

# XENETIX®

lobitridol

## Key information

Flow  
of **contrast**



Guerbet |   
Contrast for Life

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# 1. Indications

**XENETIX®** is a non-ionic monomeric, iodinated contrast agent associated with balanced and stabilized hydrophilicity, low osmolality, low viscosity and high water-solubility. It is used in radiological examinations, and particularly in CT.

**XENETIX®** is supplied in 3 different concentrations: 250, 300 and 350 mg I/mL.

**XENETIX®** is approved for use in adults and children in a wide range of indications (Table 1), including intravenous (IV) urography, head and whole body CT and intra-arterial (IA) or IV digital subtraction angiography (DSA) and can be used via several routes of administration; local prescribing information should be consulted.

**XENETIX®** is approved in more than 60 countries.

**Table 1. XENETIX® (iobitridol) indications** <sup>[1-2-3]</sup>

	Intravascular administration		Local administration
	Intravenous route	Intra-arterial route	
<b>XENETIX®</b> <b>350</b> <sup>[3]</sup>	<ul style="list-style-type: none"> <li>■ Intravenous urography</li> <li>■ Head and whole body computed tomography</li> <li>■ Intravenous digital subtraction angiography</li> </ul>	<ul style="list-style-type: none"> <li>■ Arteriography of all regions</li> <li>■ Angio-cardiography</li> </ul>	
<b>XENETIX®</b> <b>300</b> <sup>[2]</sup>	<ul style="list-style-type: none"> <li>■ Head and whole body computed tomography</li> <li>■ Intravenous digital subtraction angiography</li> </ul>	<ul style="list-style-type: none"> <li>■ Arteriography of all regions</li> <li>■ Angio-cardiography</li> </ul>	<ul style="list-style-type: none"> <li>■ Endoscopic retrograde cholangiopancreatography</li> <li>■ Arthrography</li> <li>■ Hysterosalpingography</li> </ul>
<b>XENETIX®</b> <b>250</b> <sup>[1]</sup>	<ul style="list-style-type: none"> <li>■ Phlebography</li> <li>■ Whole body computed tomography</li> </ul>	<ul style="list-style-type: none"> <li>■ Intra-arterial digital subtraction angiography</li> <li>■ Arteriography</li> </ul>	<ul style="list-style-type: none"> <li>■ Endoscopic retrograde cholangiopancreatography</li> </ul>

Not all the indications may be available in your country.  
Please check with your local Guerbet representative for more information.

1. Guerbet, Summary of Product Characteristics: XenetiX® 250 (250 mg Iodine/mL), solution for injection 2015.
2. Guerbet, Summary of Product Characteristics: XenetiX® 300 (300 mg Iodine/mL), solution for injection 2015.
3. Guerbet, Summary of Product Characteristics: XenetiX® 350 (350 mg Iodine/mL), solution for injection 2015.

## ➔ 2. Presentation

**XENETIX®** is a clear, colourless to pale yellow, sterile, pyrogen-free solution for injection available in three concentrations (Table 2). Different volumes are supplied, allowing the exact volume to be specifically adapted to the individual patient and examination type.

**XENETIX®** is available in two delivery systems: vials and **ScanBag®**. Its shelf-life is 3 years<sup>[1-2-3]</sup>.

**Table 2. XENETIX® (iobitridol) iodine content**<sup>[1-2-3]</sup>

	Iobitridol	Corresponding to
<b>XENETIX® 250</b> <sup>[1]</sup>	54.84 g	25 g of iodine per 100 mL
<b>XENETIX® 300</b> <sup>[2]</sup>	65.81 g	30 g of iodine per 100 mL
<b>XENETIX® 350</b> <sup>[3]</sup>	76.78 g	35 g of iodine per 100 mL

### Vials<sup>[4]</sup>

- Type II glass vials/bottles with chlorobutyl rubber stoppers in various volumes from 20 to 500 mL<sup>[4]</sup>
- With integrated hanger label, available on 100, 150 and 200 mL containers, to optimize handling
- Should be stored below 30°C and protected from light<sup>[1-2-3]</sup>.

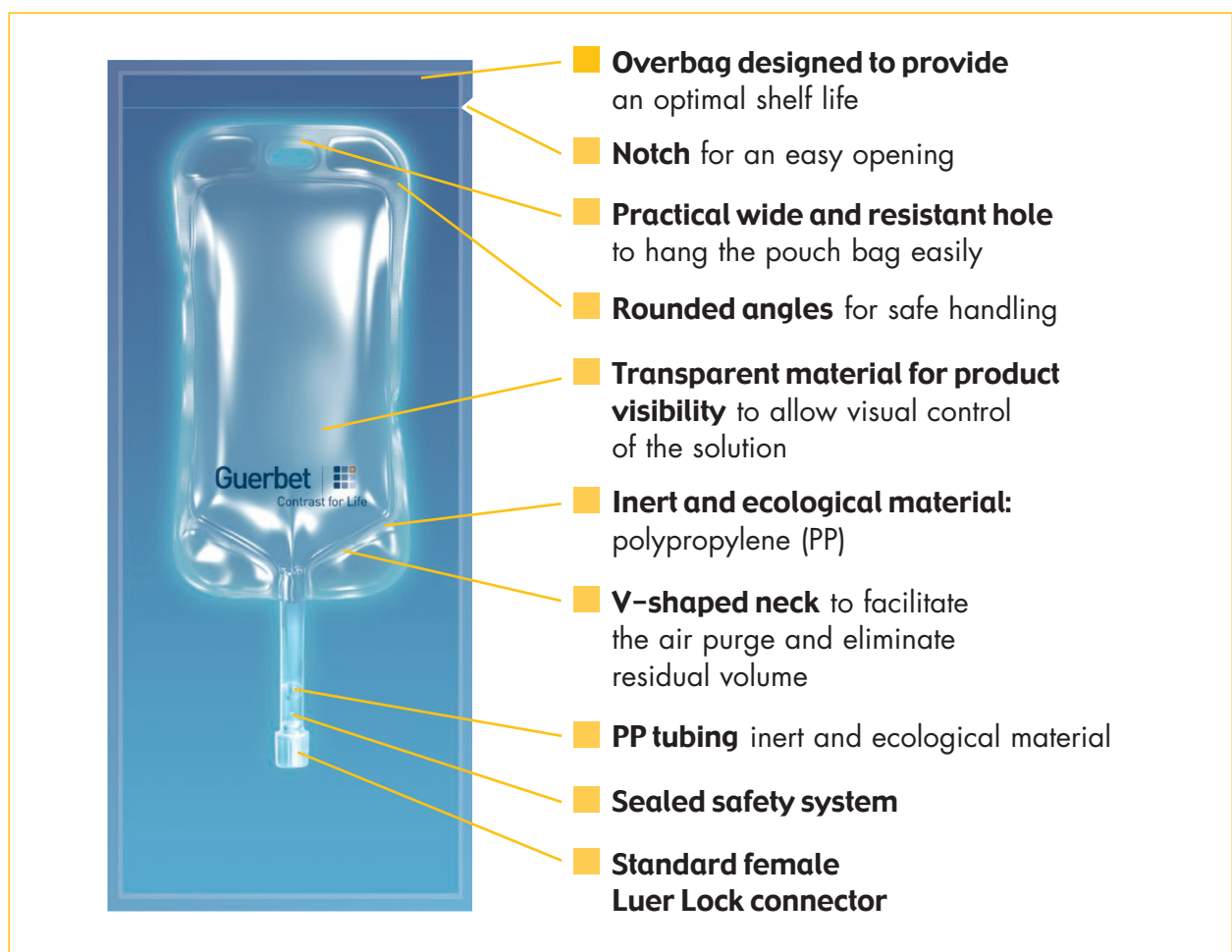


**Figure 1. XENETIX® in vials with integrated hanger label**

4. Not all the presentations may be available in your country. Please check with your local Guerbet representative for more information.

## ScanBag® [4]

- Soft, light, resistant to tears and breakages
- Simple to use, safe to handle, practical and designed to achieve maximum sterility<sup>[5]</sup>
- Reduces storage and space wastage, assures transport safety
- Compatible with most of the marketed automatic injectors
- The first bag developed specifically for medical imaging, providing an innovative delivery method with the advantages described on the figure 2.



**Figure 2.** Features and advantages of ScanBag®

5. Guerbet, ScanBag®: A new concept designed specifically for contrast media used in medical imaging. 2010.

## 3. Physicochemical properties

The active ingredient of **XENETIX®** is iobitridol<sup>[6]</sup>. Each molecule has three iodine atoms bound to a single benzene ring (Figure 3). Iodine provides the radiopaque property of iodinated contrast agents.

The physicochemical properties of **XENETIX®** determine its efficacy and safety.

### 3.1 Hydrophilicity concept

Iodinated contrast agents can cause adverse reactions because of their chemotoxicity, which is related to their chemical structure<sup>[7]</sup>.

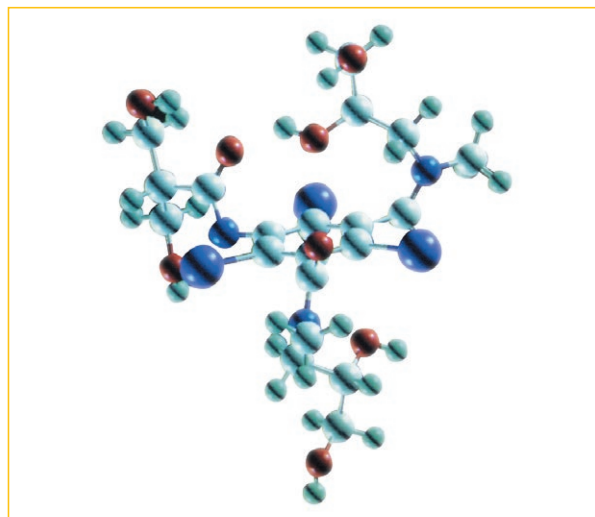


Figure 3. Structural formula of **XENETIX®** (iobitridol)

#### Quantitative hydrophilicity

Chemotoxicity decreases as the number of hydroxyl groups in the molecule increases and the number of carboxyl molecules decreases<sup>[7]</sup>.

##### **XENETIX®**

- Has no carboxyl group and a high number of hydroxyl groups (six per molecule), therefore a low potential for chemotoxicity.
- Is a product with one of the highest numbers of OH radicals, compared to the other LOCM and IOCM.

#### Qualitative hydrophilicity

Qualitative hydrophilicity refers to the creation with hydroxyl groups of a hydrophilic zone that masks the inner lipophilic (i.e. hydrophobic) benzene ring, thus potentially preventing interaction between this ring and cellular proteins<sup>[8]</sup>.

##### **XENETIX®**

- Has an even distribution of the six hydroxyl groups, giving it an evenly distributed facial hydrophilicity and consequently minimizing the accessibility of the inner lipophilic areas to biologic proteins<sup>[6]</sup>.

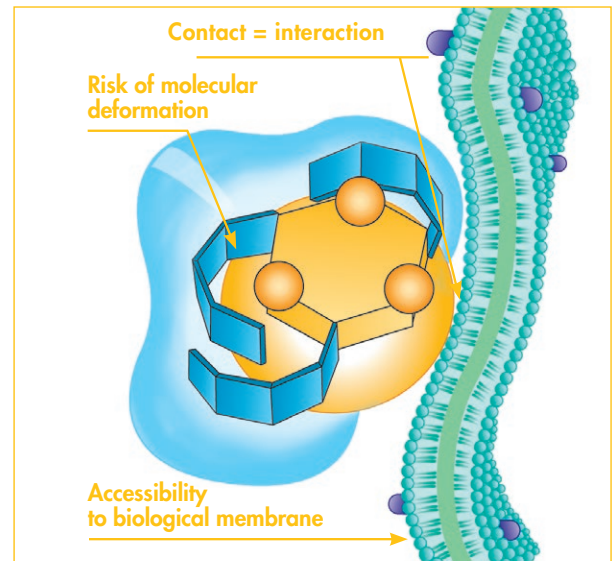
6. Violon, D., Application of the lateral/facial protection model to a new molecule, iobitridol. *Invest Radiol*, 1996. 31(10): p. 668-670.
7. Almen T., The etiology of contrast medium reactions. *Invest. Radiol*, 1994. 29 (Suppl 1) : p. S37-45.
8. Bonnemain B., et al., New iodinated, low-osmolar contrast media. A revised concept of hydrophilicity. *Invest Radiol*, 1990. 25 (Suppl 1): p. S104-106.

## Stabilized hydrophilicity

There is a risk of molecular deformation (figure 4) by hydrophobic forces when a contrast agent molecule comes into contact with proteins or biological membranes<sup>[9]</sup>.

### XENETIX®

- Was designed to be a more rigid, stabilized molecule<sup>[9]</sup>.



**Figure 4. Risk of deformation of an iodinated contrast agent in the presence of a biological membrane<sup>[9]</sup>**

## 3.2 Osmolality

Osmolality of a contrast agent solution refers to its ability to induce the movement of water across biological membranes and is determined by the ratio of the number of iodine atoms to the number of particles in solution<sup>[7]</sup>.

### XENETIX®

- Like other low-osmolar contrast media (LOCM), has a higher ratio of iodine to active particle (3:1 in solution than hyperosmolar contrast media (HOCM) and thus a lower osmolality<sup>[10-11]</sup>.

## 3.3 Viscosity

The viscosity of contrast agents varies with temperature and iodine concentration. Generally an increase in temperature leads to a decrease in viscosity (Table 3)<sup>[1-2-3]</sup>.

### XENETIX®

- Has the same viscosity as iohexol (11.6 mPa.s) at the same temperature (20°C) and iodine concentration (300 mg of iodine per mL [mg I/mL])<sup>[10-11]</sup>.

9. Prange T., et al., Study of the complex between the contrast agent iobitridol (XenetiX®) and elastase (PPE): A model for hydrophobic site protection in drug-protein interactions. *Pharm Res*, 1997. 14(12): p. 1713-1717.
10. Idee J.M., et al., Allergy-like reactions to iodinated contrast agents. A critical analysis. *Fundam Clin Pharmacol*, 2005. 19(3): p. 263-281.
11. Morris T.W., X-ray contrast media: where are we now, and where are we going? *Radiology*, 1993. 188(1): p. 11-16.

**Table 3. Summary of the physicochemical properties of XENETIX® (iobitridol) [1-2-3]**

Osmolality and viscosity values according to iodine concentration			
	Osmolality (mOsm/kg H <sub>2</sub> O)	Viscosity (mPa.s)	
		at 20°C	at 37°C
XENETIX® 250	585	6	4
XENETIX® 300	695	11	6
XENETIX® 350	915	21	10

### 3.4 Solubility

Solubility is determined by the number of hydroxyl groups in the molecule and is related to hydrophilicity.

#### XENETIX®

- Has good solubility due to the even and stable distribution of its six hydroxyl groups. When cold, the solubility of XENETIX® is greater than 140% (mass/volume) [12].

## 4. Clinical safety

XENETIX® is well tolerated and safe for use in patients of a wide range of ages, including patients with risk factors for reactions to contrast agents [13-14-15-16] although local clinical guidelines and the local Summary of Product Characteristics (SPC) should always be taken into account. Its good safety profile has been demonstrated in the general population based on four post-marketing surveillance studies totalling more than 320,000 patients.

### 4.1 Post-marketing surveillance studies

XENETIX® was given at a dose of 1 mL/kg body weight [15] or at a concentration of 300 mg I/mL in the majority of patients (94.8% [14], 92.7% [13] and 90.4% [16] respectively).

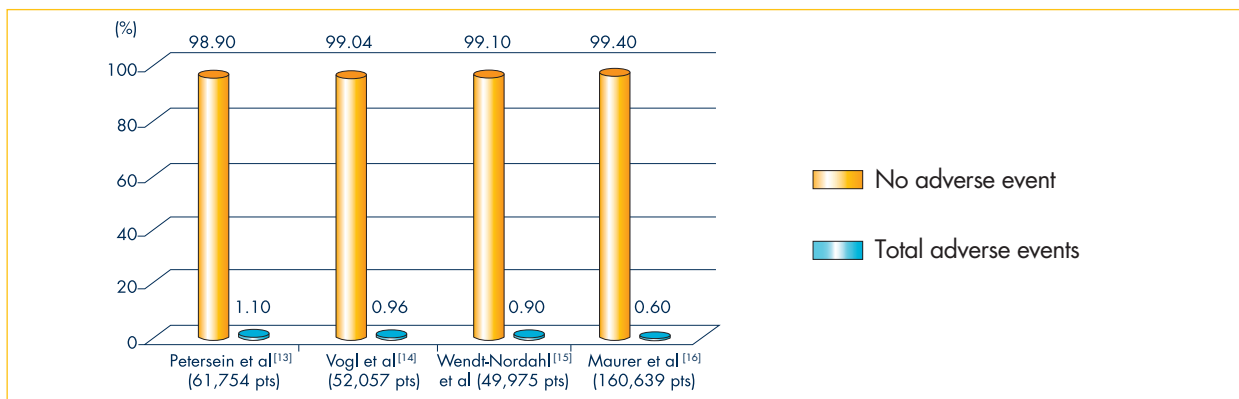
Those four post-marketing studies were conducted in a total of 324.425 patients aged between a few weeks and 101 years. Those patients received XENETIX® during CT, IV urography, DSA or other examinations [13-16].

- Meyer D., et al., Stabilization of the hydrophilic sphere of iobitridol, a new non-ionic iodinated contrast agent. Acta Radiol, 1996. 37(Suppl. 400): p. 8-16.
- Petersein J., et al., Results of the safety and efficacy of iobitridol in more than 61,000 patients. Eur Radiol, 2003. 13(8): p. 2006-2011. Methodology: 61,754 patients undergoing routine examination (CT, IVU, DSA, conventional angiography and phlebography). Patients aged from a few weeks to 97 years.
- Vogl T.J., et al., Safety of iobitridol in the general population and at-risk patients. Eur Radiol, 2006. 16(6): p. 1288-1297. Methodology: 52,057 patients undergoing routine examination (CT, IVU, DSA, conventional angiography and phlebography). Patients aged from 4 to 98 years with 72 patients less than 15 years of age and 28549 patients aged 60 and above Pre-existing risk factors were present in 27% of patients).



## Safety in the general population

The majority (99%) of patients included in those four post-marketing studies did not experience a product-related adverse event (Figure 5) <sup>[13-14-15-16]</sup>.



**Figure 5. Safety profile of XENETIX® in four post-marketing surveillance studies** <sup>[13-14-15-16]</sup>  
Product-related adverse events are shown. (data from Petersein et al. <sup>[13]</sup> does not include «feeling of warmth»)

## Safety in special patient populations

The use of XENETIX® was evaluated in a broad range of patient populations coming from a wide age range.

XENETIX® was found to be well tolerated:

- In paediatric population: In one study, 3 (4.2%) patients younger than 15 years of age experienced a total of 3 adverse events: vomiting, nausea and urticaria. None was serious. <sup>[14]</sup>
- In at-risk patients: In one study, the incidence of adverse events (1.4%) was higher in at-risk patients than in those with no pre-existing risk factors <sup>[14]</sup>. The main risk factors identified in connection with adverse events were history of reaction to contrast agents, allergies or asthma, hypotension or hypertension <sup>[14]</sup>. In another post-marketing surveillance study, significantly more patients with
- asthma/allergies (21.9% of 1,849 patients) or renal insufficiency (defined as creatinine level > 1.5 mg/dL or 133 µmol/L; 10.9% of 950 patients) experienced an adverse event in comparison to the overall population <sup>[15]</sup>.
- In elderly patients: When compared with patients aged ≤ 39 years, the incidence of adverse events was lower in patients aged ≥ 60 years <sup>[13]</sup> or ≥ 70 years <sup>[14]</sup>; respective rates of adverse events were 0.9% versus 1.7% (p < 0.001 [excluding «feeling of warmth»] <sup>[13]</sup>) in Petersein's study and 0.63% versus 1.40% in Vogl's study <sup>[14]</sup>. This difference was possibly attributable to a higher immunocompetence in younger patients <sup>[13]</sup>.

Overall, the four post-marketing studies concluded that XENETIX® is well tolerated and safe to use.

15. Wendt-Nordahl G., et al., Intravenous contrast media in uro radiology: Evaluation of safety and tolerability in almost 50,000 patients. *Med Princ Pract*, 2006. 15(5): p. 358-361.  
*Methodology*: 49,975 patients undergoing IVU (98 %) or other urological examinations (2 %). Patients aged from 3 to 101 years. Patients were considered at high risk for 7.4% of the total recruitment.
16. Maurer M., et al., Safety and tolerability of iobitridol in general and in patients with risk factors: results in more than 160,000 patients. *Eur J Radiol*, 2011. 80: p. 357-62.  
*Methodology*: 160,639 patients undergoing routine examination (IVU, CT). Patients aged from 5 to 97 years. At least one risk factor was reported in 21.8% of patients.



## 5. Evaluation of the renal tolerance of XENETIX®

### 5.1 Renal tolerance of LOCM in patients with renal dysfunction<sup>[17]</sup>

#### Objective

- To determine whether Iodixanol (IOCM) and Iomeprol, XENETIX® or Iopentol (LOCM) are associated with differential nephrotoxicity in patients with baseline serum creatinine concentration  $\geq 1,2$  mg/dL.

the IOCM Iodixanol versus 14.1% for the combined LOCM (Iomeprol, 10%; Iobitridol, 10%; Iopentol, 50%)

No differences in CI-AKI incidence among patients receiving IOCM or LOCM.

#### Results

- The overall CI-AKI (contrast-induced acute kidney injury) incidence was 14.6% for

### 5.2 Renal tolerance in patients with chronic renal failure<sup>[18]</sup>

#### Objective

- To assess the renal tolerance of XENETIX® 350 in high-risk patients with chronic renal failure (glomerular filtration rate  $< 60$  ml/min) who underwent an arteriography by comparison with a control group which did not receive contrast agent injection.
- An increase in serum creatinine level  $> 15\%$  was reported in both groups after arteriography.
  - ✓ In 1 patient in the XENETIX® 350 group (increase from 150 to 198  $\mu\text{mol/l}$ ) 72 hours after the procedure with associated decrease in creatinine clearance from 34 to 25 ml/min.
  - ✓ In 1 patient in the control group (increase from 387 to 449  $\mu\text{mol/l}$ ) 48 hours after the procedure.

#### Results

- Similar tolerance results were obtained with (n=11) or without (n=10) administration of XENETIX® 350.

XENETIX® is well tolerated in patients with renal impairment.

17. Alexopoulos E. et al., Contrast-induced acute kidney injury in patients with renal dysfunction undergoing a coronary procedure and receiving non-ionic low-osmolar versus iso-osmolar contrast media. Am. J. Med. Sci., 2010, 339, 25-30.  
Methodology: 222 patients undergoing a coronary procedure. Patients aged from 55 to 77 years.

18. Deray G., et al. Evaluation of the renal tolerance of XenetiX® in patients with chronic renal failure. Nephron, 1998 ;80(2): p. 240.  
Methodology: 21 patients undergoing a radiological procedure.

## 5.3 Lower CIN incidence compared to Iodixanol in children<sup>[19]</sup>

### Objective

- To compare the creatinine clearance variation and the contrast agent-induced nephropathy (CIN) incidence in children undergoing enhanced multislice computer tomography (MSCT) after IV injection of a low-osmolar (XENETIX® 300) or an iso-osmolar (Iodixanol 270) contrast agent.

### Results

#### Renal safety

- Based on the relative creatinine clearance variations from baseline, measured 72h after injection, XENETIX® 300 displays non-inferior profile to Iodixanol 270 (Figure 6).

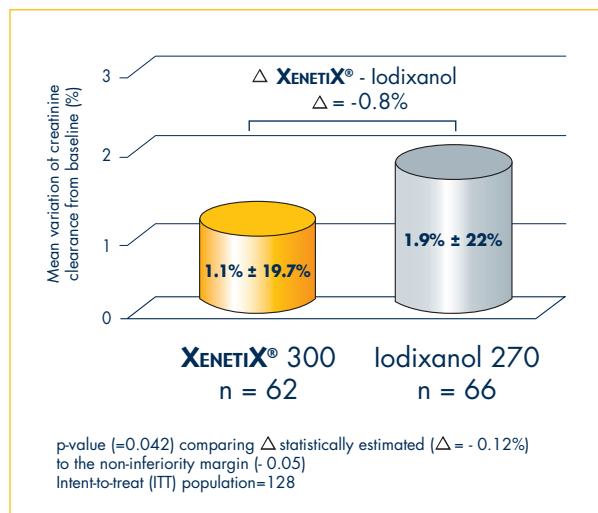


Figure 6. Creatinine clearance variation

- No statistical difference in CIN incidence between groups: XENETIX® 300: 4.8% patients (3/62), Iodixanol 270: 10.6% patients (7/66) (p=0.72).

#### Good image quality and high diagnostic efficacy

- No significant between-groups difference for image quality rated "good" (p=0.73)
- The diagnostic efficacy rated "easy" was also similar in both groups (>90%) with no statistical difference (p=0.58).

#### Good safety profile

- Both products well tolerated
- Serious adverse events occurred in both groups, 5 in the XENETIX® group and 4 in the Iodixanol group, but none was considered related to the products.

XENETIX® 300 was non-inferior to Iodixanol 270 in terms of relative variation of the creatinine clearance, and appears to be associated with a lower CIN incidence compared to Iodixanol 270 in children (No statistical difference).

19. Zo'ò M et al. Renal safety in pediatric imaging: randomized, double-blind phase IV clinical trial of Iobitridol 300 versus Iodixanol 270 in multidetector CT. *Pediatr Radiol*, 2011. 41: p. 1393-1400.  
Methodology: 145 patients undergoing multislice computer tomography (MSCT). Randomized double-blind clinical trial in multidetector CT. Patients aged from 1 to 16 years with normal renal function.

# 6. Efficacy in cardiovascular and peripheral vascular imaging

## 6.1 Diagnostic efficacy in computed tomography (CT) angiography<sup>[20]</sup>

### Objective

- To assess the influence of iodine concentration (by comparison of **XENETIX**® 350 mg I/mL with iomeprol 400 mg I/mL) on diagnostic efficacy and imaging quality in 64-Slice CT angiography of the abdominal aorta and abdominal arteries.

### Similar high efficacy for less iodine concentration

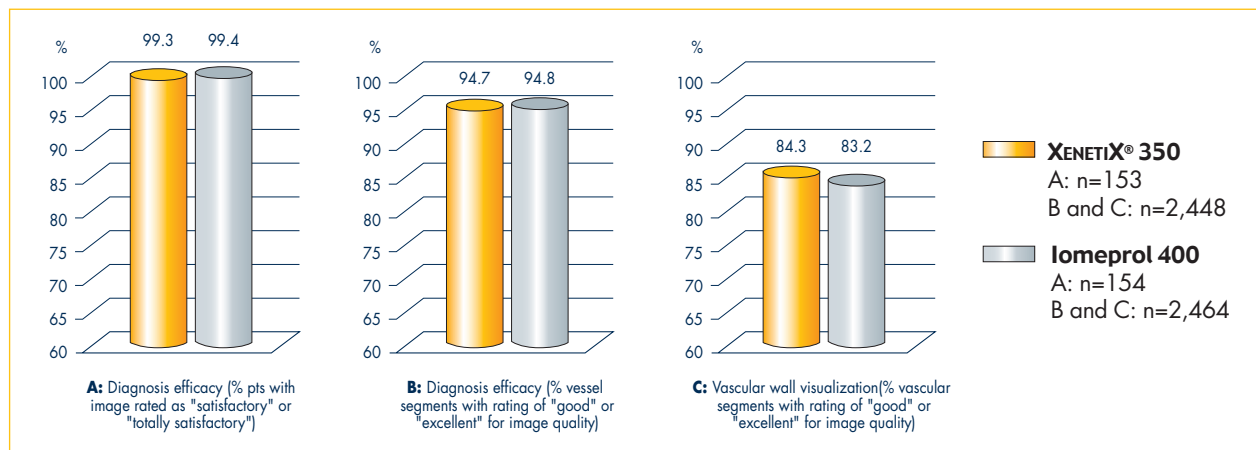
- Diagnostic efficacy was found to be « satisfactory » to « totally satisfactory » for both products in more than 99% of the patients (Figure 7A).

### Similar imaging performance

- No significant between-groups difference for image quality (good or excellent, vascular segments level,  $p=0.30$ ) and vascular wall visualization (good or excellent vascular segments level,  $p=0.83$ ) (Figure 7B and 7C).

### Safety

- Both products well-tolerated and no severe or serious adverse event reported. 3 patients reported a total of five mild and transient related or non-related adverse events reported
  - ✓ **XENETIX**® 350 group: diarrhoea, pain, neck rash and swelling
  - ✓ iomeprol 400 group: nausea.



**Figure 7. Comparative and safety in adults undergoing CT angiography<sup>[20]</sup>**

**A:** Diagnostic efficacy for CT angiography of the abdominal aorta and abdominal arteries. **B:** Image quality measured on 16-prespecified arterial segments. **C:** Quality of wall visualization specified in 16 pre-specified arterial segments

A lower total amount of iodine does not yield inferior diagnostic contribution results.

20. Loewe C. et al.; 64-slice CT angiography of the abdominal aorta and abdominal arteries: comparison of the diagnostic efficacy of iobitridol 350 mg I/mL versus iomeprol 400 mg I/mL in a prospective, randomized, double-blind multicenter trial. *Eur Radiol*, 2010. 20: p. 572-583. *Methodology:* 310 patients undergoing CT angiography of the abdominal aorta and abdominal arteries. Patients aged from 30 to 85 years. Randomized, double-blind, multi-centre clinical trial.

## 6.2 Reducing the radiation dose while maintaining high diagnostic accuracy in coronary CT angiography<sup>[21]</sup>

### Objective

- To evaluate the radiation dose and diagnostic accuracy of 320-slice CT with XENETIX® 350 compared with conventional coronary angiography (CCA) in patients with suspected coronary artery disease (CAD).

### Results

#### Lower radiation dose

- A significantly smaller effective radiation dose (median, 4.2 versus 8.5 mSv;  $p < 0.05$ ) and amount of contrast agent median, 80 versus 111 mL;  $p < 0.001$ ) required for 320-slice CT.

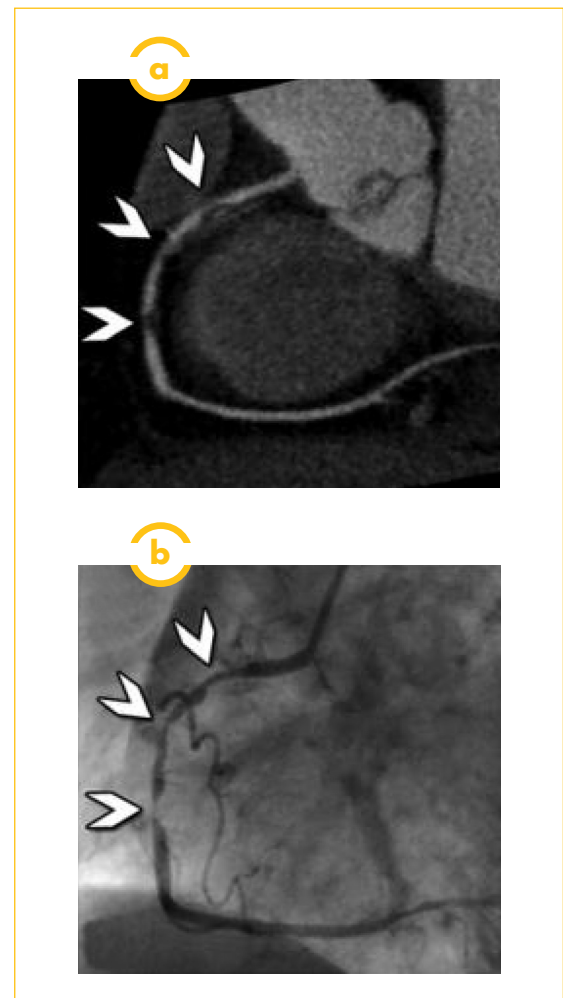
#### High diagnostic accuracy

- High diagnostic accuracy was reported with 320-slice CT both at patient level and at vessel level, with sensitivities of 100% and 89% and specificities of 94% and 96% respectively while negative predictive values were of 100% and 98%, respectively (Figure 8).

#### Patients' preference

- The majority of patients (87%) indicated that they would prefer CT over CCA for future diagnostic imaging ( $p < 0.001$ )
- Overall satisfaction of the patients was significantly higher for CT ( $p < 0,05$ ).

320-slice CT coronary angiography required significantly less contrast agent while preserving high diagnostic accuracy.



**Figure 8. Stenoses in the right coronary artery in a 59 - year - old woman**  
[Image a shows 3 significant stenosis (arrowheads) on a curved maximum intensity projection («CATH view») obtained by CT, and image b shows the stenoses on the conventional angiogram]<sup>[21]</sup>

Courtesy of Marc Dewey(Charité, Medical School, Department of Radiology, Berlin, Germany)

21. Dewey M., et al., Noninvasive coronary angiography by 320-row computed tomography with lower radiation exposure and maintained diagnostic accuracy. Comparison of results with cardiac catheterization in a head-to-head pilot investigation. *Circulation*, 2009. 120: p. 867-875. *Methodology: 30 consecutive patients undergoing CT coronary angiography. Patients mean age: 61±10. Randomized, double-blind, multi-centre clinical trial.*

## 6.3 XENETIX® 350 is comparable to Iopamidol 370 in regard to image quality and diagnostic efficacy in Cath Lab [22]

### Objective

- To confirm the equivalence in terms of global image quality of XENETIX® 350 (iobitridol 350 mg I/mL) and Iopamidol (370 mg I/mL) in adults requiring coronary angiography and ventriculography.

### Results

#### Similar diagnostic performances with XENETIX® 350 for lower iodine concentration

- No statistical differences in the percentage of examinations with global image quality rated "good" or "excellent" (Figure 9).
- Excellent diagnostic efficacy in both groups, with diagnostic information obtained in 100% of the patients investigated
- No between-groups difference with respect to image quality per cardiac vascular territory
- Lower amount of iodine was injected with XENETIX® 350 ( $p < 0.05$ ).

#### Low rate of adverse events

- The adverse event rate was lower in the XENETIX® 350 group (14.3% vs. 20.4%) (Figure 10).

Reduction in iodine concentration could reduce acute side effects after intra-arterial contrast media administration without affecting the quality of coronary arteries images.

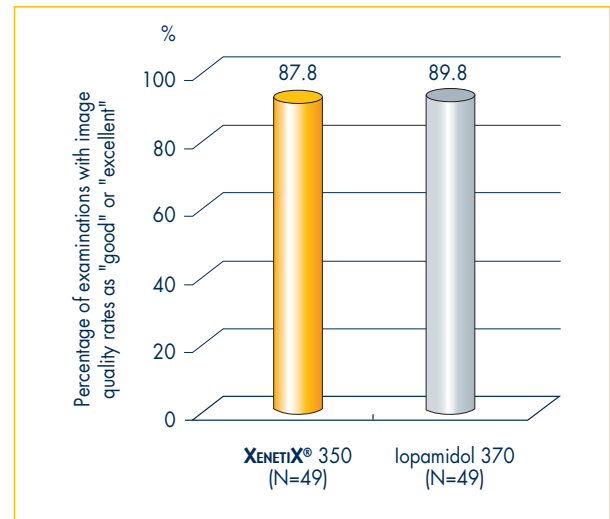


Figure 9. Global image quality [22]

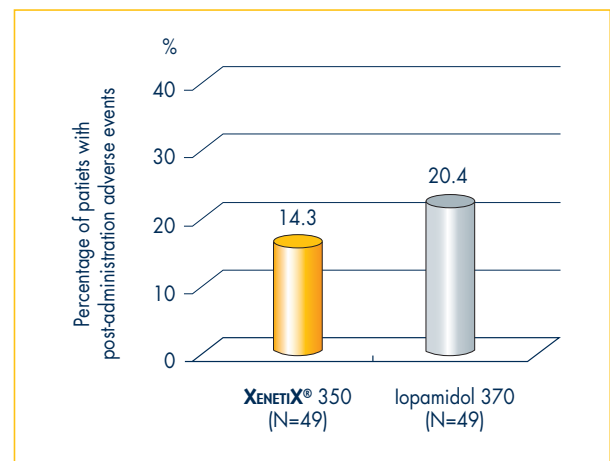


Figure 10. Incidence rates of adverse events [22]

22. Velasquez MT. et al., Less iodine injected for the same diagnostic performances: comparison of two-osmolar contrast agents (iobitridol 350 and Iopamidol 370) in coronary angiography and ventriculography : a randomized double-blind clinical study. Acta Cardiol., 2010, 65, 387-394.

Methodology: 98 adults requiring diagnostic coronary angiography and ventriculography. Randomized, double-blind, multi-centre clinical trial. Patients aged from 18 to 83 years.



## 7. XENETIX®

- Its use in medical imaging radiographic procedures is now well established
- XENETIX® is available in a range of concentration and volumes
- XENETIX® is available in ScanBag®, a unique delivery system, simple to use, safe to handle, practical and designed to achieve optimal asepsis
- Safety data in 4 large scale post-marketing surveillance studies (more than 320.000 patients included) and clinical trials show that XENETIX® is well tolerated
- The good renal tolerance of XENETIX® has been demonstrated in at-risk patients
- In cardiovascular and peripheral vascular procedures with XENETIX® 300-350, image quality is as high as with other contrast agents, despite lower iodine concentration
- With a lower average iodine dose, XENETIX® 350 provided non inferior diagnostic efficacy and image quality compared to iomeprol 400 mg I/mL in multi-slice CT angiography



**Xenetix® 350**, solution for injection (350 mg/ml) ; **Xenetix® 300**, solution for injection (300 mg/ml) ; Xenetix® 250, solution for injection (250 mg/ml) – **Composition per 100 ml: Xenetix® 350:** 76.78 g of iobitridol (corresponding to 35 g of iodine), **Xenetix® 300:** 65.81 g of iobitridol (corresponding to 30 g of iodine), **Xenetix® 250:** 54.84 g of iobitridol (corresponding to 25 g of iodine) – **Indications(\*\*):** this product is for diagnostic use only. **Contrast agent for use in: Xenetix® 350** intravenous urography, computed tomography, intravenous digital subtraction angiography, arteriography, angiocardiology – **Xenetix® 300:** intravenous urography, computed tomography, intravenous digital subtraction angiography, arteriography, angiocardiology, endoscopic retrograde cholangiopancreatography, arthrography, hysterosalpingography – **Xenetix® 250:** phlebography, computed tomography, intra-arterial digital subtraction angiography, endoscopic retrograde cholangiopancreatography – **Posology and method of administration (\*):** the doses should be adapted to the examination and the territories intended to be opacified, as well as to the weight and renal function of the subject, particularly in children – **Contraindications (\*):** hypersensitivity to iobitridol or any of the excipients, history of major immediate or delayed skin reaction (see undesirable effects) to Xenetix®, manifest thyrotoxicosis, hysterosalpingography during pregnancy. – **General comments for all iodinated contrast agents (\*):** in the absence of specific studies, myelography is not an indication for Xenetix®. All iodinated contrast media can cause minor or major reactions that can be life-threatening. They may occur immediately (within 60 minutes) or be delayed (within 7 days) and are often unpredictable. Because of the risk of major reactions, emergency resuscitation equipment should be available for immediate use. – **Precautions for use (\*):** intolerance to iodinated contrast agents, renal insufficiency, hepatic insufficiency, asthma, dysthyroidism, cardiovascular diseases, central nervous system disorders, pheochromocytoma, myasthenia: **Interaction with other medicinal products and other forms of interaction (\*)** – beta-blocker substances, diuretics, metformin, radiopharmaceuticals, interleukin II – **Fertility, pregnancy and lactation (\*)** – **Undesirable effects (\*):** hypersensitivity, anaphylactic reaction, anaphylactoid reaction, anaphylactic shock, angioedema, urticaria, erythema, pruritus, eczema, acute generalized exanthematous pustulosis, Stevens-Johnson syndrome, Lyell's syndrome, maculopapulous exanthema, bronchospasm, laryngospasm, laryngeal oedema, dyspnoea, sneezing, cough, tightness in throat, nausea, vomiting, abdominal pain, agitation, headache, vertigo, hearing impaired, presyncope, tremor, paresthesia, somnolence, convulsions, confusion, visual disorders, amnesia, photophobia, transient blindness, coma, feeling hot, facial oedema, malaise, chills, tachycardia, arrhythmia, ventricular fibrillation, hypotension, circulatory collapse, hypertension, angina pectoris, myocardial infarction, cardiac arrest, torsades de pointes, coronary arteriospasm, respiratory arrest, pulmonary edema, thyroid disorder, acute renal failure, anuria, blood creatinine increased, injection site pain, inflammation, oedema, necrosis following extravasation. – **Overdose (\*)** – **Pharmacodynamic properties (\*):** Pharmacotherapeutic group: Water-soluble, contrast medium with low osmolarity; **ATC code: V08AB11. Presentation (\*\*): Xenetix 250:** 50 ml, 100 ml, 200 ml or 500 ml glass vials, Xenetix 300/350: 20 ml, 50 ml, 60 ml, 75 ml, 100 ml, 150 ml, 200 ml or 500 ml glass vials and 100 ml, 150 ml, 200 ml or 500 ml polypropylene bags. **Marketing authorisation holder (\*):** Guerbet - BP 57400 - F-95943 Roissy CdG cedex – FRANCE. **Information:** tel: 33 (0) 1 45 91 50 00. **Revision:** September 2015.

(\*) For complete information please refer to the local Summary of Product Characteristics.

(\*\*) Indications, volumes and presentations may differ from country to country.

**Reporting of suspected adverse reactions is important as it helps to continuously assess the benefit-risk balance. Therefore, Guerbet encourages you to report any adverse reactions to your health authorities or to our local Guerbet representative.**

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