Counseling for Smoking Cessation of Parents of Children with Bronchial Asthma: A Meta-analysis of Randomized Controlled Trials

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ABSTRACT

Background
Among children with bronchial asthma, the frequency and severity of acute exacerbations are associated with exposure to environmental tobacco smoke (ETS). One of their main sources of ETS exposure is parental smoking. Thus, parental smoking cessation may help improve the health status of these children.

Objective
The objective of this study was to review existing evidence on the effectiveness of counseling as an intervention for smoking cessation of parents of children with bronchial asthma.

Search methods
A highly sensitive search strategy was used to obtain randomized controlled trials (RCTs) from Pubmed, Cochrane and Herdin Neon databases. A search for unpublished articles was also undertaken. The date of last search was on 16 January 2014. The authors included only RCTs comparing counseling with usual medical advice for smoking cessation among parents of asthmatic children.

Data collection and analysis
The two authors (MBAL, NRNPM) independently reviewed the titles and abstracts of the studies generated by the search strategy. A consensus was reached by the authors upon further discussion of initially differing views. Whenever a consensus was not reached, the help of a third party was solicited. The full text of the articles which showed potential for inclusion was then appraised independently.

Main results
Four randomized controlled trials out of 32 articles were included in the final analysis. Overall, counseling had no significant effect on smoking cessation of parents of children with asthma (RR 0.98, 95% CI 0.89, 1.07). However, the four studies were heterogenous with $\chi^2 = 7.43$, $p=0.06$ and $I^2 =60\%$ using random effects model.

Three studies reported the mean change in the number of cigarettes smoked by parents from baseline to follow-up. Analysis of these three studies showed that counseling did not significantly decrease the mean number of cigarettes smoked by the parents (MD-0.42; 95% CI -1.65, 0.81). On sensitivity analysis however, removing the study that administered different counseling methods to the treatment and control groups, counseling was demonstrated to significantly decrease the mean number of cigarettes smoked by parents in the presence of their children from baseline to follow-up (MD -0.86; 95% CI -1.39, -0.33). In the original analysis, the three trials had significant heterogeneity with $\chi^2=7.13$, $df = 2$ ($p = 0.03$) and $I^2 = 72\%$. This heterogeneity was absent in the sensitivity analysis involving two trials only with $\chi^2 = 0.88$, $df = 1$ ($p = 0.35$) and $I^2 = 0\%$.

Conclusion
Counseling showed potential benefit in reducing the number of cigarettes smoked by parents in the presence of their asthmatic children. However, there is inconclusive evidence that counseling is an effective intervention to promote smoking cessation among parents of children with bronchial asthma.

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