November 2007

Ferric Gluconate Yields Cost-Savings in Hemodialysis Patients with High Ferritin and Low TSAT: Results from the DRIVE Studies

Laura T. Pizzi  
*Thomas Jefferson University*

Thomas J. Bunz  
*Thomas Jefferson University*

David S. Goldfarb  
*New York University and NY VA Medical Center*

Daniel W. Coyne  
*Washington University*

Ajay K. Singh  
*Harvard University*

Let us know how access to this document benefits you

Follow this and additional works at: [http://jdc.jefferson.edu/hplectures](http://jdc.jefferson.edu/hplectures)

Part of the [Health and Medical Administration Commons](http://jdc.jefferson.edu/hplectures)

Recommended Citation


[http://jdc.jefferson.edu/hplectures/4](http://jdc.jefferson.edu/hplectures/4)
Ferric Gluconate Yields Cost-Savings in Hemodialysis Patients with High Ferritin and Low TSAT: Results from the DRIVE Studies

Laura T Pizzi, PharmD, MPH, Thomas J Bunz, PharmD, David S Goldfarb, MD, Daniel W Coyne, MD and Ajay K Singh, MD, MRCP, MBA

Department of Health Policy, Jefferson Medical College, Philadelphia, PA, USA; Department of Nephrology, Division of Medicine and NY VA Medical Center, New York, NY, USA; Department of Medicine, Renal Division, Washington University School of Medicine, St. Louis, MO, USA and Department of Medicine, Harvard Medical School, Boston, MA, USA.

Abstract

The DRIVE Studies were conducted to determine the best treatment options for a subgroup of anemic hemodialysis patients (HDP) with high ferritin and low TSAT. The primary objective was to compare the cost-effectiveness of SFGC (Ferric Glnconate) with epoetin, the current standard of care. The analysis was performed from a Medicare perspective, assuming that patients continued to receive dialysis for at least 12 weeks. All other medications and treatments were assumed to be the same for both arms of the study. Costs were computed from a Medicare perspective using projected 2007 reimbursement levels. Current Medicare reimbursement levels were used to estimate the cost of epoetin and SFGC based on assigned diagnostic related groups (DRGs). The average national reimbursement for each DRG was then used to estimate the cost of epoetin and SFGC. Sensitivity analyses were performed to account for variations in reported outcomes, including different medication usage, modifications to: current Medicare reimbursement rates. The results of the model were presented through a decision tree and a scatterplot of costs vs. effectiveness (Hb increase).

Results

The model was robust to sensitivity analyses which included variations in reported outcomes, including different medication usage, modifications to: current Medicare reimbursement rates. The results of the model were presented through a decision tree and a scatterplot of costs vs. effectiveness (Hb increase).

Conclusions

Our results demonstrate that SFGC, used in the treatment of anemic HDP with high ferritin and low TSAT, is more cost-effective than epoetin alone. This finding is most appropriate to simply report that one treatment option dominates the other.

Table 1: Assigned DRG codes and estimated costs

<table>
<thead>
<tr>
<th>DRG Code</th>
<th>Assigned Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>$5,114.58</td>
</tr>
<tr>
<td>2</td>
<td>$6,455.66</td>
</tr>
<tr>
<td>3</td>
<td>$6,455.66</td>
</tr>
<tr>
<td>4</td>
<td>$6,455.66</td>
</tr>
<tr>
<td>5</td>
<td>$6,455.66</td>
</tr>
</tbody>
</table>

Table 2: Value used for each model input - base case and sensitivity analysis

<table>
<thead>
<tr>
<th>Input</th>
<th>Base Case</th>
<th>Sensitivity Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hb increase</td>
<td>1.7g/dL</td>
<td>1.4g/dL</td>
</tr>
<tr>
<td>Epoetin cost</td>
<td>$5,114.58</td>
<td>$5,114.58</td>
</tr>
<tr>
<td>SFGC cost</td>
<td>$6,455.66</td>
<td>$6,455.66</td>
</tr>
</tbody>
</table>

Table 3: Results from the univariate sensitivity analysis

<table>
<thead>
<tr>
<th>Input</th>
<th>High Sensitivity</th>
<th>Low Sensitivity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hb increase</td>
<td>1.9g/dL</td>
<td>1.5g/dL</td>
</tr>
<tr>
<td>Epoetin cost</td>
<td>$5,214.58</td>
<td>$5,014.58</td>
</tr>
<tr>
<td>SFGC cost</td>
<td>$6,555.66</td>
<td>$6,355.66</td>
</tr>
</tbody>
</table>

Figure 1: Decision Tree Framework

Figure 2: Results of Decision Tree after Roll-Back Calculation

Figure 3: Results of the Probabilistic Sensitivity analysis, showing the incremental cost-effectiveness ratios (ICER) of SFGC vs. epoetin alone across a range of Hb increase (1.4g/dL and 1.7g/dL). The ICERs are based on a Monte Carlo simulation of 1,000,000 iterations, taking into account the variability of outcomes and the probability of serious adverse events. The origin represents the relative cost-effectiveness of SFGC and epoetin. The 95% confidence interval includes the origin, so we cannot say with certainty that one treatment option dominates the other. However, the results of the model are robust to sensitivity analyses which include variations in reported outcomes, including different medication usage, modifications to: current Medicare reimbursement rates. The results of the model were presented through a decision tree and a scatterplot of costs vs. effectiveness (Hb increase).

Discussion

• Sensitivity analyses were conducted to determine the best treatment options for a subgroup of anemic hemodialysis patients (HDP) with high ferritin and low TSAT. The primary objective was to compare the cost-effectiveness of SFGC (Ferric Glnconate) with epoetin, the current standard of care. The analysis was performed from a Medicare perspective, assuming that patients continued to receive dialysis for at least 12 weeks. All other medications and treatments were assumed to be the same for both arms of the study. Costs were computed from a Medicare perspective using projected 2007 reimbursement levels. Current Medicare reimbursement levels were used to estimate the cost of epoetin and SFGC based on assigned diagnostic related groups (DRGs). The average national reimbursement for each DRG was then used to estimate the cost of epoetin and SFGC. Sensitivity analyses were performed to account for variations in reported outcomes, including different medication usage, modifications to: current Medicare reimbursement rates. The results of the model were presented through a decision tree and a scatterplot of costs vs. effectiveness (Hb increase).

Conclusions

Our results demonstrate that SFGC, used in the treatment of anemic HDP with high ferritin and low TSAT, is more cost-effective than epoetin alone. This finding is most appropriate to simply report that one treatment option dominates the other.

References


This work was funded through a research grant from Watson Laboratories, Inc.