BMJ Open

Cost-effectiveness analysis of ixekizumab versus secukinumab in patients with

psoriatic arthritis and concomitant moderate-to-severe psoriasis in Spain

Bernd Schweikert, Chiara Malmberg, Mercedes Nuñez, Tatiana Dilla, Christophe Sapin,

Susanne Hartz

Corresponding Author: Dr. Bernd Schweikert

ICON plc, Konrad-Zuse-Platz 11, 81829 Munich, Germany

bernd.schweikert@iconplc.com

Supplementary Table 2. Parameters used in the probabilistic sensitivity analysis

Parameter	Mean (SE)	Distribution type	CI/assumptions
Utility regression calculation			
Intercept	0.903 (0.009)	BETA	
HAQ	-0.219 (0.010)	NORMAL	
PASI	-0.001 (0.002)	NORMAL	
Annual HAQ progression	0.072 (0.018)	GAMMA	Assumption SE=mean/4
Annual discontinuation rate	0.165 (0.041)	BETA	Assumption SE=mean/4
Mean weight	87.02 (0.454)	NORMAL	Based on SPIRIT trials
Additional annual cost of BSC	0.00 (0.000)	GAMMA	Assumption SE=mean/4
Monitoring Costs			
Cost of full blood count	67.98 (17.0)	GAMMA	Assumption SE=mean/4
Cost of liver function test	5.9566 (1.5)	GAMMA	Assumption SE=mean/4
Cost of ESR	1.03 (0.3)	GAMMA	Assumption SE=mean/4
Cost of urea and electrolytes test	75.8183 (19.0)	GAMMA	Assumption SE=mean/4
Cost of X-Ray	42.23 (10.6)	GAMMA	Assumption SE=mean/4
Cost of TB test	8.95 (2.2)	GAMMA	Assumption SE=mean/4
Cost of ANA test	8.9507 (2.2)	GAMMA	Assumption SE=mean/4
Cost of dsDNA test	0 (0.0)	GAMMA	Assumption SE=mean/4
Admin costs			
Cost of subcutaneous injection	1.11 (0.3)	GAMMA	Assumption SE=mean/4
Cost of intravenous infusion	81.82 (20.5)	GAMMA	Assumption SE=mean/4
Physician costs			
Cost of rheumatologist visit	220.62 (55.2)	GAMMA	Assumption SE=mean/4
Cost of dermatologist visit	100.58 (25.1)	GAMMA	Assumption SE=mean/4
Cost of GP visit	33.86 (8.5)	GAMMA	Assumption SE=mean/4
AEs hospital costs			
NMSC	3858.07 (964.5)	GAMMA	Assumption SE=mean/4
Lymphoma	10345.71 (2586.4)	GAMMA	Assumption SE=mean/4
Melanoma	3966.44 (991.6)	GAMMA	Assumption SE=mean/4
Sepsis	7769.76 (1942.4)	GAMMA	Assumption SE=mean/4

Supplemental material

BMJ Publishing Group Limited (BMJ) disclaims all liability and responsibility arising from any reliance placed on this supplemental material which has been supplied by the author(s)

BMJ Open

TB	7110.13 (1777.5)	GAMMA	Assumption SE=mean/4
Pneumonia	4558.02 (1139.5)	GAMMA	Assumption SE=mean/4
Skin and soft tissue infection	4171.03 (1042.8)	GAMMA	Assumption SE=mean/4
one and joint infection	7245.83 (1811.5)	GAMMA	Assumption SE=mean/4
Urinary tract infection	3347.43 (836.9)	GAMMA	Assumption SE=mean/4
Health state costs			
Kobelt HAQ regression constant	636.56 (410.7)	NORMAL	Kobelt
Kobelt HAQ regression intercept	2101.70 (739.7)	NORMAL	Kobelt
Corbett PASI cost uncontrolled psoriasis	2871.95 (718.0)	GAMMA	Assumption SE=mean/4
Corbett PASI cost controlled psoriasis	81.03 (2.03)	GAMMA	Assumption SE=mean/4
Kobelt cost adjustment factor	0.85 (0.2)	BETA	Assumption SE=mean/4
Efficacy of BSC			
PsARC	30.60%	CODA	
PsARC and PASI75	5.04%	CODA	
PsARC and PASI90	1.77%	CODA	
PsARC and PASI100	0.61%	CODA	
HAQ reduction responders	0.257	CODA	
HAQ reduction non-responders	-0.009	CODA	
PASI50 response	17.40%	CODA	
PASI75 response	6.40%	CODA	
PASI90 response	2.20%	CODA	
PASI100 response	0.70%	CODA	
Treatment specific costs - Ixekizumab Q4W			
PsARC	53.00%	CODA	
PsARC and PASI75	46.65%	CODA	
PsARC and PASI90	34.40%	CODA	
PsARC and PASI 100	23.01%	CODA	
HAQ reduction responders	0.506	CODA	
HAQ reduction non-responders	0.052	CODA	
PASI50 response	87.20%	CODA	
PASI75 response	70.90%	CODA	
PASI90 response	52.00%	CODA	
PASI100 response	35.40%	CODA	
Physician Visits - Induction period			
Rheumatologist	4.50 (1.125)	GAMMA	Assumption SE=mean/4
Dermatologist	6.00 (1.50)	GAMMA	Assumption SE=mean/4
GP	10.80 (2.70)	GAMMA	Assumption SE=mean/4
Physician Visits - Maintenance therapy			
Rheumatologist (annually)	3.50 (0.875)	GAMMA	Assumption SE=mean/4
Dermatologist (annually)	2.00 (0.50)	GAMMA	Assumption SE=mean/4
GP (annually)	10.80 (2.70)	GAMMA	Assumption SE=mean/4
Monitoring - Induction period			
Number of FBC	4.50 (1.125)	GAMMA	Assumption SE=mean/4
Number of LFT	0.00 (0.000)	GAMMA	Assumption SE=mean/4
Number of ESR	4.50 (1.125)	GAMMA	Assumption SE=mean/4
Number of U&E	0.00 (0.000)	GAMMA	Assumption SE=mean/4
Number of X-Ray	1.00 (0.250)	GAMMA	Assumption SE=mean/4

Number of TB test	1.00 (0.250)	GAMMA	Assumption SE=mean/4
Number of ANA	4.50 (1.125)	GAMMA	Assumption SE=mean/4
Number of dsDNA tests	0.00 (0.000)	GAMMA	Assumption SE=mean/4
Monitoring - Maintenance therapy			
Number of FBC	3.00 (0.750)	GAMMA	Assumption SE=mean/4
Number of LFT	0.00 (0.000)	GAMMA	Assumption SE=mean/4
Number of ESR	3.00 (0.750)	GAMMA	Assumption SE=mean/4
Number of U&E	0.00 (0.000)	GAMMA	Assumption SE=mean/4
Number of X-Ray	0.00 (0.000)	GAMMA	Assumption SE=mean/4
Number of TB test	1.00 (0.250)	GAMMA	Assumption SE=mean/4
Number of ANA	3.00 (0.750)	GAMMA	Assumption SE=mean/4
Number of dsANA tests	0.00 (0.000)	GAMMA	Assumption SE=mean/4
AEs			
Rate NMSC/patient year	0.00 (0.000)	BETA	Assumption SE=mean/4
Rate of malignancies/patient year	0.00 (0.000)	BETA	Assumption SE=mean/4
Rate of severe infections/patient year	0.02 (0.004)	BETA	Assumption SE=mean/4
Treatment specific costs - Secukinumab 300 mg			
PsARC	54.10%	CODA	
PsARC and PASI75	40.50%	CODA	
PsARC and PASI90	26.50%	CODA	
PsARC and PASI 100	15.82%	CODA	
HAQ reduction responders	0.561	CODA	
HAQ reduction non-responders	0.139	CODA	
PASI50 response	77.30%	CODA	
PASI75 response	56.60%	CODA	
PASI90 response	36.80%	CODA	
PASI100 response	22.40%	CODA	
Physician Visits - Induction period			
Rheumatologist	4.50 (1.125)	GAMMA	Assumption SE=mean/4
Dermatologist	6.00 (1.50)	GAMMA	Assumption SE=mean/4
GP	10.80 (2.70)	GAMMA	Assumption SE=mean/4
Physician Visits - Maintenance therapy			
Rheumatologist	3.50 (0.875)	GAMMA	Assumption SE=mean/4
Dermatologist (annually)	6.50 (1.625)	GAMMA	Assumption SE=mean/4
GP (annually)	10.80 (2.70)	GAMMA	Assumption SE=mean/4
Monitoring - Induction period			
Number of FBC	4.50 (1.125)	GAMMA	Assumption SE=mean/4
Number of LFT	0.00 (0.000)	GAMMA	Assumption SE=mean/4
Number of ESR	4.50 (1.125)	GAMMA	Assumption SE=mean/4
Number of U&E	0.00 (0.000)	GAMMA	Assumption SE=mean/4
Number of X-Ray	1.00 (0.250)	GAMMA	Assumption SE=mean/4
Number of TB test	1.00 (0.250)	GAMMA	Assumption SE=mean/4
Number of ANA	4.50 (1.125)	GAMMA	Assumption SE=mean/4
Number of dsANA tests	0.00 (0.000)	GAMMA	Assumption SE=mean/4
Monitoring - Maintenance therapy			
Number of FBC	3.00 (0.750)	GAMMA	Assumption SE=mean/4
Number of LFT	0.00 (0.000)	GAMMA	Assumption SE=mean/4

Number of ESR	3.00 (0.750)	GAMMA	Assumption SE=mean/4
Number of U&E	0.00 (0.000)	GAMMA	Assumption SE=mean/4
Number of X-Ray	0.00 (0.000)	GAMMA	Assumption SE=mean/4
Number of TB test	1.00 (0.250)	GAMMA	Assumption SE=mean/4
Number of ANA	3.00 (0.750)	GAMMA	Assumption SE=mean/4
Number of dsANA tests	0.00 (0.000)	GAMMA	Assumption SE=mean/4
AEs			
Rate NMSC/patient year	0.00 (0.000)	BETA	Assumption SE=mean/4
Rate of malignancies/patient year	0.01 (0.001)	BETA	Assumption SE=mean/4
Rate of severe infections/patient year	0.02 (0.005)	BETA	Assumption SE=mean/4

AEs, adverse events; ANA, antinuclear antibody; BSC, best supportive care; CODA, convergence diagnostics and output analysis; dsDNA, double-stranded deoxyribonucleic acid; ESR, erythrocyte sedimentation rate; FBC, full blood count; HAQ, Health Assessment Questionnaire; LFT, liver function test; MD, medical doctor; NMSC, nonmelanoma skin cancers; PASI, Psoriasis Area and Severity Index; PASI50, 75, 90, 100, ≥50%, ≥75%, ≥90% or 100% reduction from baseline PASI; PsARC, Psoriatic Arthritis Response Criteria; Q4W, every 4 weeks; SE, standard error; TB, tuberculosis; U&E, urea and electrolyte.