Abstract

Objective: To compare annualized relapse rates (ARRs) from patients participating in the PRISMS long-term follow-up (LTFU) study who received the minimal (lowest quartile, lowest dose), MIN or the cumulative maximal dose (highest quartile, MAX) of interferon beta (IFN)-β1a subcutaneous (SC) over an 8-year study period.

Background: The PRISMS LTFU study supports the efficacy of IFN-β1a SC 3 times weekly in relapsing-remitting multiple sclerosis (RRMS) on relapse disability, and magnetic resonance imaging outcomes. Design/Methods: A post hoc exploratory analysis was performed on patients who participated in the LTFU study (n=382). Data were pooled from patients initially randomized to IFN-β1a SC 22 μg, n=189; IFN-β1a SC 44 μg, n=184; IFN-β1a SC 22 μg, n=95; placebo, n=96. Total cumulative dose of IFN-β1a SC over the 8-year period in mg/patient was estimated. ARR was calculated for the MIN and MAX dose groups for years 0–2, 2–4 and 4–8. RESULTS: Mean (SD) cumulative dose of IFN-β1a SC was 0.720 (0.548) for patients in the 1st cumulative dose quartile and 0.830 (0.598) for patients in the 4th cumulative dose quartile. ARR was lower at years 0–2 and during year 2–4, followed by an additional reduction of 20% in years 4–8. Patients in the 1st and 4th cumulative dose quartiles experienced a decrease in ARR as a function of 37.1% during year 4–LTFU. These results suggest that patients could experience a sustained benefit of relapse reduction by maintaining long-term therapy with IFN-β1a SC.

Conclusions: These results indicate that patients receiving IFN-β1a SC experienced fewer relapses when patients exposed to a lower cumulative dose.

Acknowledgments and Disclosures

This retrospective, post hoc analysis showed that MS patients exposed to the highest cumulative dose of IFN-β1a SC experienced fewer relapses compared with patients exposed to a lower cumulative dose.

The greater efficacy of higher dose IFN-β1a SC exposure in reducing relapse rates persisted through the LTFU, 7–8 years after initial randomization to drug.

These results suggest that patients could experience a sustained benefit of relapse reduction by maintaining long-term therapy with IFN-β1a SC.

References


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Long-Term Effects of Interferon Beta-1a Dose on Relapse Rate in Relapsing-Remitting Multiple Sclerosis: Results From a Post Hoc Analysis of PRISMS Study Data

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Study Limitations

• Data were derived from a retrospective, post hoc analysis.
• Assessment of absolute effect size in the PRISMS LTFU study was not possible without a placebo arm.
• Analyses did not account for patients who may have switched to other medications or discontinued treatment altogether.

Long-Term Efficacy of Interferon Beta-1a Subcutaneously in Multiple Sclerosis (PRISMS) Study showed that interferon beta (IFN-β1a) subcutaneous (SC) was effective at reducing relapses and delaying disability progression in patients with multiple sclerosis (MS).

The 2-year double-blind portion of PRISMS, as well as its 4-year extension study, suggested that, although both doses of IFN-β1a SC were effective, patients who received the higher dose (44 μg 3 times weekly TIW) of IFN-β1a SC may experience a greater benefit in relapse reduction compared with patients receiving the lower dose (22 μg TIW).

Published data from the 4-year long-term follow-up (LTFU) of PRISMS confirmed improved outcomes associated with long-term IFN-β1a SC therapy, particularly at the higher dose; however, it has not been clarified how long-term reductions in relapses may be related to the cumulative dose of IFN-β1a SC received by patients.

The goal of this analysis was to examine data from the PRISMS LTFU study and to compare relapse rates of patients based on their received cumulative dose of IFN-β1a SC. Results From a Post Hoc Analysis of PRISMS Study Data

Results

Patients

• Of 560 patients originally randomized in the PRISMS study (n=332) or placebo, n=187), 382 (68.2%) participated in the LTFU.
• Of the 382 participating patients, 123 had been originally randomized to 22 μg IFN-β1a SC, 138 to 44 μg IFN-β1a SC, and 123 to placebo.
• The median age, at screening, of patients who participated in the LTFU was 35.5 years, and a higher proportion of women (71.2%) than men (61.4%) returned for the follow-up.
• The majority (72.2%) of LTFU participants were receiving IFN-β1a SC at the time of the visit, whereas 21.2% were not receiving DOC.

Cumulative Dose Analyses

• Mean cumulative dose received by patients in the highest cumulative dose (4th) quartile was ≈4-fold higher than that of the lowest cumulative dose (1st) quartile (Figure 1).

Patients in both the 1st and 4th cumulative dose quartiles experienced a decrease in ARR as a function of 37.1% during year 4–LTFU. Compared with years 0–2, patients in the 1st cumulative dose quartile had a 45.1% reduction in ARR in years 2–4, followed by an additional reduction of 20.2% during year 4–LTFU. Compared with years 0–2, patients in the 4th cumulative dose quartile had a 40.2% reduction in ARR in years 2–4, followed by an additional reduction of 37.1% during year 4–LTFU.

Overall, ARR was lower at years 0–2 and during year 4–LTFU among patients in the 4th cumulative dose quartile in the cumulative dose quartiles, respectively (Figure 3).

Conclusions

• Data were derived from a retrospective, post hoc analysis.
• Assessment of absolute effect size in the PRISMS LTFU study was not possible without a placebo arm.
• Analyses did not account for patients who may have switched to other medications or discontinued treatment altogether.

References