**Cost-Effectiveness of Brentuximab Vedotin for the Treatment of Cutaneous T-cell Lymphoma: Appendix**

Table A. Clinical Inputs.

|  |  |  |  |
| --- | --- | --- | --- |
| Parametric Curves | Input  | Source | Scenario Analysis |
| OS  |  |  |  |
| BV | Same as PC | Assumption | 1. OS benefit for BV:a. 2-monthsb. 4-monthsc. 9.5-months |
| PC | Log-logistic | 1 | 2. Log-normal (PC) |
| alloSCT | Log-normal | 2 | 3. Weibull (alloSCT) |
| PFS  |  |  |  |
| BV | Weibull | 1 | 4. Exponential (BV and PC) |
| PC | Weibull | 1 |
| alloSCT | Gompertz | 2 |  |
| Time on treatment |  |  |  |
| BV | Actual data | 1 |  |
| PC | Actual data | 1 |  |
| Time of treatment before alloSCT eligibility | 18 weeks\* (i.e. 6 cycles of BV) | Expert opinion | 5. Timing of alloSCT: a. 12-weeksb. 24-weeks |
| Responders eligible for alloSCT | 40% | Expert opinion | 6. 20% of responders eligible for alloSCT |
| Subsequent therapy: Proportion treated |  | EU PROCLIPI data on file |  |
| Subsequent therapy: Time on treatment (weeks) |  |  |  |
| Gemcitabine | 16.0 | 3 |  |
| CHOP | 9.0 | Expert opinion |  |
| Other mono chemotherapy | 24.0 | 4 |  |
| TSEB | 47.8 | 5 |  |
| Background mortality | England and Wales’ life tables 2014–2016 | 6 |  |

Abbreviations: BEX, bexarotene; BV, brentuximab vedotin; CHOP, cyclophosphamide, doxorubicin, vincristine, prednisone; MTX, methotrexate; OS, overall survival; PC, physician’s choice; PFS, progression-free survival; TSEB, total skin electron beam therapy.

\*Expert opinion provided the number of cycles, which was translated into weeks

Table A. Cost Inputs.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Cost category | Unit cost | Cycle cost | Source | Scenario Analysis |
| Drug costs |  |  |  |  |
| BV | £2,500.00 | £2,500.00 | MIMS 7 |  |
| MTX | £1.44 | £0.51 | MIMS 8 |  |
| BEX | £937.50 | £459.38 | MIMS 9 |  |
| alloSCT  | £96,956 | -- | 10 | 7. £65,154 (NHS Reference costs) |
| Subsequent therapy |  |  |  |  |
| Gemcitabine | 200 mg: £30.931000 mg: £154.622000 mg: £324.00 | £694.76 | Unit costs: MIMS 11 Dosing: LCA SACT 12 |  |
| CHOP | -- | £97.54 | Unit costs: MIMS 13-16 Dosing: LCA SACT 17 |  |
| Cyclophosphamide | 50 mg: £139.00 | £13.44 |  |
| Hydroxydaunorubicin | 10 ml: £18.5450 ml: £92.70200 ml: £391.40 | £61.80 |  |
| Oncovin (vincristine) | 1 ml: £67.352 ml: £133.305 ml: £329.50 | £13.38 |  |
| Prednisolone | 1 mg: £0.375 mg: £0.4725 mg: £75.00 | £8.93 |  |
| Other mono chemotherapy\* | -- | £151.29 | Unit costs: MIMS18Dosing: LCA SACT |  |
| TSEB | -- | £72.67 | Unit costs: NHS Reference Costs 19Dosing: Guys Hospital  |  |
| Administration costs |  |  |  |  |
| BV | -- | £58.00 | 19,20 |  |
| MTX | -- | £0 | Assumption |  |
| BEX | -- | £0 | Assumption |  |
| Gemcitabine | -- | £130.49 | 19,20 |  |
| CHOP | -- | £173.99 | LCA SCAT 17 |  |
| Other mono chemotherapy\* | -- | £164.64 | LCA SCAT 21 |  |
| Adverse event costs |  |  |  |  |
| BV | -- | £4.97 | 19 |  |
| PC | -- | £5.99 | 19 |  |
| Resource use costs |  |  |  | 8. See Table A3 |
| Pre-progression | -- | £388.63 | Expert opinion |  |
| Post-progression  | -- | £904.45 | Expert opinion |  |
| End-stage care (specific to advanced CTCL) | -- | £2,094.92 | Expert opinion |  |
| End-stage care (generic oncology disease) | -- | £286.48 | 22 |  |
| Indirect costs |  |  |  |  |
| Pre-progression | -- | £62.72 | Average number of hospital visits/week: assumptionCosts: 23-26 |  |
| Post-progression | -- | £199.76 |  |
| End-stage care | -- | £288.02 |  |

Abbreviations: BEX, bexarotene; BV, brentuximab vedotin; LCA, London Cancer Alliance; MTX, methotrexate; PAS, patient access scheme; SACT, systemic anti-cancer therapy.

Notes: \*Other mono chemotherapy includes doxorubicin (all formulations) and chlorambucil.

**Additional details on drug costs and administration costs**

Model costs for each drug were estimated based on weight or body surface area as follows:

* The cycle cost of BV is estimated based on a dose of 1.8 mg/kg during a 21-day treatment cycle with a relative dose intensity of 95%.1,27
* The cycle cost of MTX is estimated based on a dose of 23.44 mg during a 7-day treatment cycle. 1,27
* The cycle cost of BEX is estimated based on a dose of 300 mg/m2 during a 1-day treatment cycle with a relative dose intensity of 90%.1,27
* The cycle cost of gemcitabine is estimated based on a dose of 3000 mg/m2 during a 28-day treatment cycle.12
* The cycle cost of CHOP is estimated based on the dose of the component therapies (Cyclophosphamide: 750 mg/m2; Hydroxydaunorubicin: 50 mg/m2; Oncovin (vincristine): 1.4 mg/m2; Prednisolone: 100 mg) during a 21-day treatment cycle.17
* The cost of 2 weeks on TSEB therapy is spread over the average duration of response of 11 months.

Administration unit costs are estimated from NHS reference costs 2016/17. All IV therapies, including BV, are costed as simple therapies with the exceptions of doxorubicin (costed as complex chemotherapy), and CHOP, for which each of the three IV therapies is costed as simple chemotherapy, with no cost assumed for prednisolone. For oral therapies, the administrative cost for chlorambucil includes costs for oral dispensing; however, the oral dispensing cost is not included for MTX or BEX.

Table A3: Resource utilization.

|  |  |  |
| --- | --- | --- |
|  | Base case | Scenario Analysis: 9. Lower-range resource utilization |
|  | **% Patients** | **Frequency per week** | **% Patients** | **Frequency per week** |
| End-stage care |   |   |   |   |
| Hospital outpatient |   |   |   |   |
| Clinical nurse specialist | 100 | 2.25 | 100 | 1.63 |
| Dermatologist visit | 100 | 0.17 | 100 | 0.17 |
| Psychologist | 50 | 0.25 | 5 | 0.25 |
| Home visit |   |   |   |   |
| District nurse visit | 100 | 2.63 | 100 | 2.63 |
| Macmillan nurse/social services | 100 | 1 | 100 | 0.5 |
| Palliative care support team | 100 | 2 | 100 | 0.5 |
| Dressings |   |   |   |   |
| Meptiel dressings | 25 | 7 (x3) | 12.5 | 7 (x3) |
| Mepilex large sheet dressings | 25 | 7 (x2) | 12.5 | 7 (x2) |
| Mepilex heels | 25 | 7 (x2) | 12.5 | 7 (x2) |
| Elasticated garments | 25 | 1 (x3) | 12.5 | 1 (x3) |
| Medium Allevyn | 75 | 7 | 75 | 7 |
| Pre-progression / Post -progression |   |   |   |   |
| District nurse visit | 100 | 2.6 | 100 | 0.25 |
| Dressings - localised coverage | 60 | 7 (x7) | 37.5 | 7 (x7) |

Table A4. Utility inputs.

|  |  |  |  |
| --- | --- | --- | --- |
| Health State | Utility | Source | Scenario Analysis |
| Progression free |  |  | Scenario 9: Predicted utilities27 |
| BV | 0.69  | Averaged observed utilities for BV and PC 27 | 0.68 |
| PC | 0.69  | 0.64 |
| Progressive disease  | 0.64  | 0.61 |
| End stage care | 0.38  | 28 |  |
| alloSCT: 0-14 days | 0.42  | 29 |  |
| alloSCT: 14 days -3 months | 0.60  | 29 |  |
| alloSCT: >3 months | 0.77  | 29 |  |
|  |  |  |  |
| Adverse Event | **Disutility** | **Source** | Scenario 10: Disutilities from literature |
| Blood and lymphatic system disorders | 0 | Assumption | -0.10 30 |
| Gastrointestinal disorders | 0 | Assumption | -0.10 31 |
| General disorders and administration site conditions | 0 | Assumption | -0.07 32 |
| Multiorgan failure | 0 | Assumption | -0.20 30 |
| Infections and infestations | 0 | Assumption | -0.14 33 |
| Septicemia | 0 | Assumption | -0.20 30 |
| Peripheral neuropathy | 0 | Assumption | -0.11 28 |
| Skin and subcutaneous tissue disorders | 0 | Assumption | -0.03 32 |
| Investigations | 0 | Assumption |  |
| Hypertriglyceridemia | 0 | Assumption |  |

Abbreviations: alloSCT, allogenic stem cell transplant; BV, brentuximab vedotin; PC, physician’s choice.

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**Figures**

Figure A. Probabilistic sensitivity analysis scatterplot.



Abbreviations: QALY, quality adjusted life year.