Systematic Collection of Biopsies and Quantification of Eosinophils in Multiple High-Power Fields is Required for Diagnosis of Eosinophilic Gastritis and/or Duodenitis

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PATIENTS AND METHODS

Background

- Pathologic accumulation and over-activation of eosinophils and mast cells are implicated in chronic inflammatory diseases in the gastrointestinal (GI) tract, including eosinophilic esophagitis (EoE), gastritis (EG), duodenitis (EoD), and colitis — collectively termed eosinophilic gastrointestinal diseases (EGIDs)1,2.
- Patients with EGIDs have decreased quality of life due to chronic debilitating and often nonspecific symptoms such as dysphagia, abdominal pain, abdominal cramping, bloating, early satiety, loss of appetite, nausea, vomiting, and diarrhea2.

ENIGMA was a randomized, controlled, phase 2 trial of adult patients with EG and/or EoD that established the therapeutic potential of lintilstatumab, an investigational medicine, which is a monoclonal antibody against Siglec-8 that depletes eosinophils and inhibits mast cell activity4.

Patients enrolled in ENIGMA were first screened for moderate-severe GI symptoms using a daily patient-reported outcome (PRO) questionnaire.

- Patients who met the symptom criteria underwent esophagogastroduodenoscopy (EGD) with biopsy and histopathologic evaluation to confirm diagnoses of EG and/or EoD (30 eosinophils per high-power field [eos/hpf] in ≥5 hpf in gastric biopsies and/or in ≥3 hpf in duodenal biopsies).

Among patients screened in ENIGMA, 45% had no previous diagnoses of EG and/or EoD; 29% of these patients were found to have EG and/or EoD.

Figure 1. Pathogenesis of EGIDs

Figure 2. New Diagnoses of EG and/or EoD in ENIGMA

METHODS

Patients with eosinophilic gastrointestinal diseases (EGIDs) are implicated in chronic inflammatory diseases in the gastrointestinal (GI) tract, including eosinophilic esophagitis (EoE), gastritis (EG), duodenitis (EoD), and colitis — collectively termed eosinophilic gastrointestinal diseases (EGIDs)1,2.

Figure 3. Biopsy and Histopathology Protocol and Diagnostic Criteria for EG and/or EoD Used in ENIGMA and Prevalence Studies

Results

- The diagnostic yield of a single high-power field (hpf) biopsy (≥30 eos/hpf in 5 hpf) in the stomach was 64% (95% CI 56–71%; n = 120).
- The diagnostic yield of four hpf biopsies (4 biopsies × ≥30 eos/hpf, 4 biopsies × ≥5 hpf) was 71% (95% CI 64–77%; n = 120).

CONCLUSIONS/DISCUSSION

A systematic histopathology protocol with evaluation of gastric and duodenal eosinophilia in patients with chronic, moderate-severe GI symptoms, in 2 prospective studies, revealed that about a third of patients without previous diagnoses of EG and/or EoD met histologic criteria for these disorders. Results of this study were consistent with previous studies, suggesting that low power evaluation of GI biopsies is not sufficient to detect EG and/or EoD.

Given the high diagnostic yield, a standardized biopsy and histopathology protocol should be used to evaluate patients for EG and/or EoD, so that they can receive an accurate diagnosis.

Table 1. Patient Demographics

<table>
<thead>
<tr>
<th>Patient Characteristics</th>
<th>ENIGMA Prevalence (n=149)</th>
<th>ENIGMA+Prevalence (n=192)</th>
<th>EG Only</th>
<th>EG + EoD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (median, IQR)</td>
<td>47 (36-58)</td>
<td>47 (36-58)</td>
<td>46 (36-58)</td>
<td>47 (36-58)</td>
</tr>
<tr>
<td>Gender (n, %)</td>
<td>82 (55.6)</td>
<td>113 (59)</td>
<td>49 (32.3)</td>
<td>64 (33.3)</td>
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<tr>
<td>Prior History (n, %)</td>
<td>73 (49.1)</td>
<td>113 (59)</td>
<td>47 (30.9)</td>
<td>66 (34.8)</td>
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<tr>
<td>EG, EG only</td>
<td>72 (48.1)</td>
<td>113 (59)</td>
<td>45 (29.4)</td>
<td>68 (35.4)</td>
</tr>
<tr>
<td>EoD, EoD only</td>
<td>71 (47.5)</td>
<td>113 (59)</td>
<td>47 (30.9)</td>
<td>66 (34.8)</td>
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