Health Economics Review

MATTERS ARISING

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Matters arising: cost-utility and cost-effectiveness analysis of disease-modifying drugs of relapsing–remitting multiple sclerosis: a systematic review

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Abstract

Background In their interesting systematic review, Gallehzan et al. quoted our article Cost-utility analysis of teriflunomide in naïve vs. previously treated patients with relapsing–remitting multiple sclerosis (RRMS) in Italy. While we are grateful to Gallehzan et al. for their interest in the aim of our research, we would like to clarify some points.

Methods We compare Gallehzan et al.'s statements about our article with the original publication.

Results Gallehzan et al. omitted or misreported some relevant methodological issues and findings presented in our article. As far as methods are concerned, the main omissions were the 7-year time horizon of our study (that falls in between the 5–10 years range mentioned by Gallehzan et al. for other contributions) and the number of simulated RRMS naïve patients (1000). Regarding findings, Gallehzan et al. mistook the 0.480 incremental Quality-Adjusted Life Year gained by RRMS naïve patients vs. RRMS experienced patients on teriflunomide for the base case Incremental Cost-Utility Ratio (ICUR) calculated according to the societal viewpoint. In fact, for both the healthcare sector and societal perspectives adopted in our Markov model-based cost-utility analysis, the baseline results showed teriflunomide in RRMS naïve patients to be strongly dominant (that is, producing more QALYs and being, at the same time, cost-saving) vs. RRMS experienced patients. Therefore, the calculation of the two ICURs was not necessary.

Conclusions As systematic reviews play a remarkable role in disseminating health economic research, a careful description of the methods and the findings reported in the included studies is of paramount importance.

Keywords Systematic reviews, Relapsing-remitting multiple sclerosis, Teriflunomide, Cost-utility analysis, Markov model, Italy

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Sirs,

In their interesting systematic review [1], Gallehzan et al. quoted our article Cost-utility analysis of teriflunomide in naïve vs. previously treated patients with relapsing–remitting multiple sclerosis (RRMS) in Italy [2].

While we are grateful to Gallehzan et al. for their interest in the aim our research -which was listed as 40. in the reference section of their article (please see [1], page 36)- we would like to clarify some points.

As requested, we acknowledged the sponsorship of our research (please see [2], page 4942). However, Gallehzan et al. seemingly reported this detail in Table 2 Characteristics of studies included in the review (please see [1], page 10) only, as our study was not included among those funded by pharmaceuticals in the text of their article (please see [1], page 5).

We detect the same omission as far as the time horizon of the study is concerned (please see [1], page 5). In fact, the 7-year timespan our Markov model-based cost-utility analysis (CUA) [3, 4] stretches over falls in between the 5–10 years range mentioned by Gallehzan et al. (please see [1], page 5).

In the column named Population, Table 2 Characteristics of studies included in the review (please see [1], page 10), Gallehzan et al. seemingly imply that the number of simulated RRMS naïve patients was left undetermined in our article. In fact, we state that two hypothetical cohorts of 1000 RRMS naïve and 1000 RRMS experienced patients transitioned between the 4 states that composed our Markov model-based CUA [3, 4] (please see [2], page 4934).

In Table 2 Characteristics of studies included in the review, fourth column from the right (please see [1], page 5) readers may be led astray with noticing that the willingness to pay (WTP) for incremental Quality-Adjusted Life Year (QALY) gained [4] in our research was €0. This is not correct. For both the healthcare sector and societal perspectives [4] our baseline CUA showed teriflunomide in RRMS naïve patients to be strongly dominant (that is, producing more QALYs and being, at the same time, cost-saving) [4] vs. RRMS experienced patients. Therefore, the calculation of the Incremental Cost-Utility Ratios (ICURs) and the subsequent comparison with the Italian WTP was not necessary [4].

Conversely, for "variations in Markov model key parameters, such as time horizon, adherence probability to teriflunomide and remission after RRMS relapse" (please see [2], page 4942) which were explored in two scenario sensitivity analyses [4] included in the Supplemental Material of our article (please see https://link.springer.com/article/https://doi.org/10.1007/s10072-022-06022-x#Sec13), the ICURs fall in between the lower and the upper limits of the informal WTP for incremental life of year saved or QALY gained (€25,000-€40,000) proposed by the Italian Association of Health Economics [5].

Eventually, the 0.480 figure mentioned by Gallehzan et al. in Table 4 Outcomes and Costs of included studies, ICER column (please see [1], page 23), is not the ICUR calculated following the societal perspective in our study, but the incremental QALY gained by RRMS naïve patients vs. RRMS experienced patients on teriflunomide, that do not differ for the two viewpoints adopted in our research (please see [2], page 4938).

As systematic reviews play a remarkable role in disseminating health economic research, a careful description of the methods and the findings reported in the included studies is of paramount importance.

Author contributions

CL drafted the provisional version of the Letter to the Editor. CL, RB, MZ, RT, and DP discussed and revised the provisional version of the Letter to the Editor. CL drafted the final version of the Letter to the Editor, which was read and approved by all authors.

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Data availability

No datasets were generated or analysed during the current study.

Declarations

Ethical approval

This contribution was exempt from ethical review due to it being a Commentary.

Conflict of interest

Authors declare no conflicts of interest/competing interests with this Commentary. CL has received teaching fees from University of Pavia, research grants, speaker or consultancy fees from argenx BV, AstraZeneca S.p.A, Ipsen S.p.A., Janssen-Cilag SPA, Horizon Therapeutics srl, Roche S.p.A., Roche Diagnostics S.p.A., Sanofi s.r.l., Santen GmbH, Santen Italy S.R.L. RB has served on scientific advisory boards for Biogen, Merck-Serono, Novartis, Sanofi-Genzyme; received research support from Almirall, Bayer, Biogen, Merck-Serono, Novartis, Sanofi-Genzyme; received support for travel and congress from Biogen, Roche, Merck-Serono, Sanofi-Genzyme, Teva; received honoraria for speaking engagement from Biogen, Merck-Serono, Novartis, Sanofi-Genzyme. MZ has served on scientific advisory boards and received honoraria for speaking or support for travel and congress attendance from Almirall, Biogen, Merck-Serono, Novartis, Sanofi-Genzyme. RT has received speaker or consultancy fees from Biogen, Merck-Serono, Novartis, Roche, Sanofi and Teva. DP has received honoraria for consultancy and/or speaking from Biogen Idec, Merck-Serono, Bayer-Schering, Sanofi-Aventis, TEVA, Novartis and Genzyme.

Generative artificial intelligence in scientific writing

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