About PANHEMATIN

PANHEMATIN is supplied as a sterile, lyophilized, black powder in single-dose dispensing vials containing 350 mg hemin, 240 mg sodium carbonate, and 335 mg sorbitol. When mixed as directed with Sterile Water for Injection, USP, each 48 mL provides the equivalent of approximately 336 mg hematin (7 mg/mL).

Prior to reconstitution, PANHEMATIN should be stored at room temperature (68°-77°F). PANHEMATIN contains no preservative, and it undergoes rapid chemical decomposition in solution. Therefore, PANHEMATIN should not be reconstituted until immediately before use.

Indication

PANHEMATIN® is a hemin for injection indicated for the amelioration of recurrent attacks of acute intermittent porphyria temporally related to the menstrual cycle in susceptible women, after initial carbohydrate therapy is known or suspected to be inadequate. (See Limitations of Use on page 5 of this brochure.)

Important Safety Information

- Do not use in patients with known hypersensitivity to PANHEMATIN.
- Phlebitis is possible. Utilize a large arm vein or a central venous catheter for administration to minimize the risk of phlebitis.
Dosing PANHEMATIN® (hemin for injection)

PANHEMATIN should only be used by or in consultation with physicians experienced in the management of porphyrias. **For intravenous infusion only.**

Dosing recommendation:
- IV infusion of 1-4 mg/kg/day over 30+ minutes for 3-14 days based on clinical signs
- The standard dose in clinical practice is 3 to 4 mg/kg/day
- In more severe cases, the dose may be repeated no earlier than every 12 hours
- No more than 6 mg/kg per 24-hour period

Preparing PANHEMATIN

**Step 1 - Calculate Dose of Reconstituted PANHEMATIN for Infusion**

When PANHEMATIN is reconstituted with 48 ml Sterile Water for Injection, USP, it contains the equivalent of ~336 mg hematin at a concentration of 7 mg/mL.

\[
\text{mL to infuse} = \frac{\text{Prescribed Dosage (mg/kg) x Patient Weight (kg)}}{7 \text{ mg/mL Concentration of Reconstituted PANHEMATIN}}
\]

**Step 2 - Reconstitute PANHEMATIN**

PANHEMATIN must be reconstituted immediately before use, because it contains no preservative and undergoes rapid chemical decomposition in solution.

1. Using aseptic technique, remove caps from Sterile Water for Injection, USP bottle and PANHEMATIN vial. Clean rubber stoppers* with alcohol wipes.

2. Using the 60 mL syringe, withdraw 48 mL Sterile Water for Injection from bottle.

3. Inject the Sterile Water into the PANHEMATIN dispensing vial. Do not add other drug or chemical agent to a PANHEMATIN fluid admixture.

4. Immediately after adding diluent, shake the PANHEMATIN vial for 2-3 minutes to aid dissolution. Reconstituted PANHEMATIN is not transparent.

*The vial stopper of PANHEMATIN contains natural rubber latex, which may cause allergic reactions.

**Important Safety Information**
- Do not use in patients with known hypersensitivity to PANHEMATIN.
- Phlebitis is possible. Utilize a large arm vein or a central venous catheter for administration to minimize the risk of phlebitis.
- Elevated iron and serum ferritin may occur. Monitor iron and serum ferritin in patients receiving multiple administrations of PANHEMATIN.
Administering PANHEMATIN® (hemin for injection)

Refer to page 5 for a list of supplies needed to infuse PANHEMATIN.

Step 1 – Establish an IV Line

1. Protect patient’s clothing with a towel or pad.
2. Use a large arm vein or central venous catheter to avoid the possibility of phlebitis.
3. Connect primary tubing to the 250 mL bag of 0.9% Sodium Chloride for Injection, USP, and prime.
4. Verify blood return and flush IV to verify patency, then attach the line.
5. Start the sodium chloride infusion at a “keep vein open” (KVO) rate.

Important Safety Information
- PANHEMATIN has transient and mild anticoagulant effect. Avoid concurrent anticoagulant therapy.
- Reversible renal shutdown has been observed with an excessive hematin dose (12.2 mg/kg in a single infusion). Strictly follow recommended dosage guidelines.
- PANHEMATIN may carry a risk of transmitting infectious agents, e.g., viruses, and theoretically, the Creutzfeldt-Jakob disease (CJD) agent.
Step 2 - Infuse PANHEMATIN® (hemin for injection)

Verify the dose of PANHEMATIN the patient will be receiving. Use an infusion pump to ensure accuracy of dosing and administration time.

Infuse the reconstituted PANHEMATIN immediately. PANHEMATIN contains no preservative and undergoes rapid chemical decomposition in solution.

1. Attach the 0.45-micron filter to the IV tubing, since undissolved particulate matter is difficult to see in PANHEMATIN. If the tubing is not vented, attach a vented spike adapter, and then insert the spike into the evacuated PANHEMATIN vial.

2. Prime the IV and filter system with PANHEMATIN. Attach IV line to the “Y” site on the primary infusion line, and stop the saline infusion.

3. Open the clamp on the IV tubing and begin infusion. The prescribed dose of PANHEMATIN should be infused over a period of at least 30 minutes.

4. After the full dose has been given, stop the infusion. Disconnect the PANHEMATIN at the “Y” site, and remove the vial and PANHEMATIN tubing. Rinse the vein with 100 mL 0.9% Sodium Chloride for Injection, USP. Discard any remaining PANHEMATIN solution.

Important Safety Information

- Most common adverse reactions in >1% of patients are headache, pyrexia, infusion site reactions, and phlebitis.
- To report SUSPECTED ADVERSE REACTIONS, contact Recordati Rare Diseases Inc. at 1-888-575-8344, or FDA at 1-800-FDA-1088 or www.fda.gov/medwatch.
- Avoid CYP inducing drugs such as estrogens, barbituric acid derivatives and steroid metabolites which induce δ-aminolevulinic acid synthetase 1 (ALAS 1) through a feedback mechanism.

Please see Full Prescribing Information at the end of this brochure.
Supply List

Reconstitution

1 Vial of PANHEMATIN® (hemin for injection)
1 Bottle Sterile Water for Injection, USP
1 60 mL syringe with 18-20 gauge needle
2 Alcohol wipes
1 Protective gloves

Infusion

1 Vial of reconstituted PANHEMATIN
1 Infusion pump
1 Primary infusion set (including IV administration tubing with “Y” site)
1 250 mL IV bag of 0.9% Sodium Chloride for Injection, USP
1 Sterile 0.45-micron or smaller filter
1 IV tubing with vented spike, or vented spike adapter
1 Huber needle and injection cap
1 Central line dressing kit
1 Saline flush syringe
2 Alcohol wipes
1 Protective gloves
1 IV bag label

PANHEMATIN® (hemin for injection)

Indications and Usage
PANHEMATIN® is a hemin for injection indicated for the amelioration of recurrent attacks of acute intermittent porphyria temporally related to the menstrual cycle in susceptible women, after initial carbohydrate therapy is known or suspected to be inadequate.

Limitations of Use
- Before administering PANHEMATIN, consider an appropriate period of carbohydrate loading (i.e., 400 g glucose/day for 1 to 2 days).
- Attacks of porphyria may progress to a point where irreversible neuronal damage has occurred. PANHEMATIN therapy is intended to prevent an attack from reaching the critical stage of neuronal degeneration. PANHEMATIN is not effective in repairing neuronal damage.

Important Safety Information
- Do not use in patients with known hypersensitivity to PANHEMATIN.
- Phlebitis is possible. Utilize a large arm vein or a central venous catheter for administration to minimize the risk of phlebitis.
- Elevated iron and serum ferritin may occur. Monitor iron and serum ferritin in patients receiving multiple administrations of PANHEMATIN.
- PANHEMATIN has transient and mild anticoagulant effect. Avoid concurrent anticoagulant therapy.
- Reversible renal shutdown has been observed with an excessive hematin dose (12.2 mg/kg in a single infusion). Strictly follow recommended dosage guidelines.
- PANHEMATIN may carry a risk of transmitting infectious agents, e.g., viruses, and theoretically, the Creutzfeldt-Jakob disease (CJD) agent.
- Most common adverse reactions in >1% of patients are headache, pyrexia, infusion site reactions, and phlebitis.
- To report SUSPECTED ADVERSE REACTIONS, contact Recordati Rare Diseases Inc. at 1-888-575-8344, or FDA at 1-800-FDA-1088 or www.fda.gov/medwatch.
- Avoid CYP inducing drugs such as estrogens, barbituric acid derivatives and steroid metabolites which induce δ-aminolevulinic acid synthetase 1 (ALAS1) through a feedback mechanism.
How to Order PANHEMATIN® (hemin for injection)

Contact:
- Your primary wholesaler, or
- ASD Healthcare
  - Phone: 1-800-746-6273
  - Fax: 1-800-547-9413
  - Email: asd.customerservice@asdhealthcare.com

Ordering tips:
- Orders placed Monday - Thursday by 6:30 pm central time:
  - Sent UPS Next Day Air Saver for mid-afternoon delivery
- Orders placed Friday by 6:00 pm central time:
  - Sent UPS Next Day Air Saver for Monday mid-afternoon delivery
  - For next day delivery, Saturday delivery must be requested
- Earlier, same day, and weekend delivery are available with an additional shipping cost
- Include any specific delivery instructions when ordering

Additional Phone Numbers

For assistance with insurance questions, patient assistance program, or copay assistance program, call: 1-866-209-7604.

For medical questions, call Recordati Rare Diseases Medical Information: 1-888-575-8344

To view a demonstration video of the information in this brochure, go to: www.Panhematin.com.

© 2018 Recordati Rare Diseases Inc.
Recordati Rare Diseases Inc. • Lebanon, NJ 08833

PANHEMATIN is a registered trademark of Recordati Rare Diseases Inc.
HIGHLIGHTS OF PRESCRIBING INFORMATION
These highlights do not include all the information needed to use PANHEMATIN safely and effectively. See full prescribing information for PANHEMATIN.

PANHEMATIN®
(hemin for injection)
For intravenous infusion only.
Initial U.S. Approval: 1983

INDICATIONS AND USAGE
PANHEMATIN is a hemin for injection indicated for amelioration of recurrent attacks of acute intermittent porphyria temporally related to the menstrual cycle in susceptible women, after initial carbohydrate therapy is known or suspected to be inadequate. (1)

Limitations of Use
• Before administering PANHEMATIN, consider an appropriate period of carbohydrate loading (i.e., 400 g glucose/day for 1 to 2 days). (1)
• PANHEMATIN is not effective in repairing neuronal damage due to progression of porphyria attacks. (1)

Full Prescribing Information: Contents*
1 INDICATIONS AND USAGE
2 DOSAGE AND ADMINISTRATION
  2.1 Dose
  2.2 Preparation and Administration
3 DOSAGE FORMS AND STRENGTHS
4 CONTRAINDICATIONS
5 WARNINGS AND PRECAUTIONS
  5.1 Risk of Phlebitis
  5.2 Iron and Serum Ferritin
  5.3 Anticoagulant Effects
  5.4 Renal Effects
  5.5 Transmissible Infectious Agents
6 ADVERSE REACTIONS
  6.1 Clinical Trials Experience
  6.2 Postmarketing Experience
7 DRUG INTERACTIONS

Dosage Calculation Table

<table>
<thead>
<tr>
<th>Dosage Calculation Table</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 mg hematin equivalent = 0.14 mL PANHEMATIN</td>
</tr>
<tr>
<td>2 mg hematin equivalent = 0.28 mL PANHEMATIN</td>
</tr>
<tr>
<td>3 mg hematin equivalent = 0.42 mL PANHEMATIN</td>
</tr>
<tr>
<td>4 mg hematin equivalent = 0.56 mL PANHEMATIN</td>
</tr>
</tbody>
</table>

DRUG INTERACTIONS
Avoid CYP inducing drugs such as estrogens, barbituric acid derivatives and steroid metabolites which induce δ-aminolevulinic acid synthetase 1 (ALAS1) through a feedback mechanism. (7)

See 17 for PATIENT COUNSELING INFORMATION.

Revised: 07/2017

1 USE IN SPECIFIC POPULATIONS
  8.1 Pregnancy
  8.2 Lactation
  8.4 Pediatric Use
  8.5 Geriatric Use
10 OVERDOSAGE
11 DESCRIPTION
12 CLINICAL PHARMACOLOGY
  12.1 Mechanism of Action
  12.3 Pharmacokinetics
13 NONCLINICAL TOXICOLOGY
  13.1 Carcinogenesis, Mutagenesis, Impairment of Fertility
14 CLINICAL STUDIES
15 REFERENCES
16 HOW SUPPLIED/STORAGE AND HANDLING
17 PATIENT COUNSELING INFORMATION
* Sections or subsections omitted from the full prescribing information are not listed.

The dose of PANHEMATIN is 1 to 4 mg/kg/day of hematin for 3 to 14 days based on the clinical signs. The standard dose in clinical practice is 3 to 4 mg/kg/day. Do not exceed 6 mg/kg in any 24 hour period.

• Administration (2.2)
  • Use sterile 0.45 micron or smaller filter to remove any undissolved particulate matter.
  • The dose may be administered directly from the vial over a period of at least 30 minutes.
  • After the infusion, flush the vein with 100 mL of 0.9% NaCl.

SUGGESTED DAILY CARBOHYDRATE LOAD

<table>
<thead>
<tr>
<th>Cat</th>
<th>Carbohydrate Load</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Approximately 400 g glucose/day for 1 to 2 days</td>
</tr>
<tr>
<td>2</td>
<td>Loading (i.e., 400 g glucose/day for 1 to 2 days)</td>
</tr>
</tbody>
</table>

For intravenous infusion only.

1 mg hematin equivalent = 0.14 mL PANHEMATIN
2 mg hematin equivalent = 0.28 mL PANHEMATIN
3 mg hematin equivalent = 0.42 mL PANHEMATIN
4 mg hematin equivalent = 0.56 mL PANHEMATIN

PANHEMATIN is available as a sterile, lyophilized powder for reconstitution for injection. Each vial contains the equivalent of 350 mg hemin, 240 mg sodium carbonate and 335 mg of sorbitol.

When mixed as directed with Sterile Water for Injection, USP, each 48 mL provides the equivalent of approximately 336 mg hematin (7 mg/mL). (3)

CONTRAINDICATIONS
Do not use in patients with known hypersensitivity to PANHEMATIN. (4)

WARNINGS AND PRECAUTIONS
• Phlebitis is possible. Utilize a large arm vein or a central venous catheter for administration to minimize the risk of phlebitis. (5.1)
• Elevated iron and serum ferritin may occur. Monitor iron and serum ferritin in patients receiving multiple administrations of PANHEMATIN. (5.2)
• PANHEMATIN has transient and mild anticoagulant effect. Avoid concurrent anticoagulant therapy. (5.3)
• Reversible renal shutdown has been observed with an excessive hematin dose (12.2 mg/kg in a single infusion). Strictly follow recommended dosage guidelines. (5.4)
• PANHEMATIN may carry a risk of transmitting infectious agents, e.g., viruses, and theoretically, the Creutzfeldt-Jakob disease (CJD) agent. (5.5)

ADVERSE REACTIONS
Most common adverse reactions in >1% of patients are headache, pyrexia, infusion site reactions, and phlebitis. (6.1)

To report SUSPECTED ADVERSE REACTIONS, contact Recordati Rare Diseases Inc. at 1-888-575-8344 or FDA at 1-800-FDA-1088 or www.fda.gov/medwatch.

• Parenteral drug products should be inspected visually for particulate matter and discoloration prior to administration, whenever solution and container permit. Since reconstituted PANHEMATIN is not transparent, any undissolved particulate matter is difficult to see when inspected visually. Therefore, terminal filtration through a sterile 0.45 micron or smaller filter is recommended.
• Do not add other drug or chemical agent to a PANHEMATIN fluid admixture.
• Infuse the dose over a period of at least 30 minutes via a separate line.
• After the infusion, flush the vein with 100 mL of 0.9% NaCl.

• Monitor urinary concentrations of the following compounds during PANHEMATIN therapy. Effectiveness is demonstrated by a decrease in one or more of the following compounds:
  ALA - δ-aminolevulinic acid
  PBG - porphobilinogen
  Uroporphyrin
  Coproporphyrin

2.2 Preparation and Administration
• Because PANHEMATIN contains no preservative and undergoes rapid chemical decomposition in solution, it must be reconstituted immediately before use.
• Reconstitute PANHEMATIN by aseptically adding 48 mL of Sterile Water for Injection, USP, to the dispensing vial. Shake the vial well for a period of 2 to 3 minutes to aid dissolution.
• PANHEMATIN may be administered directly from the vial. After the first withdrawal from the vial, discard any solution remaining.
• Parenteral drug products should be inspected visually for particulate matter and discoloration prior to administration, whenever solution and container permit. Since reconstituted PANHEMATIN is not transparent, any undissolved particulate matter is difficult to see when inspected visually. Therefore, terminal filtration through a sterile 0.45 micron or smaller filter is recommended.
• Do not add other drug or chemical agent to a PANHEMATIN fluid admixture.
• Infuse the dose over a period of at least 30 minutes via a separate line.
• After the infusion, flush the vein with 100 mL of 0.9% NaCl.
6.2 Postmarketing Experience

The following adverse reactions associated with the use of PANHEMATIN were identified in open-label clinical trials or postmarketing reports. Because these reactions were reported voluntarily from a population of uncertain size, it is not always possible to estimate their frequency reliably or to establish a causal relationship to drug exposure.

Blood and Lymphatic System Disorders: thrombocytopenia, coagulopathy (including prolonged prothrombin time and prolonged partial thromboplastin time), and hemolysis

Immune System Disorders: hypersensitivity reactions including a report of infusion-related anaphylactoid reaction presenting as circulatory collapse

Vascular Disorders: injection site venous thrombosis including some that occurred in fatal cases

General Disorders and Administration Site Conditions: infusion site reactions (such as erythema, pain, bleeding and extravasation)

Metabolism and Nutrition Disorders: iron overload and serum ferritin increased

[See Warnings and Precautions (5.2)]

7 DRUG INTERACTIONS

PANHEMATIN therapy is intended to limit the rate of porphyria/heme biosynthesis possibly by inhibiting the enzyme δ-aminolevulinic acid synthetase 1 (ALAS1) [See Clinical Pharmacology (12.1)]. Most of the heme synthesized in liver is used for the production of cytochrome P450 (CYP) enzymes. Therefore, avoid CYP inducing drugs (such as estrogens, barbituric acid derivatives and steroid metabolites) while on PANHEMATIN therapy, because these drugs increase the activity of ALAS leading to induction of ALAS1 through a feedback mechanism.

8 USE IN SPECIFIC POPULATIONS

8.1 Pregnancy

Risk Summary

About 30% of the women with acute intermittent porphyria experience an acute attack of porphyria in pregnancy and/or the puerperium. It is most severe in early pregnancy and the puerperium, and can result in fatal outcome. Although anecdotal evidence suggests safe use of hematin during pregnancy, the available human data is not sufficient to establish the presence or absence of drug-associated risk. Animal reproduction studies have not been conducted with hematin. It is also not known whether hematin can cause fetal harm when administered to a pregnant woman or can affect reproduction capacity. PANHEMATIN should be given to a pregnant woman only if clearly needed.

Avoid administering hematin in severe pre-eclampsia because of a theoretical risk of potentiation of the coagulation disorder [see Warnings and Precautions (5.3)].

In the U.S. general population, the estimated background risk of major birth defects and miscarriage in clinically recognized pregnancies is 2-4% and 15-20%, respectively.

8.2 Lactation

Risk Summary

It is not known whether this drug is excreted in human milk. Because many drugs are excreted in human milk, when a decision to use this drug is made and baby is breast-fed, the developmental and health benefits of breast-feeding should be considered along with the mother’s clinical need for PANHEMATIN and any potential adverse effects on the breastfed child from PANHEMATIN or from the underlying maternal condition.

8.4 Pediatric Use

Safety and effectiveness in pediatric patients under 16 years of age have not been established.

8.5 Geriatric Use

Clinical data for subjects aged 65 and over was not sufficient to determine whether they respond differently from younger subjects. Other reported clinical experience has not identified differences in response between the elderly and younger patients. In general, dose selection for an elderly patient should be cautious, usually starting at the low end of the dosage range, reflecting the greater frequency of decreased hepatic, renal, or cardiac function, and of concomitant disease or other drug therapy.

10 OVERDOSAGE

Reversible renal shutdown has been observed in a case where an excessive hematin dose (12.2 mg/kg) was administered in a single infusion. Oliguria and increased nitrogen retention occurred although the patient remained asymptomatic. No worsening of renal function has been seen with administration of recommended dosages of hematin.

5.4 Renal Effects

Recommended dosage guidelines should be strictly followed. Reversible renal shutdown has been observed in a case where an excessive hematin dose (12.2 mg/kg) was administered in a single infusion. Oliguria and increased nitrogen retention occurred although the patient remained asymptomatic. No worsening of renal function has been seen with administration of recommended dosages of hematin.

5.5 Transmissible Infectious Agents

Because PANHEMATIN is made from human blood, it may carry a risk of transmitting infectious agents, e.g., viruses, the variant Creutzfeld-Jacob disease (vCJD) agent, and transfusion-transmitted hepatitis agents. vCJD agent is a prion. Prions are infective proteinaceous particles that are difficult to see when inspected visually. Therefore, terminal filtration through a sterile 0.45 micron or smaller filter is recommended. [See Dosage and Administration (2.2)]
12 CLINICAL PHARMACOLOGY
12.1 Mechanism of Action
Heme acts to limit the hepatic and/or marrow synthesis of porphyrin. This action is likely due to the inhibition of δ-aminolevulinic acid synthetase, the enzyme which limits the rate of the porphyrin/heme biosynthetic pathway. The exact mechanism by which hemanin produces symptomatic improvement in patients with acute episodes of the hepatic porphyrias has not been elucidated.

PANHEMATIN therapy for the acute porphyrias is not curative. After discontinuation of PANHEMATIN treatment, symptoms generally return although in some cases remission is prolonged. Some neurological symptoms have improved weeks to months after therapy although little or no response was noted at the time of treatment.

12.3 Pharmacokinetics
Following intravenous administration of hemanin in non-jaundiced human patients, an increase in fecal urobilinogen can be observed which is roughly proportional to the amount of hematin administered. This suggests an enterohepatic pathway as at least one route of elimination. Bilirubin metabolites are also excreted in the urine following hemanin injections.

Other aspects of human pharmacokinetics have not been defined.

13 NONCLINICAL TOXICOLOGY
13.1 Carcinogenesis, Mutagenesis, Impairment of Fertility
PANHEMATIN was not mutagenic in bacteria systems in vitro and was not clastogenic in mammalian systems in vitro and in vivo. No data are available on potential for carcinogenicity or impairment of fertility in animals.

14 CLINICAL STUDIES
The effectiveness of PANHEMATIN for the amelioration of recurrent attacks of acute intermittent porphyria was evaluated in five open-label studies, one compassionate-use study, case reports, and an observational study investigating patient reported outcomes in patients with acute porphyrias.

Open-Label Studies
In these initial 5 open-label studies, 99 patients with acute porphyrias (72 with AIP) were treated with 3-4 mg/kg/day of hemanin once or twice daily. Of the 99 patients in these studies, 30 received prior or concomitant glucose administration. Patients experienced a clinical response in 85.5% (141/165) of treatment courses (Figure 1). Clinical response was defined by improvement of symptoms and reduction in pain. All patients experienced a chemical response which was defined as normalization of urinary aminolevulinic acid (ALA) and porphobilinogen (PBG).

Watson et al.1 studied the use of hemanin treatment in 15 patients with acute porphyrias, of whom 43 were with AIP. Out of 82 individual acute intermittent porphyria attacks with 476 hemanin infusions (82 treatment courses) administered, a clinical response was seen in 74 (90%) acute attacks. A chemical response was seen for those patients who had elevated urinary ALA and PBG levels prior to hemanin treatment.

McColl et al.2 reported the use of 4 mg/kg of hemanin IV in five patients with acute porphyrias. Seven of these patients also had HLA-B*5701 and had elevated urinary ALA and PBG levels prior to hemanin treatment. Seven of these 8 patients had AIP. Five patients with AIP and female were male with a mean age of 25 years (range 19-31 years). All patients had biochemical and clinical evidence of an attack of acute porphyria at the time of hemanin administration. All patients had a chemical response of approximately 50% reduction in urinary ALA and PBG levels. In addition, clinical response was seen after hemanin treatment in a total of 7 attacks in 5 AIP patients.

Pierach et al.3 examined the use of 2 to 4 mg/kg of hemanin IV in 57 patients with acute porphyrias, of whom 43 were with AIP. Out of 82 individual acute intermittent porphyria attacks with 476 hemanin infusions (82 treatment courses) administered, a clinical response was seen in 74 (90%) acute attacks. A chemical response was seen for those patients who had elevated urinary ALA and PBG levels prior to hemanin treatment.

Lamen et al.4 reported on 12 patients with acute porphyrias, of whom 11 were with AIP. These patients were treated with 3-4 mg/kg/day of hemanin IV given every 12 or 24 hours for 3 to 5 days in the treatment of 13 attacks of acute porphyria in eight patients. Seven of these 8 patients had AIP. Five patients with AIP and female were male with a mean age of 25 years (range 19-31 years). All patients had biochemical and clinical evidence of an attack of acute porphyria at the time of hemanin administration. All patients had a chemical response of approximately 50% reduction in urinary ALA and PBG from pre-treatment values. In addition, clinical response was seen after hemanin treatment in a total of 7 attacks in 5 AIP patients.

Lamon et al.4 reported on 12 patients with acute porphyrias, of whom 11 were with AIP. These AIP patients received 190 infusions of approximately 2 to 4 mg/kg of hemanin IV given every 12 or 24 hours for 3 to 13 days at 20 separate courses of treatment, when high carbohydrate intake (300 g for a minimum of 72 hours) and supportive measures were unsuccessful. Urinary ALA and PBG levels were collected as well as clinical signs and symptoms of AIP recorded. Out of 20 treatment courses for acute attacks, there was a clinical response in 14. All patients had significant reductions in ALA and/or PBG levels after hemanin treatment (p-value in the range from less than 0.001 to 0.05).

In another study by Lamon et al.4 seven patients with acute attacks of porphyria were administered 11 hemanin courses (each course: 1 mg/kg every 24 hours for 3 to 13 days). Before and during hemanin administration, patients were maintained on a 500-300 g/24 h carbohydrate diet. Patients had elevated urinary ALA and PBG treatment and clinical evidence of an acute attack. Chemical response of a decrease in ALA and PBG occurred in every patient (except one PBG value in one patient) when treatment lasted 5 days or longer (p<0.001).

In a week. Clinical response was achieved if the physician determined that the admitting symptoms were resolved, there was a clinically acceptable response, or the patient went into remission.

A physician-assessed clinical response was achieved for all acute attacks in 81 (73%) of 111 patients. No-hemochromatosis patients (85%) of 111 had ≥1 clinical response and 17 patients (15%) of 111 had no response. Among 31 of 40 patients who received hemanin prophyaxis for >1 month, 21 (68%) did not require subsequent hemanin treatment for acute attacks.

Case Reports
In 234 courses, patients received hemanin therapy as normally prescribed by their physicians with the majority dosed below the recommended range of 3 mg/kg/day to 4 mg/kg/day for at least one course of treatment. In these patients, hemanin treatment was administered immediately in 33% of recipients, within 1 day of symptom onset in 50%, and within 3 days in 75%. These groups were not mutually exclusive. Most patients [108/111 (97.3%)] received a dose of at least 3 mg/kg/day and only 3 patients (2.7%) received a dose of hemanin less than 2 mg/kg/day. There were 6 patients (5.4%) who were administered doses exceeding 6 mg/kg/day for 1 or more treatment courses.

Observational Patient Reported Outcomes Study
An observational study investigated patient reported outcomes in 108 patients with acute porphyrias. Out of 108 patients, 90 patients were with AIP and reported the following:

• 55% percent reported having received hemanin during acute attacks, and 74% of these patients assessed PANHEMATIN therapy as very successful in the treatment of abdominal pain and other symptoms.
• 50% reported having received treatment with opiates during an acute attack, and 44% of these patients reported that opiates were effective.

Hemanin therapy effectiveness was assessed along with glucose infusions, high carbohydrate diets, and pain medications on a scale from zero being least effective to 10 highly effective. Hemanin infusions received a 7.9, glucose infusions a 4.4 (p=0.0781), high carbohydrate diets a 4.7 (p=0.0021), and pain medications a 4.2 (p=0.0049).

15 REFERENCES
5. Lamon JM. Hemanin Therapy in Acute Porphyrina. Clin Res. 1977;25(3);471A.

16 HOW SUPPLIED/STORAGE AND HANDLING
PANHEMATIN is supplied as a sterile, lyophilized black powder in single dose dispensing vials (NDC 55292-702-54) in a carton (NDC 55292-702-55).

The vial stopper contains natural rubber latex.

Store lyophilized powder at 20-25°C (68-77°F).

17 PATIENT COUNSELING INFORMATION
• Advise the patient not to take drugs such as estrogens (e.g., oral contraceptives), barbiturates (drugs which help them to sleep and drugs sometimes used to treat epilepsy) or steroids (body hormone-like drugs), because this can trigger an attack or make the attack worse.
• Advise a female patient to inform the prescriber if she is pregnant or planning to become pregnant.

Manufactured by:
Xellia Pharmaceuticals USA, LLC
Raleigh, NC 27616

For:
Recordati Rare Diseases Inc.
Lebanon, NJ 08833, U.S.A.

U.S. Lic. No. 1899
RECORDATI RARE DISEASES GROUP
Panhematin® is a registered trademark of Recordati Rare Diseases Inc.
750-09241
PP-PHT-US-0113