ISPOR Europe 2024
17-20 November | Barcelona, Spain

EE796

Cost-Effectiveness of Selexipag versus placebo for Patients with Pulmonary Arterial Hypertension in Singapore

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INTRODUCTION & OBJECTIVE

- Pulmonary arterial hypertension (PAH) is a severe, progressive condition that can cause right ventricular dysfunction and cardiac failure. In the GRIPHON study, selexipag reduced the risk of the primary endpoint (composite of all-cause death or a PAH-related complication) compared to placebo.
- The Agency for Care Effectiveness (ACE) is the national health technology assessment (HTA) agency in Singapore to guide health policy, drive appropriate use of treatments and inform technology funding decisions. As the cost effectiveness of selexipag in the Singapore setting is unknown, an economic evaluation was undertaken to assess the cost effectiveness of selexipag as an add-on therapy, versus placebo, for treating PAH from the Singapore healthcare system's perspective.

METHODS

- A Markov cohort model which comprised five health states: PAH WHO functional class (FC) I to IV, and death, was developed (Figure 1).
- Transition probabilities between the FC states were derived from the GRIPHON study. Given no statistically significant difference in mortality were observed between selexipag and placebo in the GRIPHON trial, the same overall mortality rate was applied to all PAH health states in both treatment arms.
- In the absence of local estimates health state utilities were obtained from published literature, and direct costs were sourced from Singaporean public healthcare institutions.
- Selexipag was assumed to be discontinued on disease progression, and the impact of this assumption was tested in scenario analyses.

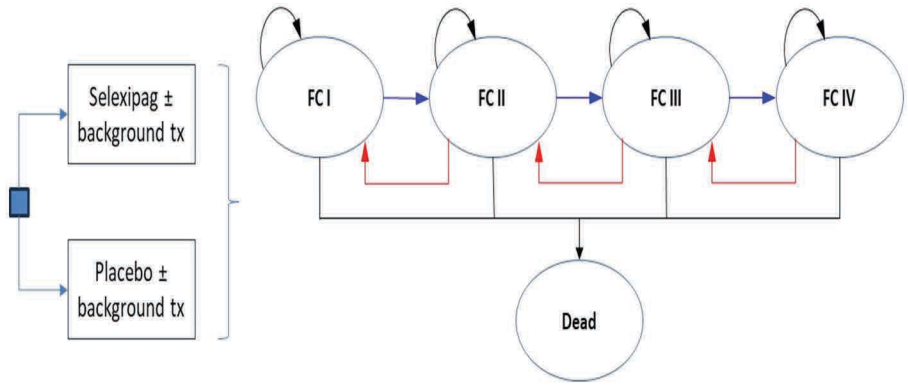

Figure 1. State transition diagram

RESULTS

- Compared to the placebo arm, patients treated with selexipag accrued more quality-adjusted life years (incremental 0.182 QALYs) at higher overall costs (incremental SGD176,000 (USD134,000)).
- QALY gains were driven mainly by reduction in disease progression, as no mortality benefit with selexipag was observed in the trial. The high incremental cost was largely attributed to expenditure on selexipag treatment, notwithstanding costs averted due to fewer hospitalisations and subsequent treatment with epoprostenol.
- Using the local 2023 price for selexipag, the base case incremental cost-effectiveness ratio (ICER) was over SGD900,000 (USD668,385) per QALY gained compared with placebo. When an average of overseas prices was used, the ICER reduced to below SGD300,000 (USD222,795) per QALY gained. ICER was therefore highly sensitive to selexipag's price.
- In the scenarios where patients were assumed to continue selexipag even after disease progression, the ICER increased by 25 to 35%.

CONCLUSION

- This study has demonstrated that based on year 2023 prices, selexipag is unlikely to be cost effective for treating patients with PAH in Singapore, when compared to placebo.