Title A Systematic Review and Economic Evaluation of Pegylated Liposomal Doxorubicin Hydrochloride for Ovarian Cancer

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Aim

To examine the clinical effectiveness and cost effectiveness of intravenous pegylated liposomal doxorubicin hydrochloride as second-line treatment for advanced ovarian cancer after failure of first-line platinum-based therapy.

Conclusions and results

Of 143 titles/abstracts screened for relevance, 53 articles were assessed for inclusion. Schering-Plough Ltd supplied further details of 1 RCT, 3 Phase II studies, and the economic evaluations. One international multicenter RCT comparing pegylated liposomal doxorubicin hydrochloride with topotecan was used to assess clinical effectiveness (trial 30-49, reasonably good quality). Two cost-minimization analyses based on the trial were used to assess cost effectiveness. The economic analyses used a cost-minimization design, justified by the RCT being designed to show equivalence in overall survival. However, no equivalence in Health-related QoL (HRQoL) was established. The economic evaluations were generally of high quality. Clinical effectiveness was assessed on the best available evidence, ie, data from trial 30–49 on 474 participants. Apart from minor exceptions, no significant differences were found between pegylated liposomal doxorubicin hydrochloride and topotecan. The company data showed a mean cost saving from the use of pegylated liposomal doxorubicin hydrochloride of £2657. The mean cost with pegylated liposomal doxorubicin hydrochloride was £9970 compared to £12,627 with topotecan. In the other study, the mean saving was US$2909.

Recommendations

When effectiveness was based on survival duration, pegylated liposomal doxorubicin hydrochloride had a high probability of being cost effective. However, differences between the two therapies are likely in overall HRQoL, which when expressed in quality-adjusted life-years, could alter the cost effectiveness results markedly. The choice between pegylated liposomal doxorubicin hydrochloride and other drugs for second-line ovarian cancer is difficult.

Methods

The search included 23 electronic databases, databases of ongoing research, and Internet resources up to June 2001. Bibliographies of retrieved articles and pharmaceutical company submissions were examined. Only RCTs and full economic evaluations comparing pegylated liposomal doxorubicin hydrochloride to non-pegylated liposomal doxorubicin hydrochloride regimens or standard care were included. Only second-line therapy of advanced disease after failure of first-line platinum-based therapy was considered. Clinical effectiveness data were discussed according to outcome. RCTs were discussed separately from Phase II studies. For time to event data, hazard ratios with 95% confidence intervals were presented where available. For other outcomes, relative risks were reported or calculated where appropriate and where sufficient data were available, and also presented as forest plots without pooled estimates. Economic data were presented as a summary and critique of the evidence. Additional analysis explored cost effectiveness more fully.

Further research/reviews required

Further good quality RCTs comparing pegylated liposomal doxorubicin hydrochloride with other licensed and potentially useful second-line chemotherapy agents for ovarian cancer are needed. Such studies should also generate data for cost effectiveness analysis.

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