Sustained Improvements in Fatigue and Quality of Life in Patients with Iron Deficiency Anemia Due to Gastrointestinal Disorders Following a Single Course of Ferumoxytol

Charles F Barish1, Miao Yu2, Amama Sadiq2, Naomi V Dahl2
1Department of Gastroenterology, University of North Carolina School of Medicine, Chapel Hill, NC, United States; 2AMAG Pharmaceuticals, Inc., Waltham, MA

Background
Iron deficiency anemia (IDA) is common in patients with gastrointestinal (GI) disease, as a result of chronic blood loss, malnutrition, or malabsorption of iron, often coexisting with impaired utilization of endogenous iron in patients with chronic inflammation, such as inflammatory bowel disease (IBD).1,2

Oral iron is often first-line treatment, but many patients do not tolerate it, or do not adequately respond; many live with chronic anemia and its related negative effects.3

A Phase 3 double-blind, placebo-controlled trial (NCT01114139) previously found that patients unsuccessfully treated with oral iron, including those with underlying GI diseases, had very poor baseline HRQOL scores associated with fatigue, and that IV iron treatment resulted in significant, clinically meaningful improvement.1,3

To explore the durability of this treatment effect, this subgroup analysis reports on the impact on patient-reported outcomes (PRO) of a single course of IV ferumoxytol, received during the double-blind trial, over the subsequent 6-month extension study (NCT01114217) in patients with IDA due to GI disorders.

Methods
6-month, Phase 3, open-label extension study (IDA 303, NCT01114139)
The study enrolled patients who had completed a randomized, placebo-controlled, double-blinded, Phase 3 study (IDA 301, NCT01114139).4

Enrolled patients were evaluated for IDA monthly throughout the 6-month observation period

Those with persistent or recurrent IDA at any evaluation visit (defined as Hgb<11.0 g/dL and TSAT<20%) received a course of ferumoxytol (2 x 510 mg, 3 to 8 days apart)
The same validated PRO instruments were administered in this extension study as in the preceding double-blind trial:
- Functional Assessment of Chronic Illness Therapy-Fatigue Scale (FACIT-Fatigue), assessed monthly
- Linear Analogue Scale Assessment (LASA) of Energy, Activities of Daily Living (ADL), and HRQOL, assessed at Months 4 and 7

This analysis reports results for the subgroup of patients who did not meet the protocol-specified retreatment criteria and therefore did not receive any additional doses of ferumoxytol during the entire 6-month period of the extension study.

Results
The extension study enrolled 78.5% of patients from the previous Phase 3 study (163/200 placebo, 471/608 ferumoxytol)
The most common primary underlying conditions were abnormal uterine bleeding (41.8%), GI disorder (33.0%), and cancer (3.9%)

Table 1. Baseline Demographics: GI Patients, No Retreatment Group

<table>
<thead>
<tr>
<th>Baseline Demographics</th>
<th>GI Patients, No Retreatment Group</th>
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</thead>
<tbody>
<tr>
<td>Sex, female, n (%)</td>
<td>79 (85)</td>
</tr>
<tr>
<td>Race, n (%)</td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>71 (79)</td>
</tr>
<tr>
<td>Black or African American</td>
<td>9 (10)</td>
</tr>
<tr>
<td>Asian</td>
<td>13 (14)</td>
</tr>
<tr>
<td>Other or Unknown</td>
<td>1 (1)</td>
</tr>
<tr>
<td>Hgb, g/dL, mean (SD)</td>
<td>8.9 (0.9)</td>
</tr>
<tr>
<td>Age, years, mean (SD)</td>
<td>46.1 (13.9)</td>
</tr>
<tr>
<td>Weight, Kg, mean (SD)</td>
<td>78.3 (23.5)</td>
</tr>
</tbody>
</table>

Most patients who had received a dose of ferumoxytol in the double-blind trial did not meet the criteria for retreatment during the extension study, and did not receive any further dose to receive 471/619 (Overall) including 67.6% (94/139) of those with IDA due to GI disorders

Table 2. Changes from Baseline in Patient Reported Outcomes Following a Single Course of Ferumoxytol Therapy in GI Patients

<table>
<thead>
<tr>
<th>Instrument</th>
<th>Pretreatment Baseline</th>
<th>Change from Pretreatment Baseline</th>
<th>MIDa,b</th>
</tr>
</thead>
<tbody>
<tr>
<td>FACIT-Fatigue</td>
<td>Mean (SD)</td>
<td>Mean (95% CI)</td>
<td></td>
</tr>
<tr>
<td>Pretreatment Baseline</td>
<td>11.3 (9.3-13.4)</td>
<td>9.8 (7.0,12.5)</td>
<td>3.0</td>
</tr>
<tr>
<td>Posttreatment Baseline</td>
<td>23.6 (11.8)</td>
<td></td>
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</tbody>
</table>

a MID = Minimum Important Difference; b Standard deviation; c CI = Confidence interval

Figure 1. Overall Study Design

Figure 2. Monthly Hgb Levels and FACIT-Fatigue Scores Following a Single Course of Ferumoxytol Therapy in GI Patients

fBy Week 5 following ferumoxytol treatment, FACIT-Fatigue scores had increased significantly (Overall 36.1±12.3; GI 34.3±12.0), approaching general population norms. This improvement was sustained over the following 6 months (Month 7 score Overall 38.8±11.5; GI 37.3±12.0)

Similarly, the significant improvements in LASA Activity, Energy, and QOL scores that were observed in the double-blind trial were also maintained over the following 6 months

Conclusions
These data suggest that ferumoxytol may provide important clinical benefits to IDA patients with a history of unsatisfactory oral iron therapy; these benefits include reductions in fatigue, increased energy and ability to perform activities of daily living, and improved HRQOL.5

This is important especially in light of the poor baseline energy and HRQOL scores of patients with IDA due to GI disorders and a history of unsatisfactory oral iron therapy or in whom oral iron could not be used.

This study found that for the majority of patients with IDA due to GI disorders, significant improvements in fatigue and energy domains, greater than the previously reported Minimal Clinically Important Differences (MID), were achieved and sustained for 6 months following a single course of ferumoxytol.

References

Disclosures