



Title	A Randomized Controlled Equivalence Trial to Determine the Effectiveness and Cost-Utility of Manual Chest Physiotherapy Techniques in the Management of Exacerbations of Chronic Obstructive Pulmonary Disease (MATREX)
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Aim

To estimate the effect, if any, of manual chest physiotherapy (MCP) administered to patients hospitalized with chronic obstructive pulmonary disease (COPD) exacerbation on both disease-specific and generic health-related quality of life; and to compare the health service costs for those receiving and not receiving MCP.

Conclusions and results

Although MCP did not appear to affect longer-term quality of life, this does not mean that it has no therapeutic value to patients with COPD. Cost-effectiveness analysis suggested that its use was cost-effective, but this finding was uncertain. Hence, it would be difficult to justify providing MCP therapy on the basis of cost effectiveness alone. Of the 526 participants, 261 were allocated to MCP and 264 to control, with 186 participants evaluable in each arm. Intention to treat (ITT) analyses indicated no significant difference at 6 months postrandomization in total SGRQ score, SGRQ symptom score, SGRQ activity score, or SGRQ impact score. The imputed ITT and per-protocol results were similar. No significant differences were observed in any of the outcome measures or subgroup analyses. Compared with no MCP, employing MCP was associated with a slight loss in quality of life and lower health service costs, ie, cost saving of 410.79 pounds sterling (GBP). Based on these estimates, at a cost-effectiveness threshold of $L = \text{GBP } 20\,000$ per QALY, MCP would constitute a cost-effective use of resources (net benefit = GBP 376.14). However, a high level of uncertainty was associated with these results, and it is possible that the lower health service costs could have been due to other factors.

Recommendations

In terms of longer-term quality of life, the use of MCP does not appear to affect outcome in patients hospitalized for COPD exacerbation. Although the cost-effectiveness analysis suggested that MCP was cost-effective, this finding is uncertain. Implications for health care: This study addressed the limitations of previous research

by standardizing the delivery of MCP and obtaining a sample of sufficient size to derive statistically robust results for a patient-orientated, clinically meaningful outcome.

Methods

See Executive Summary link www.hta.ac.uk/project/1416.asp.

Further research/reviews required

With respect to the primary aim of the MATREX trial, further research is not required to demonstrate equivalence between receiving and not receiving MCP. Further research on cost-effectiveness is unlikely to yield gains, as the benefits of both MCP and no MCP were similar. Hence, the consequences of making the wrong decision are small. As such, the cost of further research is likely to outweigh the value of information that would be gained. However, the findings of this study do not mean that MCP has no therapeutic value for patients with COPD in specific circumstances. The research questions arising from this study, in order of priority, are: 1) Is MCP effective for patients with COPD producing high volumes of sputum? 2) Can the risk of oxygen desaturation during MCP be predicted? 3) Is the active cycle of breathing technique (ACBT) effective in treating COPD exacerbation? 3) What are the trends over time in admission and survival rates for COPD? 4) How can health-related resource use be more accurately identified?