1993 to July 1995. The price year is unclear.

Source of effectiveness data
The evidence for final outcomes was derived from a single study.

Link between effectiveness and cost data
The costing was undertaken prospectively on the same patient sample as that used in the effectiveness study.

Study sample
Patients were assigned to groups according to a randomization schedule that stratified for age and gender. Power calculations determined the sample size: 45 patients per group. Initially 91 patients were included in the study: forty-three patients were assigned to senna and 48 to lactulose.

Study design
The study was a randomized, open trial in a single centre. The period of the study was seven days to assess laxative efficacy at variable opioid dosage and 27 days to assess the mean morphine dose at which a laxative was necessary. Sixteen (17.6%) of the patients abandoned the study during the first four days (6 from the senna group and 10 from the
lactulose group). By the end of the 27 day period, 37 patients were lost; 21 in the senna group and 16 in the lactulose group. Three developed vomiting, five refused to continue in the protocol, 17 died and 12 were hospitalized.

**Analysis of effectiveness**
The analysis was based on treatment completers only. The primary health outcomes used in the analysis were: the number of 72-hour intervals without defecation and days with defecation events (as declared by the patient or family members). In addition, on a Likert-type scale the presence of adverse effects (nausea, vomiting, diarrhoea, bowel cramps and general well-being) was assessed, scoring from 1 (the best situation) to 4 (the worst situation).

**Effectiveness results**
No significant differences were found regarding the number of defecation-free 72-hour periods (senna 0.9, lactulose 0.9; p=0.85), mean number of defecation days (senna 0.9, lactulose 1; p=0.72), or the general state of health (senna 1.6, lactulose 1.7; p=0.33) between the experimental groups. There were no differences in the respective defecation-free 72-hour intervals as a function of opioid dose. The number of defecation days was similar in both groups (senna: mean 8.9 days, lactulose: mean 10.6 days). Finally, neither the prescription of other drugs nor the number of failures (senna: mean 2.5, lactulose: 2.6) differed between the groups.

**Clinical conclusions**
Neither clinical nor statistical differences between senna and lactulose were recorded. During the first seven day period, six patients (three treated with senna and three with lactulose) presented adverse effects (diarrhoea, vomiting and cramps).

**Measure of benefits used in the economic analysis**
No summary benefit measure was identified in the economic analysis and only separate outcomes (effectiveness) were reported. The side-effects of treatment were not considered in the economic analysis.

**Direct costs**
Total treatment costs adjusted for the laxative doses were considered. No further details were provided by the authors.

**Indirect Costs**
Not included.

**Currency**
Spanish pesetas. Costs were also presented in terms of US dollars ($) but no explicit conversion rate was given.

**Estimated benefits used in the economic analysis**
Not applicable.

**Cost results**
Total treatment costs adjusted for the laxative doses and 27 days of assay duration amounted to 1,412.3 pesetas ($10.46) for the senna group (1.93 pesetas per dose) and 6,855.9 pesetas ($50.78) for the lactulose group (11.25 pesetas per dose).

**Synthesis of costs and benefits**
Not applicable.
Authors' conclusions
The authors concluded that their findings did not provide evidence of the greater efficacy of senna over lactulose in terminal cancer patients treated with opioids. However, the low cost of senna and the similarity between both treatments in terms of adverse effects and tolerance, could qualify it as the laxative of choice in these patients, when conditions permit.

CRD COMMENTARY - Selection of comparators
A justification was given for the comparator used: lactulose was routinely prescribed at the authors' institution and senna seemed to be the best alternative option in the opinion of several authors of other papers. You should consider whether this is a widely used health technology in your own setting.

Validity of estimate of measure of benefit
The estimate of the measure of benefit used in the economic analysis is likely to be internally valid as a power calculation was used to determine sample size and patient characteristics were compared. However, the authors recognised that the number of patients for final analysis was decreased due to losses and that this may have influenced the results.

Validity of estimate of costs
No details were provided on the method of cost estimation which appear to have only included the drug costs.

Other issues
The issue of generalisability to other settings or countries was not addressed. Appropriate comparisons were made with other studies.

Implications of the study
As the authors noted, the findings should be assessed by studies in a wider, possibly multicentre study, based on short observation times so as not to condition results by patient survival.

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