Lipegfilgrastim highly cost-effective in reducing chemotherapy-induced neutropenia in breast cancer patients

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Background: Lipegfilgrastim (Lonquex®) has demonstrated to be non-inferior to pegfilgrastim (Neulasta®) in reducing the incidence of febrile neutropenia (FN) in patients with breast cancer. In secondary endpoints, it demonstrated significant differences in the incidence of severe neutropenia (SN) in cycle 2, depth of ANC nadir in cycle 2 and 3 and time to ANC recovery suggesting, an increased value of lipegfilgrastim compared to pegfilgrastim. The aim of this study was to quantify the cost utility and cost-effectiveness of lipegfilgrastim compared to pegfilgrastim in stage II breast cancer patients. The perspective taken was that of the Belgian payer over a lifetime horizon.

Material and Methods: Two Markov models were developed to track chemotherapy-related complications including FN, SN, chemotherapy delay, reduced dose intensity <85%, infection and death. Utilities and Belgian health states related costs were derived from the literature, the model was validated in a modified Delphi panel afterwards. Trade-off analyses were subsequently conducted with different lipegfilgrastim price points tested across age bands and cancer stages.

Results: At equivalent drug cost of €1,169 and at a willingness-to-pay (WTP) threshold of €30,000 per QALY, treatment with lipegfilgrastim dominated pegfilgrastim, with total costs of €6,434 vs €6,444 and total quality-adjusted life years (QALYs) of 16.755 and 16.700, respectively. Lipegfilgrastim was consistently a dominant alternative to pegfilgrastim at WTP thresholds of €10,000 and €50,000 per QALY. The probability for lipegfilgrastim to be cost-effective compared to pegfilgrastim was 69%, 82% and 90%, at a WTP threshold of €10,000, €30,000 and €50,000 per QALY, respectively. When varying lipegfilgrastim price points from €1,000 to €10,000 in deterministic analyses, across age bands, cancer stages and at a WTP of €30,000 per QALY, lipegfilgrastim was cost-effective compared to pegfilgrastim up to a price of €1,500 across all age bands and cancer stages.

Conclusions: Lipegfilgrastim, currently at the pegfilgrastim price level of €1,169, provides greater value than pegfilgrastim because it was cost-saving and more effective. The trade-off analysis for Belgium indicated that lipegfilgrastim was cost-effective compared to pegfilgrastim in all patient age groups and cancer stages up to a price of €1,500.

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POSTER

Clinical factors associated with overall survival (OS) for patients with HER2-positive (HER2+) metastatic breast cancer (MBC) treated with HER2-targeting systemic therapy

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Background: The introduction of HER2Tx has significantly improved the objective response rate and overall survival (OS) of pts with HER2+ MBC. Although HER2+ MBC remains incurable, a meaningful minority of pts on first line HER2Tx can have a prolonged phase of disease control. Clinical factors at presentation of MBC can be associated with OS and have not been fully elucidated and are not part of pts assessments at baseline.

Material and Methods: Data from a Departmental database of pts treated with HER2tx for metastatic or inoperable locally advanced HER2+ BC were reviewed and retrospectively analysed. Onset survival data on tumour pathology, first line HER2tx administered, subsequent lines of therapy and long-term FU were included in the analysis. First and subsequent progression-free intervals and OS were calculated. This abstract focuses on OS data.

Results: A total of 134 consecutive pts treated between January 2000 and June 2016 were eligible and analysed. Pts characteristics at the time of initiation of HER2Tx for MBC: median age 55yrs (range 25–83), ER/PR pos 76 (57%)/neg 47 (35%)/unknown 11 (8%), <2 metastatic sites 98 (73%)/2 sites 36 (27%), visceral disease 83 (63%), HER2tx+chemotherapy (CTX) 116 (86%). Median follow up is 23 months (range: 0.3–193). The proportion of pts treated for Relapsed (R) HER2+ MBC decreased significantly from the years 2000–2005 (R-MBC 83%) to 2011–2016 (R-MBC 42%), whereas DeNovo (DN) HER2+ MBC has increased significantly (DN-MBC 17% to 58%) in the same time interval. This is most likely an effect of the introduction of HER2Tx for early stage (ES) BC started routinely from 2005. Pts with DN-MBC had a longer median OS (44 months [95% CI: 29–84]) compared to R-MBC (38 months [95% CI: 23–47]). Longer OS was significantly associated with <2 sites of metastatic disease (p = 0.015), absence of visceral metastases (p = 0.048), treatment with HER2tx+CTX (p = 0.022). On multivariate analysis, DN-MBC (p = 0.048) and <2 metastatic sites (p = 0.001) were associated with significantly longer OS and reduced risk of death. Within our pts cohort a disease complete response (CR) was obtained in 21 pts (16%), 16 of whom never relapsed. All of 16 durable CR received HER2tx+chemo and were censored in the analysis as disease was not previously pre-treated with HER2Tx.

Conclusions: The introduction of HER2Tx for ESBC has significantly altered the presentation of HER2+ MBC in the last decade. Pts who present with DN-MBC, have <2 sites of metastatic disease and no visceral involvement are more likely to achieve a prolonged OS when treated with HER2Tx in combination with CTx. These clinical factors may be used to prognosticate pts outcome and could be incorporated into clinical trials of HER2Tx.

Conflict of interest: No conflict of interest.

POSTER

Aberrant expression of CD44 and CD24 in predicting response to neoadjuvant chemotherapy

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Background: The introduction of HER2-targeting systemic therapy (HER2Tx) for patients with HER2-positive breast cancer has dramatically improved the objective response rate and overall survival (OS) of patients with HER2+ breast cancer. Although HER2+ breast cancer remains incurable, a meaningful minority of patients on first-line HER2Tx can have a prolonged phase of disease control. Clinical factors at presentation of MBC can be associated with OS and have not been fully elucidated and are not part of patients assessments at baseline.

Material and Methods: Data from a Departmental database of patients treated with HER2Tx for metastatic or inoperable locally advanced HER2+ breast cancer were reviewed and retrospectively analyzed. Onset survival data on tumor pathology, first-line HER2Tx administered, subsequent lines of therapy and long-term follow-up (FU) were included in the analysis. First and subsequent progression-free intervals and OS were calculated. This abstract focuses on OS data.

Results: A total of 134 consecutive patients treated between January 2000 and June 2016 were eligible and analyzed. Patient characteristics at the time of initiation of HER2Tx for MBC: median age 55 years (range 25–83), ER/PR positive 76 (57%)/negative 47 (35%)/unknown 11 (8%), <2 metastatic sites 98 (73%)/2 sites 36 (27%), visceral disease 83 (63%), HER2Tx + chemotherapy (CTX) 116 (86%). Median follow-up is 23 months (range: 0.3–193). The proportion of patients treated for relapsed (R) HER2+ MBC decreased significantly from the years 2000–2005 (R-MBC 83%) to 2011–2016 (R-MBC 42%), whereas DeNovo (DN) HER2+ MBC has increased significantly (DN-MBC 17% to 58%) in the same time interval. This is most likely an effect of the introduction of HER2Tx for early stage (ES) BC started routinely from 2005. Patients with DN-MBC had a longer median OS (44 months [95% CI: 29–84]) compared to R-MBC (38 months [95% CI: 23–47]). Longer OS was significantly associated with <2 sites of metastatic disease (p = 0.015), absence of visceral metastases (p = 0.048), treatment with HER2tx + CTX (p = 0.022). On multivariate analysis, DN-MBC (p = 0.048) and <2 metastatic sites (p = 0.001) were associated with significantly longer OS and reduced risk of death. Within our patient cohort a disease complete response (CR) was obtained in 21 patients (16%), 16 of whom never relapsed. All of 16 durable CR received HER2tx + chemotherapy and were censored in the analysis as disease was not previously pre-treated with HER2Tx.

Conclusions: The introduction of HER2Tx for ESBC has significantly altered the presentation of HER2+ MBC in the last decade. Patients who present with DN-MBC, have <2 sites of metastatic disease and no visceral involvement are more likely to achieve a prolonged OS when treated with HER2Tx in combination with CTX. These clinical factors may be used to prognosticate patient outcomes and could be incorporated into clinical trials of HER2Tx.

Conflict of interest: No conflict of interest.