**INTRODUCTION**

- Constipation is one of the most common digestive complaints affecting effectively 14 million people in the UK [1].
- The laxative, polyethylene glycol 3350 plus electrolytes (PEG+E, Movicol®) facilitates comfortable bowel evacuation by bulking and softening stool, and prevents electrolyte depletion and dehydration that can occur with other laxatives [2].
- Lactulose is metabolised to lactic acid as well as small amounts of acetic and formic acids by saccharolytic bacteria in the colon [3]. These molecules exert a local osmotic effect, drawing water and electrolytes into the colon from the surrounding tissue to bulk faeces [4]. However, lactulose can cause flatulence, abdominal distension and discomfort as well as electrolyte imbalance [4].
- PEG+E has been compared to lactulose in a single-blind, randomized, multi-centre study in patients suffering from idiopathic constipation [5].
  - After one month treatment, PEG+E showed consistently and significantly better results in terms of number of stool episodes per day (1.5±0.2 versus 0.9±0.6, p<0.001), ease of evacuation (0.5±0.6 versus 1.0±1.7, p<0.001) and global satisfaction index (7.5±3.1 versus 3.1±6.4, p<0.001).
  - At the end of three months, PEG+E's efficacy among patients 45 years of age was significantly better than that produced by lactulose in terms of number of stool episodes per day (1.3±0.2 versus 0.9±0.6, p<0.001) and ease of evacuation (0.4±0.3 versus 0.9±0.6, p<0.001).

The objective of this study was to estimate the economic impact to the National Health Service (NHS) of using PEG+E, compared to lactulose, to manage idiopathic constipation in ambulant patients, using the above trial as the clinical basis for the analysis.

**METHODOLOGY**

- A patient was considered successfully treated in the trial if their evacuation score was ≤1 at 3 months [5]. Hence, PEG+E and lactulose clinical effectiveness was calculated as the proportion of patients who had an evacuation score ≤1 and a daily stool frequency of ≤3 over three months.
  
- By combining clinical outcomes from the trial [5] with resource utilisation estimates from interviews and published literatures, a decision model was constructed depicting the management of patients suffering from idiopathic constipation with PEG+E and lactulose over three months.

The model contained resource utilisation estimates associated with GP consultations, district nurse domiciliary visits, co-medication with a gastrointestinal or colonic surgeon, PEG+E and lactulose therapy, long-term (long-term medication and switch to alternative therapy). Unit resource costs at 1999/2000 prices were applied to the resource utilisation estimates within the model to estimate the expected mean NHS cost of managing a patient with idiopathic constipation over three months from the start of treatment.

**RESULTS**

- PEG+E was more effective than lactulose at three months, since the percentage of patients successfully treated at three months was more than double.

**CONCLUSION**

The true cost of managing idiopathic constipation is impacted on by a broad range of resources and not only laxative acquisition costs. The expected three-month mean NHS cost of using PEG/E or lactulose to manage idiopathic constipation was estimated to be £97 per patient for both laxatives.

**DISCUSSION**

- GP consultations were the primary cost driver accounting for 48% and 72% of the expected mean NHS cost of managing PEG/E-treated and lactulose-treated patients respectively.
- PEG/E's acquisition cost was a secondary cost driver for PEG/E-treated patients, accounting for 36% of the expected mean NHS cost per patient. PEG+E also accounted for 2% of the expected mean NHS cost of managing PEG+E-treated patients.
- Lactulose's acquisition cost accounted for 11% of the expected mean NHS cost of managing lactulose-treated patients.
- The higher number of GP consultations among lactulose-treated patients offset PEG+E's higher acquisition cost.

**REFERENCES**


**ACKNOWLEDGEMENTS**

This paper is based on the following data collection methods: 1. The authors' own methodology and data; 2. Scientific availability, data permission, an international clinical trial funded by the National Health Service (NHS) Research and Development (R&D) Programme; 3. Subject has spent no additional cost.

The authors are thankful to the 16 hospitals that contributed to the data collection, to the funding bodies who have supported this work, but most of all to the patients who have been included in this study.

The authors have declared no conflicts of interest.