COST-EFFECTIVENESS OF VALDECOXIB COMPARED TO DICLOFENAC IN PATIENTS WITH RHEUMATOID ARTHRITIS (RA) IN THE UNITED KINGDOM (UK) AND GERMANY

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INTRODUCTION

- Cyclooxygenase-2 (COX-2) specific inhibitors have similar efficacy profiles to nonspecific nonsteroidal anti-inflammatory drugs (NSAIDs) in treating the signs and symptoms associated with osteoarthritis (OA) and adult-onset rheumatoid arthritis (RA). However, COX-2 specific inhibitors are associated with a decreased risk of gastrointestinal (GI) adverse events (AEs) compared with nonspecific NSAIDs.[1-3]
- Pharmacoeconomic studies of COX-2 specific inhibitors have demonstrated economic advantages compared with other treatments for OA and RA because of their favorable GI safety profile.[4-6]
- The COX-2 specific inhibitor valdecoxib is approved in Europe for the relief of the signs and symptoms of OA and adult RA (10 and 20 mg qd) and for the treatment of primary dysmenorrhea (40 mg qd).
- In a previously reported 26-week, randomized controlled trial (RCT) comparing valdecoxib 20 mg qd and diclofenac slow release (SR) 75 mg bid in adult patients with RA, valdecoxib demonstrated comparable efficacy, a lower withdrawal rate, and a superior GI safety profile to diclofenac (Figures 1-3).[7]

Figure 1. Trial design.

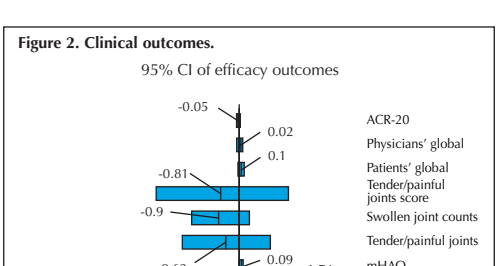
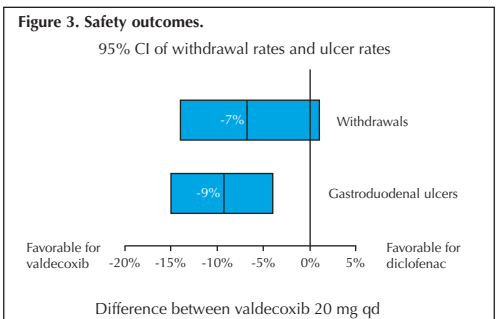


Figure 2. Clinical outcomes.

ACR-20, American College Rheumatology-20 Responder Index; mHAQ-Modified Health Assessment Questionnaire; VAS, visual analog scale.

Figure 3. Safety outcomes.



- Healthcare resource utilization data were prospectively collected in this trial for the purpose of performing economic evaluations to compare the costs of valdecoxib and diclofenac.

OBJECTIVE

- To compare the cost-effectiveness of valdecoxib 20 mg qd and diclofenac SR 75 mg bid in the treatment of RA based on prospectively collected data of healthcare resource utilization in an RCT over 6 months. Cost-effectiveness evaluations were calculated for the United Kingdom from a National Health Service payer perspective and for Germany from a sickness funds payer perspective.

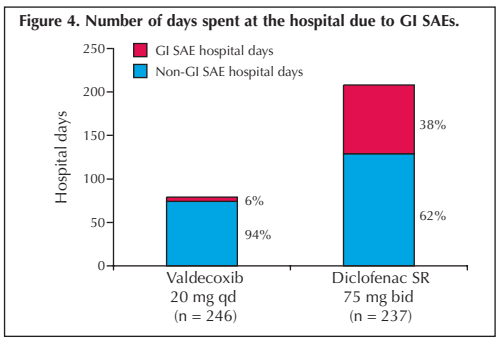
METHODS

- Clinical and healthcare resource outcomes were prospectively collected as part of a 26-week RCT of patients with RA receiving either valdecoxib 20 mg qd (n = 246) or diclofenac SR 75 mg bid (n = 237).
- Cost-effectiveness of valdecoxib and diclofenac was compared using country-specific unit costs for resource use (hospital days, study medication, concomitant medication, unscheduled procedures, and healthcare visits) in the United Kingdom and Germany.
- In-depth analyses were conducted to explore the cost difference associated with ulcers and GI complications, defined as GI serious adverse events (GI SAEs) in the clinical report.
- Cost-effectiveness ratios were calculated for cost per averted gastroduodenal ulcer, cost per averted withdrawal due to treatment failure and/or AE, cost per averted GI SAE, and cost per avoided ulcer with GI SAE.
- A symptomatic ulcer was defined as a GI AE reported as a gastroduodenal or peptic ulcer.
- Total healthcare costs in the UK included the daily cost of valdecoxib at £0.77 and generic diclofenac at £0.16.
- Total healthcare costs in Germany included the daily cost of valdecoxib at €1.3471 and generic diclofenac at €0.4659.
- Bootstrapping was used to create a 95% confidence interval (CI).

RESULTS

- The treatment groups were comparable with respect to age, race/ethnicity, and gender.
- The clinical trial showed comparable efficacy for valdecoxib and diclofenac, but a superior safety profile for valdecoxib, which resulted in fewer GI AEs and hospital days.
- Patients taking diclofenac were significantly more likely to be hospitalized due to SAEs during the 6-month study period (0.56 more hospital days per patient; 95% CI, 0.0006 to 1.1; data not shown).
- Only 6% of the hospitalizations in patients taking valdecoxib 20 mg qd were due to GI SAEs vs 38% of the hospitalizations in patients treated with diclofenac SR 75 mg bid (Figure 4).

Figure 4. Number of days spent at the hospital due to GI SAEs.



- The cost per averted gastroduodenal symptomatic ulcer with valdecoxib in the United Kingdom was -£1104 (negative number means cost saving for valdecoxib) and €386 in Germany (Table 1).

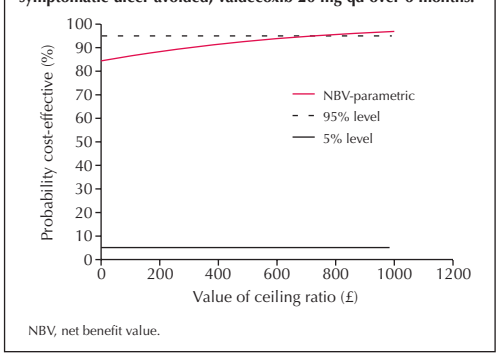
Table 1. Incremental Cost-effectiveness Ratio Estimates over 6 months.

Analysis Outcome Variable	ICER in the United Kingdom (£)	ICER in Germany (€)
Avoided GD symptomatic ulcer	-1104	386
Avoided withdrawal due to treatment failure and/or AE	-1580	553
Avoided GI SAEs	-2709	947
Avoided GI SAE with symptomatic ulcer	-3522	1436

GD, gastroduodenal; ICER, incremental cost per unit of benefit.

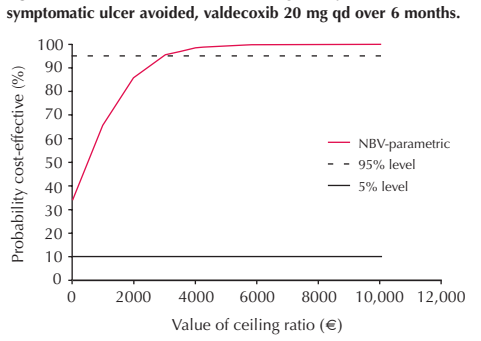
- The cost per averted withdrawal due to treatment failure and/or AE with valdecoxib was -£1580 in the United Kingdom and €553 in Germany (Table 1).
- The cost per averted GI SAE was -£2709 in the United Kingdom and €947 in Germany and the cost per averted GI SAE with symptomatic ulcer was -£3522 in the United Kingdom and €1436 in Germany (Table 1).
- The UK and German cost-effectiveness acceptability curves for avoided symptomatic ulcer are presented in Figures 5 and 6.

Figure 5. UK cost-effectiveness acceptability curve for symptomatic ulcer avoided, valdecoxib 20 mg qd over 6 months.



NBV, net benefit value.

Figure 6. German cost-effectiveness acceptability curve for symptomatic ulcer avoided, valdecoxib 20 mg qd over 6 months.



- Furthermore, the UK and German cost-effectiveness planes show most of the valdecoxib samples in the right quadrants, indicating that valdecoxib is more effective in avoiding AEs and sometimes less costly than diclofenac (85% for the United Kingdom and 34% for Germany) (Figures 7 and 8).

Figure 7. UK cost-effectiveness plane for symptomatic ulcer avoided, valdecoxib 20 mg qd over 6 months.

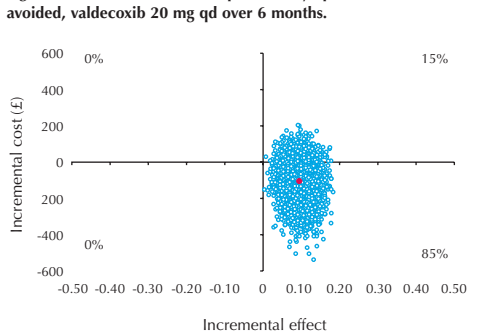
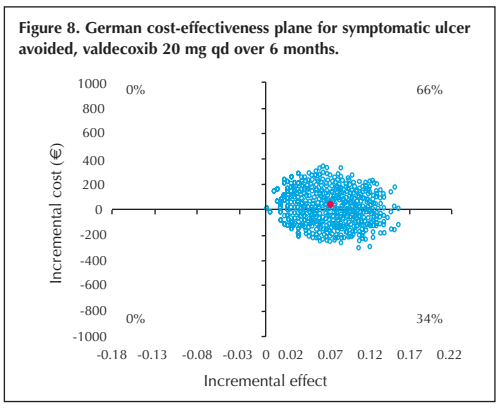


Figure 8. German cost-effectiveness plane for symptomatic ulcer avoided, valdecoxib 20 mg qd over 6 months.



- The mean total cost per patient for healthcare in the United Kingdom was £452.07 for valdecoxib 20 mg qd and £556.63 for diclofenac SR 75 mg bid with a difference of -£104.57 (95% CI, -307.51 to 98.37).
- The mean total cost per patient for healthcare in Germany was €610 for valdecoxib 20 mg qd and €573.43 for diclofenac SR 75 mg bid with a difference of €36.57 (95% CI, -143.76 to 216.89).

CONCLUSIONS

- This economic evaluation suggests that the improved safety profile of valdecoxib is reflected in lower costs for healthcare utilization related to the treatment of GI complications.
- The differences in costs are mainly attributable to a decrease in hospital days and procedures related to GI SAEs for the valdecoxib 20 mg qd group vs the diclofenac SR 75 mg bid group.
- The differences are robust to changes in costing environment showing the same trend in UK and Germany.
- The superior safety profile of valdecoxib compared with diclofenac translates into lower total healthcare costs for patients treated with valdecoxib and overall cost-effectiveness in both countries.

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