Fluorescence imaging of lymph nodes and lymphatic ADVERSE REACTIONS vessels during lymphatic mapping in adults with The most common adverse reactions reported are cervical and uterine cancer (1.3) anaphylaxis and urticaria. (6) Ophthalmic angiography in adults and pediatric patients (1.4) To report SUSPECTED ADVERSE REACTIONS, contact Diagnostic Green LLC at 1-844-424-3784 or FDA at DOSAGE AND ADMINISTRATION 1-800-FDA-1088 or www.fda.gov/medwatch. Visualization of vessels, blood flow and tissue DRUG INTERACTIONS perfusion (2.5 mg/mL solution) o 1.25 mg to 5 mg by intravenous injection is Interference with Thyroid Radioactive Iodine Uptake recommended for a surgical procedure in adults Studies: Do not perform radioactive iodine uptake studies for at least one week following the use of and pediatric patients aged 1 month and older. o 3.75 mg to 10 mg by intravenous injection is IC-GREEN. (7) recommended for visualization of perfusion in extremities through the skin for plastic, micro- and See 17 for PATIENT COUNSELING INFORMATION reconstructive surgeries in adults. o Additional doses may be administered. Do not Revised: 05/2025 exceed a total dose of 2 mg/kg. (2.1) **FULL PRESCRIBING INFORMATION: CONTENTS* INDICATIONS AND USAGE** 6 **ADVERSE REACTIONS** Visualization of Vessels, Blood Flow and **DRUG INTERACTIONS** 7 Tissue Perfusion 8 **USE IN SPECIFIC POPULATIONS** 1.2 Visualization of Extrahepatic Biliary Ducts 8.1 Pregnancy 1.3 Lymphatic Mapping of Cervical and Uterine 8.2 Lactation 8.4 Pediatric Use Cancer Ophthalmic Angiography 8.5 Geriatric Use 1.4 DESCRIPTION DOSAGE AND ADMINISTRATION 11 **CLINICAL PHARMACOLOGY** Recommended Dose, Administration and Imaging for Visualization of Vessels, Blood 12.1 Mechanism of Action 12.2 Pharmacodynamics Flow and Tissue Perfusion 2.2 Recommended Dose, Administration and 12.3 Pharmacokinetics Imaging for Visualization of Extrahepatic **NONCLINICAL TOXICOLOGY** 13 **Biliary Ducts** 13.1 Carcinogenesis, Mutagenesis, Impairment of Recommended Dose, Administration and 2.3 Fertility Imaging for Lymphatic Mapping of Cervical 14 **CLINICAL STUDIES** 14.1 Lymphatic Mapping of Cervical and Uterine and Uterine Cancer Recommended Dose and Administration for 2.4 Cancer Ophthalmic Angiography 16 **HOW SUPPLIED/STORAGE AND HANDLING** Reconstitution Instructions PATIENT COUNSELING INFORMATION **DOSAGE FORMS AND STRENGTHS** 3 CONTRAINDICATIONS * Sections or subsections omitted from the full **WARNINGS AND PRECAUTIONS** prescribing information are not listed.

Lymphatic Mapping of Cervical and Uterine Cancer 1.3 IC-GREEN is indicated for fluorescence imaging of lymph nodes and delineation of lymphatic vessels during lymphatic mapping in adults with cervical and uterine cancer for which this procedure is a component of intraoperative management. **Ophthalmic Angiography**

1.2

Hypersensitivity reactions

Uptake Studies **FULL PRESCRIBING INFORMATION** INDICATIONS AND USAGE

Interference with Thyroid Radioactive Iodine

and pediatric patients aged 1 month and older. **Visualization of Extrahepatic Biliary Ducts**

patients aged 12 years and older.

Visualization of Vessels, Blood Flow and Tissue Perfusion

IC-GREEN is indicated for fluorescence imaging of vessels (micro- and macro- vasculature), blood flow and tissue perfusion before, during and after vascular, gastrointestinal, organ transplant, plastic, micro- and reconstructive surgeries, including general minimally invasive surgical procedures in adults

IC-GREEN is indicated for fluorescence imaging of extrahepatic biliary ducts in adults and pediatric

IC-GREEN is indicated for use in ophthalmic angiography in adults and pediatric patients.

Additional doses may be administered to obtain imaging seguences during the procedure

IC-GREEN may be used with an FDA-authorized imaging device that is intended to be used with

Recommended Dose, Administration and Imaging for Lymphatic Mapping of Cervical and Uterine

The recommended dose of IC-GREEN for lymphatic mapping of cervical and uterine cancer in adults is 5 mg administered interstitially as four 1 mL injections of a 1.25 mg/mL solution into the cervix, at the 3 o' clock and the 9 o'clock positions with a superficial (1 mm to 3 mm) and a deep (1 cm to 3 cm)

Fluorescent lymphatic vessels and lymph nodes should begin to be visible within 1 minute after injection.

Inspect the reconstituted solution for particulate matter. The reconstituted solution should be a

IC-GREEN may be used with an FDA-authorized imaging device that is intended to be used with indocyanine green for fluorescence imaging of lymph nodes and delineation of lymphatic vessels during

Doses up to 40 mg IC-GREEN in 2 mL of Sterile Water for Injection depending on the imaging equipment and technique used should be administered intravenously and immediately followed by a 5 mL bolus of 0.9% Sodium Chloride Injection. The antecubital vein can be used for IC-GREEN

indocyanine green for fluorescence imaging of extrahepatic biliary ducts. Fluorescence is visible in the biliary tree within 45 minutes after injection.

Recommended Dose and Administration for Ophthalmic Angiography

Prepare IC-GREEN using aseptic techniques prior to procedure.

Visualization of Vessels, Blood Flow, Tissue Perfusion and Extrahepatic Biliary Ducts Dissolve 25 mg of IC-GREEN with 10 mL Sterile Water for Injection to form a concentration of

Dissolve doses up to 40 mg of IC-GREEN with 2 mL Sterile Water for Injection.

Dissolve 25 mg of IC-GREEN with 20 mL Sterile Water for Injection to form a concentration of

For injection: 25 mg of indocyanine green as a sterile, lyophilized, green powder for reconstitution provided

IC-GREEN is contraindicated in patients with a history of hypersensitivity to indocyanine green. Reactions

HIGHLIGHTS OF PRESCRIBING INFORMATION

full prescribing information for IC-GREEN.

Indications and Usage, For determining

Indications and Usage (1.1, 1.2, 1.3)

and Hepatic Function Studies (2.1, 2.2)

intravenous or interstitial use

Initial U.S. Approval: 1959

RECENT MAJOR CHANGES

Dosage and Administration, Indicator-Dilution Studies

Dosage and Administration (2.1, 2.2, 2.3, 2.5)

INDICATIONS AND USAGE

aged 1 month and older (1.1)

Cardiac Output,

These highlights do not include all the information

needed to use IC-GREEN safely and effectively. See

IC-GREEN® (indocyanine green for injection), for

Hepatic Function, and Liver Blood Flow (1.1) Removed

IC-GREEN is an optical imaging agent indicated for:

before, during and after vascular, gastrointestinal,

organ transplant, plastic, micro- and reconstructive surgeries, including general minimally invasive

surgical procedures, in adults and pediatric patients

Fluorescence imaging of extrahepatic biliary ducts in adults and pediatric patients aged 12 years and older

· Fluorescence imaging of vessels (micro- and macro-vasculature), blood flow and tissue perfusion Visualization of extrahepatic biliary ducts in adults

o 2.5 mg by intravenous injection at least 45 min-

o Additional doses may be administered. Do not

Lymphatic mapping of cervical and uterine cancer in

exceed a total dose of 2 mg/kg. (2.2)

o $\,$ 5 mg interstitially as four 1 mL injections.

o See Full Prescribing Information for injection

o Doses up to 40 mg in 2 ml of Sterile Water for

See Full Prescribing Information for reconstitution

Injection by intravenous injection, (2.4)

lyophilized, green powder for reconstitution in a

Hypersensitivity reactions: Hypersensitivity reactions

equipment readily available and monitor patients. (5.1)

including anaphylaxis and urticaria have occurred. Always have cardiopulmonary resuscitation personnel and

Hypersensitivity to indocyanine green (4)

WARNINGS AND PRECAUTIONS

and pediatric patients aged 12 years and older

(2.5 mg/mL solution)

12/2024

12/2024

12/2024

Removed

12/2024

utes prior to surgery.

adults (1.25 mg/mL solution)

DOSAGE FORMS AND STRENGTHS For injection: 25 mg of indocyanine green as a

techniques. (2.3)

· Ophthalmic Angiography

instructions. (2.5).

single-patient-use vial (3)

CONTRAINDICATIONS

Tissue Perfusion

Dosing

DOSAGE AND ADMINISTRATION 2.1 Recommended Dose, Administration and Imaging for Visualization of Vessels, Blood Flow and Adults: The recommended dose of IC-GREEN for a single image sequence for visualization of vessels, blood

flow and tissue perfusion in adults is 1.25 mg to 5 mg administered intravenously as 0.5 mL to 2 mL

of a 2.5 mg/mL solution. For visualization of perfusion in extremities through the skin in adults, the recommended dose is 3.75 mg to 10 mg administered intravenously as 1.5 mL to 4 mL of a 2.5 mg/mL solution.

Immediately flush with a 10 mL bolus of 0.9% Sodium Chloride Injection. Pediatric patients aged 1 month and older: The recommended dose of IC-GREEN for a single image sequence for visualization of vessels, blood flow and tissue perfusion in pediatric patients aged 1 month and older is 1.25 mg to 5 mg administered intravenously as 0.5 mL to 2 mL of a 2.5 mg/mL solution. Lower doses may be administered in younger patients and in those with lower body weight. Adjust the amount and type of flush to avoid volume and/or sodium overload. In both adults and pediatric patients aged 1 month and older, additional doses may be administered to

obtain imaging sequences during the procedure. Do not exceed the maximum total dose of 2 mg/kg. Administration Prior to the imaging procedure, draw up the desired dose of IC-GREEN solution into appropriate syringes and prepare a 10 mL syringe of 0.9% Sodium Chloride Injection. Administer via a central or peripheral venous line using a three-way stopcock attached to an injection port on the infusion line. Inject the prepared IC-GREEN into the line as a tight bolus. Immediately

switch the access on the stopcock and inject the prepared flush. **Imaging Instructions** IC-GREEN may be used with an FDA-authorized imaging device that is intended to be used with indocyanine green for fluorescence imaging of vessels, blood flow and tissue perfusion. A fluorescence response should be visible in blood vessels within 5 seconds to 15 seconds after injection.

Do not exceed a total dose of 2 mg/kg.

Imaging Instructions

Dosing and Administration

injection at each position.

Dosing and Administration

administration.

General

2.5 Reconstitution Instructions

clear, green solution.

2.5 mg/mL indocyanine green.

1.25 mg/mL indocyanine green.

Ophthalmic Angiography

DOSAGE FORMS AND STRENGTHS

in a 25 mL single-patient-use vial.

CONTRAINDICATIONS

Discard any unused product.

Use the prepared solution within 6 hours.

Lymphatic Mapping of Cervical and Uterine Cancer

have included anaphylaxis [see Warnings and Precautions (5.1)].

lymphatic mapping of cervical and uterine cancer.

Imaging Instructions

Cancer

2.2 Recommended Dose, Administration and Imaging for Visualization of Extrahepatic Biliary Ducts **Dosing and Administration** The recommended dose of IC-GREEN for visualization of extrahepatic biliary ducts in adults and pediatric patients aged 12 years and older is 2.5 mg administered intravenously as 1 mL of a 2.5 mg/mL solution at least 45 minutes prior to surgery.

2.3

2.4

3

5 WARNINGS AND PRECAUTIONS

5.1 Hypersensitivity Reactions

Hypersensitivity reactions including anaphylaxis, urticaria and deaths due to anaphylaxis have been reported following intravenous administration of IC-GREEN [see Adverse Reactions (6)]. IC-GREEN is contraindicated in patients with a history of hypersensitivity to indocyanine green [see Contraindications (4)]. Always have cardiopulmonary resuscitation personnel and equipment readily available and monitor all patients for hypersensitivity reactions.

5.2 Interference with Thyroid Radioactive Iodine Uptake Studies Because IC-GREEN contains sodium iodide, the iodine-binding capacity of thyroid tissue may be reduced for at least one week following administration [see Drug Interactions (7)].

The following clinically significant adverse reactions are described elsewhere in the labeling:

ADVERSE REACTIONS

6

7

8

Hypersensitivity Reactions [see Warnings and Precautions (5.1)].

The following adverse reactions have been identified during post-approval use of IC-GREEN. Because these reactions are reported voluntarily from a population of uncertain size, it is not always possible to reliably

estimate their frequency or establish a causal relationship to drug exposure. Immune System Disorders: Anaphylaxis, urticaria

Interference with Thyroid Radioactive Iodine Uptake Studies Because IC-GREEN contains sodium iodide, the iodine-binding capacity of thyroid tissue may be reduced for

DRUG INTERACTIONS

week following administration of IC-GREEN.

USE IN SPECIFIC POPULATIONS 8.1 Pregnancy Risk Summary

There are no adequate and well-controlled studies of IC-GREEN in pregnant women. Available data

from a very small number of scientific literature studies with indocyanine green use in pregnant women over several decades have not reported any drug associated risks for major birth defects,

miscarriage, or adverse maternal or fetal outcomes. Data from one small study in which indocyanine

green was administered intravenously to pregnant women during labor suggest there is no placental transfer of the drug. Animal reproduction studies have not been conducted with indocyanine green. All pregnancies have a background risk of birth defects, loss, or other adverse outcomes. In the U.S. general population, the estimated background risk of major birth defects and miscarriage in clinically recognized pregnancies is 2 to 4% and 15 to 20%, respectively.

8.2 Lactation Risk Summary Seventeen cases of indocyanine green use in lactating women have been reported in the scientific literature with no adverse events observed in the breastfed infant. However, there are no data on the presence of indocyanine green in human milk or the effects on milk production. Therefore, the developmental and health benefits of breastfeeding should be considered along with the mother's

pediatric patients who received indocyanine green for assessment of blood flow and tissue perfusion in cardiovascular, vascular, and plastic, micro- and reconstructive surgical procedures, and by clinical trials in adults. No overall differences in safety or effectiveness have been observed between pediatric and Administration (2.1)]. The use of IC-GREEN for visualization of vessels, blood flow and tissue perfusion has not been established in pediatric patients aged less than 1 month.

Use of IC-GREEN for ophthalmic angiography has been established in pediatric patients. Pediatric use is supported by evidence from the published literature. 8.5 Geriatric Use Of the total number of patients in clinical studies of indocyanine green for injection for visualization

the total number of patients in clinical studies of indocyanine green for injection for visualization of lymph nodes and lymphatic vessels during lymphatic mapping of cervical and uterine cancer, 9% were 65 and over, while 2% were 75 and over. Clinical studies of indocyanine green for injection for

No overall differences in safety or effectiveness were observed between these patients and younger patients, and other reported clinical experience has not identified differences in responses between

of vessels, blood flow and tissue perfusion, 7% were 65 and over, while 1% were 75 and over. Of

elderly and younger patients. In general, dose selection for an elderly patient should be cautious, usually starting at the low end of the dosing range, reflecting the greater frequency of decreased hepatic, renal or cardiac function, and of concomitant disease or other drug therapy.

DESCRIPTION

11

12

13

14

IC-GREEN (indocyanine green for injection) is an optical imaging agent for intravenous or interstitial use. Each vial contains 25 mg of indocyanine green with not more than 5% sodium iodide as a sterile, lyophilized, green powder. IC-GREEN has a pH of 5.5-7.5 when reconstituted with Sterile Water for Injection, The chemical name for Indocyanine Green is 1 HBenz[e]indolium, 2-[7-[1,3-dihydro-1,1-dimethyl-3-(4-sul-

fobutyl)-2H-benz[e]indol-2-ylidene]-1,3,5-heptatrienyl]-1,1-dimethyl-3-(4-sulfobutyl)-, hydroxide, inner salt,

Indocyanine green has a peak spectral absorption at 805 nm in blood.

mapping of lymph nodes and lymphatic vessels.

There are no pharmacodynamic data.

and is secreted entirely into the bile.

13.1 Carcinogenesis, Mutagenesis, Impairment of Fertility

impairment of fertility by indocyanine green.

14.1 Lymphatic Mapping of Cervical and Uterine Cancer

NONCLINICAL TOXICOLOGY

CLINICAL STUDIES

Following interstitial injection, indocyanine green binds to proteins in lymph fluid and the interstitial space, is taken up by the lymphatic vessels, and drains to the lymph nodes. Since excessive dye extravasation does not take place in the highly fenestrated choroidal vasculature, IC-GREEN is useful in both absorption and fluorescence infrared angiography of the choroidal vasculature when using appropriate filters and film in a fundus camera.

Indocyanine green is taken up from the plasma almost exclusively by the hepatic parenchymal cells

No studies have been performed to evaluate the potential for carcinogenicity, mutagenicity, or

Following intravenous injection, indocyanine green binds to plasma proteins (98%) and is largely

the FILM Study (NCT 02209532). The study was a randomized, prospective, multi-center, open-label study in patients with early stage

The effectiveness of IC-GREEN for fluorescence imaging of lymph nodes and delineation of lymphatic vessels during lymphatic mapping in adults with cervical and uterine cancer has been established based on a study of another formulation of indocyanine green for injection. Below is a description of

A total of 176 patients were randomized to receive either indocyanine green followed by blue dye or blue dye followed by indocyanine green. A total of four 1 mL injections of a 1.25 mg/ml solution of indocyanine green for a total dose of 5 mg were administered

Analysis

mITT

Population

lymph nodes detected by indocyanine green and/or the blue dye comparator.

difference of 50% [95% confidence interval 39% to 60%].

and a deep (1 cm to 3 cm) injection at each position.

Population Detected with Detected **Detected with BD Only** Detected Indocvanine Indocvanine with **Green Only** Neither Green (476/513)(220/513)(262/513)(6/513)(31/513)513 51% 93% 43% 1% 6%

The mean age of the 176 patients was 63 years (range: 31 to 88 years); distribution by race and ethnicity was 79% White, 4% Black or African American, 3% Asian, 13% Hispanic/Latino and 1% other. Table 1 shows the distribution of resected, confirmed lymph nodes detected by indocyanine green or blue dye in the modified intent-to-treat population (mITT). Among the confirmed lymph nodes identified, 93% were identified using indocyanine green, and 43% were identified using blue dye, a

Table 2 shows the number of patients with at least one resected, confirmed lymph node and the number of patients with at least one bilateral lymph node pair detected by indocyanine green or blue dye. With indocyanine green, approximately 97% of patients had at least one resected, confirmed lymph node detected and 73% had at least one bilateral lymph node pair detected, compared with 68% and 28%, respectively, with blue dye (p-values for each analysis <0.0001). Table 2: Distribution of Patients with at Least One Confirmed Unilateral Lymph Node/ Bilateral Pair Detected

Patients with

Lymph Nodes

Detected with

Indocyanine

Green only

Patients with

Lymph Nodes

Detected with

BD only

Patients with

Lymph Nodes

Detected with

Neither

mITT Bilateral** (126/172) (49/172)(44/172)(79/172)(2/172)26% 73% 28% 46% 1% t: patients with at least one resected confirmed lymph node detected unilaterally

Store at 20°C to 25°C (68°F to 77°F). 17 PATIENT COUNSELING INFORMATION

by Indocyanine Green or Blue Dye (BD)

Patients

(n)

Patients with

Detected with

**: patients with at least one resected confirmed lymph node detected bilaterally

Indocyanine

All Lymph

Nodes

Green

Manufactured by: Patheon Italia S.p.A. Sterile Water for injection, USP is manufactured by:

Fresenius Kabi USA, LLC Grand Island, NY 14072 LYOCONTRACT GmbH 38871 Ilsenburg, GERMANY or Hospira, Inc. Rocky Mount, NC 27804

Hikma Pharmaceuticals USA Inc.

at least one week following administration. Do not perform radioactive iodine uptake studies for at least one

clinical need for IC-GREEN and any potential adverse effects on the breastfed infant from IC-GREEN or

from the underlying maternal condition. 8.4 Pediatric Use Use of IC-GREEN for visualization of vessels, blood flow and tissue perfusion has been established in pediatric patients aged 1 month and older. Pediatric use is supported by published data in 49 patients and adults. The dose range was similar to the effective dose range in adults [see Dosage

Use of IC-GREEN for visualization of extrahepatic biliary ducts has been established in pediatric patients aged 12 years and older. Pediatric use is supported by clinical trials in adults in addition to clinical use in pediatric patients. No overall differences in safety or effectiveness have been observed between pediatric patients and adults. The dose range was similar to the effective dose range in adults

[see Dosage and Administration (2.2)]. The use of IC-GREEN for visualization of extrahepatic biliary ducts has not been established in pediatric patients aged less than 12 years. Use of IC-GREEN for visualization of lymph nodes and lymphatic vessels during lymphatic mapping for cervical and uterine cancer have not been established in pediatric patients.

visualization of extrahepatic biliary ducts did not include sufficient numbers of patients aged 65 and over to determine whether they respond differently from younger patients.

USP.

formula:

CLINICAL PHARMACOLOGY

12.2 Pharmacodynamics

12.3 Pharmacokinetics **Distribution**

.CH₃ H₃C IÌ

Molecular Formula: C43H47N2NaO6S2; Molecular Mass: 774.96 g/mol, with the following structural

12.1 Mechanism of Action When bound to proteins in plasma or in lymph fluid, indocyanine green absorbs light in the nearinfrared region with peak absorption at 805 nm and emits fluorescence (light) at a slightly longer wavelength, with peak emission at 830 nm. Fluorescence imaging devices provide external energy as near infrared light for indocyanine green to absorb, resulting in excitation of the indocyanine green, and the emitted light (fluorescence) is transferred from the field of view to an image on a monitor.

confined to the intravascular compartment. Indocyanine green undergoes no significant extrahepatic or enterohepatic circulation; simultaneous arterial and venous blood estimations have shown negligible renal, peripheral, lung or cerebro-spinal uptake of the dye. After biliary obstruction, the dye appears in the hepatic lymph, independently of the bile, suggesting that the biliary mucosa is sufficiently intact to prevent diffusion of the dye, though allowing diffusion of bilirubin.

uterine or cervical cancer and no known regional nodal or metastatic disease by standard clinical evaluation. Indocyanine green and a blue dye comparator were injected into the cervix of patients at the beginning of the operative procedure.

interstitially into the cervix at the 3 o'clock and 9 o'clock positions with a superficial (1 mm to 3 mm)

Lymphatic mapping was performed intraoperatively using a fluorescence imaging device and standard light, followed by excision of tissues identified by indocyanine green, blue dye, or the surgeon's visual and palpation examination. The resected tissues were evaluated by histopathology to confirm presence of lymph nodes. The efficacy of indocyanine green in the detection of lymphatic vessels and lymph nodes during lymphatic mapping procedures was determined by the number of histology-confirmed

Table 1: Distribution of Resected, Confirmed Lymph Nodes Detected by Indocyanine Green or Blue Dye (BD) Nodes (n) All Lymph All Lymph All Lymph **Lymph Nodes** Lymph Nodes Nodes **Nodes Detected with** Nodes

mITT Unilateral* 172 (167/172)(118/172)(51/172)(2/172)(3/172)97% 68% 30% 1% 3%

Patients with

All Lymph

Detected

with BD

Nodes

Six 25 mL single-patient-use vials of IC-GREEN (25 mg each) as a sterile, lyophilized green powder for reconstitution NDC 70100-725-01 Six single-dose vials of Sterile Water for Injection (10 mL each) NDC 63323-185-10 or NDC 0409-4887-17 or NDC 0641-6147-10

Hypersensitivity Reactions Advise patients to seek medical attention for reactions following injection of IC-GREEN such as difficulty breathing, swollen tongue or throat, skin reactions including hives, itching and flushed or pale skin, low

20900 Monza (MB), ITALY

Berkeley Heights, NJ 07922 51047

How Supplied IC-GREEN (indocyanine green for injection) is supplied as a kit (NDC 70100-825-02) containing the following: Storage and Handling

HOW SUPPLIED/STORAGE AND HANDLING

blood pressure, a weak and rapid pulse and other symptoms or signs of an anaphylactic reaction [see Warnings and Precautions (5.1)].

Distributed by: Diagnostic Green LLC Farmington Hills, MI 48331