INTRODUCTION

Rapid-acting insulin analogs increase insulin bioavailability and reduce interpatient and intrapatient variability; however, they still are absorbed too slowly to replace the rapid and transient prandial spike of endogenous insulin.[1] The faster time course and less-prolonged action of ultrarapid insulin formulations more accurately recapitulate physiologic pulmonary delivery patterns; thereby, reducing hypoglycemic risk and limiting postprandial glucose excursions.[2] We sought to determine if participating in a curriculum of educational activities related to the clinical use of a new rapid-acting insulin formulation could improve the knowledge, competence, and clinical decision making of primary care physicians (PCPs) and diabetes specialists (endos) in the United States.

Source of Support

This curriculum of CME activities was supported by an independent educational grant from Sanofi.

OUTCOMES ANALYSES

The effects of education were assessed using 4 knowledge- and case-based matched pre- and post-test questions for each activity.

McNemar’s chi-squared test was used to assess whether the mean post-assessment score differed from the mean pre-assessment score; P<.05 was statistically significant.

Questions from all 4 activities were grouped together in domains according to expected achievement:

• Individualizing Therapy in Diabetes Patients
  • Understanding mechanism of action (MOA), Safety, and Efficacy Data of Inhaled Insulin
  • Differentiating Modern Inhaled Insulin From Injectable Prandial Insulin and Past Inhaled Insulin Products
  • Clinical Use of Modern Inhaled Insulin

RESULTS

TABLE 2. Individualizing Therapy in Diabetes Patients (57% increase by PCPs and 52% increase by diabetologists in selecting strategies to improve patient adherence)

<table>
<thead>
<tr>
<th>Activity Number</th>
<th>Activity Title</th>
<th>Activity URL</th>
<th>Pre-Assessment (PCPs)</th>
<th>Post-Assessment (PCPs)</th>
<th>Pre-Assessment (Endos)</th>
<th>Post-Assessment (Endos)</th>
<th>P (% change)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Differentiating Modern Inhaled Insulin From Injectable Prandial Insulin and Past Inhaled Insulin Products (30% increase by PCPs and 19% increase by diabetologists in differentiating inhaled insulin from oral antihyperglycemic agents)</td>
<td><a href="http://www.medscape.org/viewarticle/842625">http://www.medscape.org/viewarticle/842625</a></td>
<td>29% (443)</td>
<td>52% (774)</td>
<td>24% (138)</td>
<td>48% (257)</td>
<td>&lt;.05</td>
</tr>
</tbody>
</table>

TABLE 3. Understanding MOA, Safety, and Efficacy Data of Inhaled Insulin (12% increase by PCPs and 14% increase by diabetologists in recognizing the mechanism of action of inhaled insulin)

<table>
<thead>
<tr>
<th>Activity Number</th>
<th>Activity Title</th>
<th>Activity URL</th>
<th>Pre-Assessment (PCPs)</th>
<th>Post-Assessment (PCPs)</th>
<th>Pre-Assessment (Endos)</th>
<th>Post-Assessment (Endos)</th>
<th>P (% change)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Understanding MOA, Safety, and Efficacy Data of Inhaled Insulin</td>
<td><a href="http://www.medscape.org/viewarticle/842644">http://www.medscape.org/viewarticle/842644</a></td>
<td>11% (3)</td>
<td>18% (5)</td>
<td>16% (4)</td>
<td>22% (9)</td>
<td>&lt;.05</td>
</tr>
</tbody>
</table>

TABLE 4. Differentiating Modern Inhaled Insulin From Injectable Prandial Insulin and Past Inhaled Insulin Products (20% increase by PCPs and 19% increase by diabetologists in differentiating inhaled insulin from rapid-acting insulin)

<table>
<thead>
<tr>
<th>Activity Number</th>
<th>Activity Title</th>
<th>Activity URL</th>
<th>Pre-Assessment (PCPs)</th>
<th>Post-Assessment (PCPs)</th>
<th>Pre-Assessment (Endos)</th>
<th>Post-Assessment (Endos)</th>
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</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Differentiating Modern Inhaled Insulin From Injectable Prandial Insulin and Past Inhaled Insulin Products (20% increase by PCPs and 19% increase by diabetologists in differentiating inhaled insulin from rapid-acting insulin)</td>
<td><a href="http://www.medscape.org/viewarticle/842644">http://www.medscape.org/viewarticle/842644</a></td>
<td>29% (443)</td>
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</tr>
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TABLE 5. Clinical Use of Modern Inhaled Insulin (40% increase by PCPs and 9% increase by diabetologists understanding how modern inhaled insulin differs from older inhaled insulin formulations)

<table>
<thead>
<tr>
<th>Activity Number</th>
<th>Activity Title</th>
<th>Activity URL</th>
<th>Pre-Assessment (PCPs)</th>
<th>Post-Assessment (PCPs)</th>
<th>Pre-Assessment (Endos)</th>
<th>Post-Assessment (Endos)</th>
<th>P (% change)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>Clinical Use of Modern Inhaled Insulin (40% increase by PCPs and 9% increase by diabetologists in understanding how modern inhaled insulin differs from older inhaled insulin formulations)</td>
<td><a href="http://www.medscape.org/viewarticle/842629">http://www.medscape.org/viewarticle/842629</a></td>
<td>11% (3)</td>
<td>18% (5)</td>
<td>16% (4)</td>
<td>22% (9)</td>
<td>&lt;.05</td>
</tr>
</tbody>
</table>

CONCLUSIONS

This study demonstrates the success of a targeted educational intervention with multiple educational components in improving knowledge, competence, and clinical decision making of PCPs and diabetologists regarding a new rapid-acting insulin formulation. Improvements were seen with regard to each theme, with the area receiving additional education falling under the topics of Individualizing Therapy in Patients and Understanding MOA, Safety, and Efficacy Data of Inhaled Insulin.

Reference

1. Boss AH, et al. Coverage of prandial insulin requirements for each activity: 

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SUCCESS OF CONTINUING MEDICAL EDUCATION ON APPROPRIATE CLINICAL USE OF INHALED INSULIN THERAPY

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