5-HIAA levels are a critical marker of carcinoid syndrome

- The most common biochemical test used to help diagnose carcinoid disease is 24-hour urinary 5-hydroxyindoleacetic acid (5-HIAA).\(^1\-^3\)
- Occurrence of carcinoid syndrome is directly related to elevation of serotonin and its metabolite, 5-HIAA.\(^1\-^4\)
- Carcinoid syndrome generally occurs at advanced stage of disease and indicates the presence of liver metastases.\(^3\)

The severe diarrhea and flushing associated with metastatic carcinoid tumors are caused by elevated 5-HIAA levels\(^1\-^4\)

Severe diarrhea and flushing are the 2 most common occurring symptoms of carcinoid syndrome.\(^2\)

**In patients with carcinoid syndrome**

It’s important to manage 5-HIAA levels in your patients with carcinoid syndrome.\(^1\-^6\)

**INDICATIONS AND USAGE**

Sandostatin\(^\text{®}\) LAR Depot (octreotide acetate for injectable suspension) is indicated for long-term treatment of the severe diarrhea and flushing episodes associated with metastatic carcinoid tumors and long-term treatment of the profuse watery diarrhea associated with VIP-secreting tumors in patients in whom initial treatment with immediate release Sandostatin\(^\text{®}\) (octreotide acetate) Injection has been shown to be effective and tolerated. In patients with carcinoid syndrome and VIPomas, the effect of Sandostatin Injection and Sandostatin LAR Depot on tumor size, rate of growth and development of metastases has not been determined.

**HIGHLIGHTS OF IMPORTANT SAFETY INFORMATION**

*Warnings and Precautions:*

- Treatment with Sandostatin LAR Depot may affect gallbladder function, glucose metabolism, thyroid and cardiac function, and nutritional absorption (periodic monitoring is recommended). Cardiac function: use with caution in at-risk patients.

Please see additional Important Safety Information on page 3, and enclosed full Prescribing Information.
Considerations for the 24-hour urinary 5-HIAA test

- Measurement of urinary 5-HIAA is the most commonly used diagnostic test for carcinoid syndrome with a sensitivity of 73% and a specificity of 100%.1
- Proper preparation before the test is essential. Medicinal and dietary restrictions are required to prevent false-positive results.2,4

**5-HIAA tests should be performed every 3 to 6 months.**3

Talk to your patients about foods and medications that may interfere with the results of a 24-hour urinary 5-HIAA level measurement.

**Foods that can interfere with 5-HIAA testing**1,3,4:
- Avocados
- Bananas
- Pecans
- Pineapples
- Walnuts/Hickory nuts

**Medications that can affect 5-HIAA testing**1,4:
- Acetaminophen
- Salicylates
- Guaiifenesin
- L-dopa

**HIGHLIGHTS OF IMPORTANT SAFETY INFORMATION (cont)**
- **Adverse Reactions**: The most common adverse reactions occurring in ≥20% of patients are: back pain, fatigue, headache, abdominal pain, nausea, and dizziness.
- Nutrition: Octreotide may alter absorption of dietary fats. Monitoring of vitamin B12 levels is recommended during therapy with Sandostatin LAR Depot. Patients on total parenteral nutrition (TPN) and octreotide should have periodic monitoring of zinc levels.
- Thyroid Function: Hypothyroidism may occur. Baseline and periodic assessment of thyroid function (TSH, total and/or free T4) is recommended.

Please see additional Important Safety Information on page 3, and enclosed full Prescribing Information.

**IMPORTANT SAFETY INFORMATION**

**Warnings and Precautions**:
- Gallbladder abnormalities may occur: Patients should be monitored periodically.
- Glucose Metabolism: Hypoglycemia or hyperglycemia may occur. Blood glucose levels should be monitored when Sandostatin LAR Depot treatment is initiated or when the dose is altered. Antidiabetic treatment should be adjusted accordingly.
- Thyroid Function: Hypothyroidism may occur. Baseline and periodic assessment of thyroid function (TSH, total and/or free T4) is recommended.
- Cardiac Function: Bradycardia, arrhythmia, conduction abnormalities, and other EKG changes may occur. The relationship of these events to octreotide acetate is not established because many of these patients have underlying cardiac disease. Use with caution in at-risk patients.
- Nutrition: Octreotide may alter absorption of dietary fats. Monitoring of vitamin B12, levels is recommended during therapy with Sandostatin LAR Depot. Patients on total parenteral nutrition (TPN) and octreotide should have periodic monitoring of zinc levels.

**Drug Interactions**:
The following drugs require monitoring and possible dose adjustment when used with Sandostatin LAR Depot: cyclosporine, insulin, oral hypoglycemic agents, beta-blockers, and bromocriptine. Octreotide has been associated with alterations in nutrient absorption, so it may have an effect on absorption of orally administered drugs. Drugs mainly metabolized by CYP3A4 and which have a low therapeutic index should be used with caution.

**Adverse Reactions**:
The most common adverse reactions occurring in patients receiving Sandostatin LAR Depot were biliary abnormalities (62%), injection site pain (20-50%), nausea (24-41%), abdominal pain (10-35%), fatigue (8-32%), headache (16-30%), hyperglycemia (27%), back pain (8-27%), constipation or vomiting (15-21%), dizziness (18-20%), sinus bradycardia (19%), pruritus (18%), URTI (10-18%), myalgia (4-18%), flatulence (9-16%), arthropathy (8-15%), rash (15%), generalized pain (5-12%), conduction abnormalities (9%), hypoglycemia (4%), and arrhythmia (3%).


Please see enclosed full Prescribing Information.
For your patients with metastatic carcinoid syndrome, Sandostatin® LAR Depot (octreotide acetate for injectable suspension) is the ONLY approved drug therapy that provides somatostatin receptor-targeted inhibition to reduce 5-HIAA levels.\textsuperscript{5,6}

<table>
<thead>
<tr>
<th>5-HIAA levels \textsuperscript{5,6a}</th>
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<tbody>
<tr>
<td>Baseline</td>
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<td>Week 24</td>
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**Reduces 5-HIAA levels\textsuperscript{5,6a}**

\textsuperscript{5}Patients with carcinoid tumors may experience exacerbation of symptoms while on therapy. They may be given supplemental Sandostatin\textsuperscript{\textregistered} (octreotide acetate) Immediate-release Injection (at the dosage they were receiving prior to switching to Sandostatin LAR Depot) until symptoms are again controlled as per prescribing information.\textsuperscript{5}

\textsuperscript{6}A 6-month clinical trial of malignant carcinoid syndrome was performed in patients who had previously been shown to be responsive to Sandostatin Immediate-release Injection.\textsuperscript{5}

**HIGHLIGHTS OF IMPORTANT SAFETY INFORMATION**

**Warnings and Precautions:**

- Treatment with Sandostatin LAR Depot may affect gallbladder function, glucose metabolism, thyroid and cardiac function, and nutritional absorption (periodic monitoring is recommended). Cardiac function: use with caution in at-risk patients.

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