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GE Healthcare

碘海醇注射液

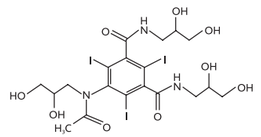
欧乃派克®

碘海醇注射液说明书

请仔细阅读说明书并在医师指导下使用

【药品名称】
通用名称：碘海醇注射液
商品名称：欧乃派克®(Omnipaque®)
英文名称：Iohexol Injection
汉语拼音：Dianhaichun Zhusheye

【成份】
本品主要成份为碘海醇，其化学名称为：5-[N-(2,3-二羟丙基)乙酰胺基]-N,N’-双(2,3-二羟丙基)-2,4,6-三碘-1,3-苯二甲酰胺。
化学结构式：



分子式：$C_{19}H_{26}I_3N_3O_9$
分子量：821.14
辅料：氨丁三醇，EDTA钙钠，盐酸调节pH，注射用水。

【性状】本品为无色至淡黄色的澄明液体。

【适应症】
X线对比剂。可用于心血管造影、动脉造影、尿路造影、静脉造影、CT增强检查；颈、胸和腰段椎管造影、经椎管鞘网膜下腔注射后CT脑池造影；关节腔造影、经内窥镜胰胆管造影(ERCP)、疝或瘘道造影、子宫输卵管造影、涎腺造影、经皮肝胆管造影(PTC)、窦道造影、胃肠道造影和“T”型管造影等。

【规格】
(1) 10ml:3g(I)　(2) 20ml:6g(I)　(3) 50ml:15g(I)　(4) 75ml:22.5g(I)　(5) 100ml:30g(I)
(6) 20ml:7g (I)　(7) 50ml:17.5g(I)　(8) 75ml:26.25g(I)　(9) 100ml:35g(I)　(10) 200ml:70g(I)

【用法用量】
给药剂量取决于检查的种类、病人的年龄、体重、心输出量和全身情况及使用的技术，一般而言，该药的常用碘浓度和容量与目前使用的其它含碘对比剂相似。和其它对比剂一样，在用药前后都必须保证体内有充足的水份。以下的剂量可作为临床指导。

1. 静脉注射指南

适用范围	浓度	用量	说明
尿路造影			
成人	300mgI/ml 或350mgI/ml	40-80ml 40-80ml	在大剂量的尿路造影中可高于80ml
儿童<7Kg	300mgI/ml	按体重3ml/Kg	
>7Kg	300mgI/ml	按体重2ml/Kg(最高40ml)	
下肢静脉造影	300mgI/ml	每腿20-100ml	
数字减影造影(DSA)	300mgI/ml 或350mgI/ml	一次注射20-60ml 一次注射20-60ml	
CT增强			
成人	300mgI/ml 或350mgI/ml	100-200ml 100-150ml	通常总碘量为30-60g
儿童	300mgI/ml	按体重1.5-2ml/Kg	

2. 动脉注射指南

适用范围	浓度	用量	说明
动脉造影			
主动脉血管造影	300mgI/ml	一次注射30-40ml	根据注射部位选择每次注射的用量
选择性脑动脉造影	300mgI/ml 350mgI/ml	一次注射5-10ml 一次注射40-60ml	
下肢动脉造影	300mgI/ml 或350mgI/ml	一次注射30-50ml	
各种动脉造影	300mgI/ml	取决于检查的类型	
心血管造影			
成人			
左心室和主动脉根注射	350mgI/ml	一次注射30-60ml	
选择性冠状动脉造影	350mgI/ml	一次注射4-8ml	
儿童	300mgI/ml 或350mgI/ml	取决于年龄、体重和病情 病情(最高按体重8ml/Kg)	
数字减影造影(DSA)	300mgI/ml	一次注射1-15ml	取决于注射部位。偶尔可用大剂量-最高达30ml。

3. 脊髓造影指南

适用范围	浓度	用量	说明
椎管造影	300mgI/ml	7-10 ml	为减少可能的不良反应，使用的总碘量不应超过3g。

4. 体腔内使用指南

适用范围	浓度	用量	说明
关节腔造影	300mgI/ml 或350mgI/ml	5-15ml 或5-10ml	
子宫输卵管造影	300mgI/ml	15-25ml	
涎管造影	300mgI/ml	0.5-2ml	
胃肠道检查			
口服			
成人		因人而异	可稀释
儿童		因人而异	最大剂量为50ml
CT-增强			
口服			举例:
成人	用水稀释至约6mgI/ml	一次800-2000ml稀释液	用水稀释300或350mgI/ml欧乃派克
儿童	用水稀释至约6mgI/ml	按体重一次15--20ml/Kg稀释液	比例为1：50。
直肠使用			
儿童	用水稀释至约6mgI/ml	因人而异	

【不良反应】
常见不良反应(适用于所有含碘对比剂)
以下所列的是与造影有关的不良反应，包括于非离子型单体对比剂，对应各种不同检查而产生的不良反应，详见对应章节。
和含碘对比剂有关的不良反应本质上一般都为轻到中度且为暂时性的，非离子型对比剂的不良反应要比离子型对比剂更少。重度反应和致死反应非常罕见。
常见的不良反应为**轻度的感觉异常**，如热感或暂时性的金属味觉。可能发生腹部不适或疼痛和胃肠道反应如恶心、呕吐和腹泻。**过敏反应**较少见，通常表现为轻度的呼吸道和皮肤反应，如呼吸困难、皮疹、红斑、荨麻疹、搔痒和血管性水肿，它们可在注射后立即出现也可在几天后出现。严重的反应如喉头水肿、支气管痉挛或肺水肿非常少见。严重甚至毒性的皮肤反应已有报道。**过敏样反应**可能与剂量和用药途径无关。严重反应的最初症状可能仅是轻微的过敏症状，必须马上停止继续使用对比剂，必要时应立即通过血管给药进行相应的治疗，使用β**受体阻滞剂**的病人其过敏反应的症状可能不典型，容易误为迷走神经反应。**迷走神经反应**可引起低血压和心律过缓，很少见，可能发生**头痛或发热**，**高血压**的发作也可能发生。偶可发热伴寒战。**碘中毒或“碘中毒性腮腺炎”**是一种罕见的与使用碘对比剂有关的并发症，表现为腮腺的肿胀和触痛，可在检查后持续达10天。
上市后监测到本品的下列不良反应（发生率未知）：
免疫系统：过敏性休克、严重过敏样反应、超敏反应(可能危及生命或导致死亡)。

血管内注射(动脉和静脉内注射)
请首先阅读“常见不良反应”章节。以下内容只描述了在血管内注射非离子型单体对比剂后易发生的不良反应。
在动脉内注射对比剂所引起的不良反应性质与注射的部位和剂量有关。选择性动脉造影或其它相应的技术操作可使目标器官处于高浓度对比剂状态，可能会引起相应器官的并发症。外周血管造影常会引起远端的**疼痛和热感**(发病率>1:10)。在注射含碘对比剂后短暂性血清肌酐上升也很常见，但通常无临床意义。肾功能衰竭非常罕见，不过在高危病人中可能发生肾衰,并且在这些病人中有致死病例的报道。冠脉、脑或肾动脉注射后会引起动脉痉挛并导致**局部缺血**、**神经系统反应**非常罕见，它们可为癫痫发作或短暂性运动或感觉障碍。偶可在随访的CT扫描时见到对比剂通过血脑屏障为脑皮质摄取，有时可伴短暂性意识模糊或皮层盲。严重的**心脏并发症**如心搏停止、心律紊乱、心功能减退或心肌缺血都很少见。
静脉造影后的血栓性静脉炎和静脉内血栓形成很少见。曾有极个别**关节痛**的病例报道。
可能发生严重的呼吸道症状和征兆（包括呼吸困难，支气管痉挛，喉痉挛，非心源性肺水肿）及咳嗽。
可能发生甲状腺功能亢进。可能发生发红。可能发生注射部位反应。

椎管内使用
请首先阅读“常见不良反应”章节。以下内容只描述了在椎管内注射非离子型单体对比剂后易发生的不良反应。
鞘内注射后的不良反应可能在检查后几小时甚至几天后延迟出现，其发生率与单独腰穿相似，**头痛、恶心、呕吐和头晕**很常见，主要与穿刺点脑脊液渗漏引起蛛网膜下腔压力下降有关。有些病人会有严重的头痛并持续几天。不要抽出太多的脑脊液以避免压力过度下降。轻度的**局部疼痛、外周感觉异常和根性疼痛**偶可发生在注射的部位(发生率<1:10,但>1:100)。偶见**下肢疼痛和痛性痉挛**、**脑膜刺激**所致的畏光和假性脑膜炎偶有发生。症状明显的化学性脑膜炎非常罕见，也应考虑有感染性脑膜炎的可能。非常少见的反应还有**短暂性脑功能失调**，包括癫痫发作、短暂性意识丧失、运动和感觉障碍。少数病人有EEG的改变。可能发生暂时性失明。可能发生颈部疼痛。可能发生注射部位反应。

体腔内使用
请首先阅读“常见不良反应”章节。以下内容只描述了在体腔内注射非离子型单体对比剂后易发生的不良反应。
全身性过敏反应少见。
ERCP：淀粉酶水平略有升高比较常见。ERCP检查后偶可在肾脏内见到对比剂，此情况提示ERCP后**胰腺**炎的危险性大为增加。也有发生坏死性胰腺炎的个案报道。
口服对比剂偶可发生胃肠道不适。
子宫输卵管造影：常有下腹部短暂性轻度**疼痛**。
关节腔造影：造影术后**疼痛**比较常见。症状明显的关节炎罕见，此种病人应考虑感染性关节炎的可能。
疝造影：轻度的术后疼痛较常见。

【禁忌】
有严重的甲状腺毒症表现的患者禁用；对本品有严重过敏史者禁用。

【注意事项】
使用非离子型单体对比剂的一般注意事项：
1. 有**过敏、哮喘**和对含碘造影剂有过不良反应的需特别注意。对这些病例可考虑使用预防用药，如类固醇，H1，H2组胺受体拮抗剂等。
2. 使用本品后发生严重反应的风险较小。但是，碘对比剂可激发**过敏样反应**或其它**过敏反应**的表现。因此应预先进行急救措施的训练和预备必须的抢救药物和器械以应付可能出现的严重反应。
3. 鉴于预试验对由非离子型对比剂引起的过敏反应预测的准确性极低，以及预试验本身也可能导致严重过敏反应，因此不建议采用预试验来预测碘过敏反应。
4. 在整个X线检查过程中应始终保持静脉输液通路畅通。
5. 体外试验中，非离子型对比剂对凝血系统的影响较离子型对比剂为轻。在施行血管造影术时，应十分小心在血管内的技术操作，不时地用肝素化的生理盐水灌洗导管以减少与操作技术相关的血栓形成和栓塞。
6. 在用对比剂前后必须保证体内有足够的水分。这一点尤其适合患有多发性骨髓瘤、糖尿病、肾功能不全的病人及婴幼儿和老年人。小于1岁的婴儿，特别是新生儿易引起电解质紊乱和血液动力学失调。对有**严重心脏病和肺动脉高压**的病人需特别注意。因为他们易发展为血液动力学失调和心律紊乱。
7. **急性脑病**、脑瘤或有**癫痫**病史的病人要预防癫痫发作并需特别的注意。**酗酒和吸毒**者其癫痫发作和神经系统反应危险性大为增加。少数病人在椎管造影后发生短暂性听力丧失或耳聋，这可能是腰穿后脑脊液压力下降所致。
8. 为预防使用对比剂后的急性肾功能衰竭，对已有**肾功能损害和糖尿病**的病人需要特别的注意，因为他们的危险性较大。**异型球蛋白血症**(多发性骨髓瘤病和Waldenstrom巨球蛋白血症)的病人危险性也较大。
9. 预防措施包括：
- 鉴别有高危因素的病人。
- 确保体内有足够的水分。如有必要，可在检查前由静脉维持输液直到对比剂从肾脏清除。
- 在对比剂清除之前避免任何加重肾脏负担的肾毒性药物、口服胆囊对比剂、动脉钳闭术、肾动脉成形术或其它大型手术。
- 延迟重复的造影检查直到肾功能恢复到检查前水平。
为防止乳酸性酸中毒，在对使用**二甲双胍**的糖尿病人血管内注射含碘对比剂前，必须测定血清肌酐水平。对于血清肌酐/肾功能正常的患者：在注射对比剂时必须停用二甲双胍并在48小时内不能恢复用药，或直至肾功能/血清肌酐达正常值。对于血清肌酐/肾功能不正常的患者：必须停用二甲双胍并将对比剂检查推迟至48小时后。只有在肾功能/血清肌酐水平恒定后才能恢复二甲双胍的用药。对有些肾功能不正常或未知的急救病例，医生必须评估使用对比剂检查的利弊，并需采取预防措施：停用二甲双胍、给病人充足的水分、监测肾功能和仔细观察乳酸性酸中毒的症状。

存在发生暂时性肝功能紊乱的潜在风险，严重肝肾功能不全的病人需特别注意，因为这些病人清除对比剂的时间明显延长。血透病人可能接受对比剂检查，在注射对比剂后立即进行血液透析能保护肾功能损害的病人不得对比剂肾病，含碘对比剂可加重**重症肌无力**的症状，**嗜铬细胞瘤**病人在介入治疗时应给予预防高血压危象的α受体阻滞剂，**甲亢**病人也需特别注意。多发结节性**甲状腺肿**的病人在使用碘对比剂后有发展成甲亢的可能，应清楚地认识到早产儿在使用对比剂后有短暂性甲减的可能。
对比剂外渗时偶然会引起局部的疼痛和水肿，它们会逐渐消退，不留后遗症，不过，偶可见发生炎症甚至组织坏死的病例。常规处理方法为抬高患肢和局部冷敷，万一发生隔室综合症需手术减压。

10. 观察时间：
使用对比剂后的病人应至少观察30分钟以上，因为大多数的严重不良反应都发生在这段时间。不过，仍有发生延迟反应的可能。

11. 椎管内注射：
在**椎管造影**后，病人应休息1小时，头、胸抬高20°。然后可小心下床行走但不要弯腰。如仍躺在床上，应保持头胸抬高位6小时。对癫痫发作阈较低的病人在此期间应密切观察，门诊病人最初的24小时内不能独处。

12. 对驾驶和操作机器能力的影响：
在椎管内注射后24小时内不应驾驶和操作机器。

13. 如所有的非胃肠道药品，本品应在使用前目检，以检查是否有微粒、变色及容器是否损坏。
药品应在使用前才被抽入针筒，每本品瓶仅供单次使用，丢弃未用部分。

14. 本品可引起危及生命或致命的超敏反应，包括过敏反应，通常表现为包括呼吸困难、喉痉挛、呼吸停止、支气管痉挛、血管性水肿和休克。大多数重度反应在注射开始后不久就会发生，但也可能会在数小时后发生。既往有含碘对比剂过敏反应史、已知过敏（过敏性哮喘、药物或食物过敏）或其他过敏史的患者发生超敏反应风险会增加。使用本品前应用抗组胺药或皮质类固醇并不能预防严重的危及生命的反应，但可以降低其发生率和严重程度。

在使用本品之前，应询问患者对含碘对比剂过敏反应史及其他过敏史，检查室应配备急救设备、药品和经过培训的医务人员。

【孕妇及哺乳期妇女用药】
人类妊娠期间使用本品的安全性并未确立。实验性动物研究的结果并不直接或间接表明在人类生殖、胚胎或胎儿发育中的损害作用。因为在妊娠的任何时候都应避免射线的照射，所以在考虑对妊娠妇女使用造影检查时必须**慎重权衡利弊**。本品不应用于妊娠妇女除非临床医生认为利远大于弊时。
对比剂在人类的乳汁中排出极少，通过胃肠道吸收的量也极少。因此对母乳喂养婴儿损害的可能性很小。

【儿童用药】
见【用法用量】项下的内容。

【老年用药】
老年人在使用对比剂前后必须保证体内有足够的水分。

【药物的相互作用】
1. 使用含碘对比剂可能会导致短暂性肾功能不全，这可使服用**二甲双胍**的糖尿病人发生乳酸性酸中毒（详见**【注意事项】**项下的相关内容）。
2. **二周内用白细胞介素-2**治疗的病人其延迟反应的危险性会增加（感冒样症状和皮肤反应）。
3. 所有的碘对比剂都会影响甲状腺功能的测定，甲状腺碘结合能力下降会持续几周。
4. 血清和尿中高浓度的对比剂会影响胆红素、蛋白或无机物（如铁、铜、钙和磷）的**实验室测定结果**。在使用对比剂的当天不应做这些检查。
5. 虽然没有明确的配伍禁忌，本品仍不应与其它药物直接混合使用。应使用单独的注射器。

【药物过量】
临床前的实验数据提示本品有高度的安全范围，在日常血管内使用时还未制定出固定的剂量上限水平。在肾功能正常的病人中全身性过量的可能性很小。除非病人在一个固定的时间段内接受超过2000mgI/公斤体重的剂量，检查的持续时间很重要。因为肾脏酶受高浓度对比剂的能力有限（$t^1/_2$~2小时），偶然的过量使用最可能发生在对儿童施行复杂的血管检查。特别是多次反复注射高浓度的对比剂。
一旦过量，必须马上纠正水电解质的不平衡。连续监测肾功能3天，必要时可进行血透以清除过量的对比剂。没有特殊的对比剂拮抗剂。

【药理毒理】
动物试验结果表明本品对犬肝脏、腹主动脉、CT扫描影像有增强效应。另据文献报道，本品的毒性较非离子型对比剂，如Metrizamide低，静注造影时，大鼠、兔子及犬主要从尿中排出，小部分(大鼠5%、犬1%)从粪便中排出。尚未发现任何器官吸收的现象，也未在动物中检测到任何代谢产物。本品蛋白结合率少于2%；犬肾动脉造影时有蛋白尿发生的现象。

【药代动力学】
据报道，通过静脉注射到体内的碘海醇，于24小时内以原状在尿液中排出的近乎百分之百，尿液中碘海醇浓度最高的情况，出现在注射后的一小时内，没有代谢物产生。

【贮藏】避光,密闭保存。

【包装】

300mgI/ml × 10ml	玻璃瓶	1瓶/盒	10瓶/盒	
300mgI/ml × 20ml	玻璃瓶	1瓶/盒	6瓶/盒	10瓶/盒
300mgI/ml × 50ml	玻璃瓶/聚丙烯瓶	1瓶/盒	10瓶/盒	
300mgI/ml × 75ml	玻璃瓶/聚丙烯瓶	1瓶/盒	10瓶/盒	
300mgI/ml × 100ml	玻璃瓶/聚丙烯瓶	1瓶/盒	10瓶/盒	
350mgI/ml × 20ml	玻璃瓶	1瓶/盒	6瓶/盒	10瓶/盒
350mgI/ml × 50ml	玻璃瓶/聚丙烯瓶	1瓶/盒	10瓶/盒	
350mgI/ml × 75ml	玻璃瓶/聚丙烯瓶	1瓶/盒	10瓶/盒	
350mgI/ml × 100ml	玻璃瓶/聚丙烯瓶	1瓶/盒	10瓶/盒	
350mgI/ml × 200ml	玻璃瓶	1瓶/盒	6瓶/盒	
350mgI/ml × 200ml	聚丙烯瓶	1瓶/盒	10瓶/盒	

【有效期】36个月

【执行标准】《中国药典》2020年版
药品注册标准:YBH00982017

【批准文号】

300mgI/ml × 10ml	国药准字H20000591	350mgI/ml × 20ml	国药准字H20000596
300mgI/ml × 20ml	国药准字H20000592	350mgI/ml × 50ml	国药准字H20000597
300mgI/ml × 50ml	国药准字H20000593	350mgI/ml × 75ml	国药准字H20000598
300mgI/ml × 75ml	国药准字H20000594	350mgI/ml × 100ml	国药准字H20000599
300mgI/ml × 100ml	国药准字H20000595	350mgI/ml × 200ml	国药准字H20000600

【自动注射器/泵使用的特别注意事项】
500ml瓶装的对比剂仅适用于批准用于此体积的自动注射器/泵。应遵循单个的穿刺程序。连接自动注射器/泵到病人的导管应在每次使用后掉换。并在检查的当天丢弃未用完的对比剂和使用过的导管。当方便时，可使用小瓶装的对比剂。应按照自动注射器/泵生产厂家的指导进行操作。

【上市许可持有人】
名称：　通用电气药业（上海）有限公司
注册地址：中国（上海）自由贸易试验区牛顿路1号
邮政编码：201203 联系方式：+86 21 38954500 传真：+86 21 38954502

【生产企业】
企业名称：通用电气药业（上海）有限公司
生产地址：中国（上海）自由贸易试验区牛顿路1号
邮政编码：201203　联系方式：+86 21 38954500　传真：+86 21 38954502

1201660 CHN

1201660

Approved date:
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Mar.8,2016
Mar.16,2017
Aug.24,2020
Dec.18,2020
Apr.21, 2022

GE Healthcare

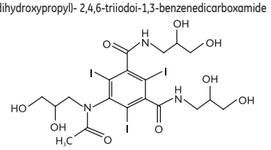
IOHEXOL INJECTION

OMNIPAQUE®

Insert Sheet of Iohexol Injection

Please read the insert carefully and use under instruction by doctor

【Drug Name】
Generic Name: Iohexol Injection
Brand Name: Omnipaque®
Chinese Phonetic Alphabet: Dianhaichun Zhusheye
The main ingredient of this drug is Iohexol and its chemical name is:
5-[N-(2,3-dihydroxypropyl)-acetamido]-N,N'-Bis(2,3-dihydroxypropyl)- 2,4,6-triiodoi-1,3-benzenedicarboxamide
Structure:



Molecular Formula: $C_{19}H_{26}I_3N_3O_9$
Molecular Weight: 821.14

Excipients: Trometamol, Sodium Calcium Edetate, Hydrochloric Acid to adjust pH, Water for injection.
【Properties】 The product is provided as a colourless to light-yellow clear aqueous solution.

【Indication】
X-ray contrast medium for use in cardioangiography, arteriography, urography, phlebography and CT-enhancement. Lumber, thoracic, cervical myelography and computed tomography of the basal cisterns following subarachnoid injection. Arthrography, endoscopic retrograde cholangiopancreatography (ERCP), herniography, hysterosalpingography, sialography, percutaneous transhepatic cholangiography (PTC), studies of the gastrointestinal tract and T-tube cholangiography, etc.

【Presentation】
10ml:3g(I) 20ml:6g(I) 50ml:15g(I) 75ml:22.5g(I) 100ml:30g(I) 20ml:7g(I) 50ml:17.5g(I) 75ml:26.25g(I) 100ml:35g(I) 200ml:70g(I)

【Dosage and Administration】
The dosage varies depending on the type of examination, age, weight, cardiac output and general condition of the patient and the technique used. Usually the similar iodine concentration and volume is used as with other iodinated contrast media in current use. Adequate hydration should be assured before and after administration as for other contrast media. The following dosage may serve as a guide.

1. Guidelines for Intravenous use

Indication	Concentration	Volume	Comments
Urography adults: children < 7 kg children > 7 kg	300mg I/ml or 350mg I/ml 300mg I/ml 300mg I/ml	40 - 80ml 40 - 80ml 3ml/kg b.w. 2ml/kg b.w. (max 40ml)	80ml may be exceeded in selected cases
Phlebography (leg)	300mg I/ml	20 - 100ml/leg	
Digital subtraction angiography	300mg I/ml or 350mg I/ml	20 - 60ml/inj. 20 - 60ml/inj.	
CT-enhancement adults: Children:	300mg I/ml or 350mg I/ml 300mg I/ml	100 - 200ml 100 - 150ml 1.5-2ml/kg b.w.	Total amount of iodine usually 30 - 60g

2. Guidelines for Intra-arterial Use

Indication	Concentration	Volume	Comments
Arteriographies arch aortography selective cerebral aortography femoral various	300mg I/ml 300mg I/ml 350mg I/ml 300mg I/ml or 350mg I/ml 300mg I/ml	30 - 40ml/inj. 5 - 10ml/inj. 40 - 60ml/inj. 30 - 50ml/inj. depending on type of examination	Volume per injection depends on the site of injection
Cardioangiography adults: left ventricle and aortic root inj. selective coronary arteriography children:	 350mg I/ml 350mg I/ml 300mg I/ml or 350mg I/ml	 30 - 60ml/inj. 4 - 8ml/inj. depending on age, weight and pathology (max 8ml/kg b.w.)	
Digital subtraction angiography	300mg I/ml	1 - 15ml/inj.	Depending on site of inj. occasionally large volumes - up to 30ml - may be used

3. Guidelines for Intrathecal use

Indication	Concentration	Volume	Comments
Myelography	300mg I/ml	7 - 10ml	Total dose of 3g iodine should not be exceeded in order to minimize the possible adverse reactions.

4. Guidelines for Body Cavities

Indication	Concentration	Volume	Comments
Arthrography	300mg I/ml or 350mg I/ml	5 - 15ml or 5 - 10ml	
Hysterosalpingography	300mg I/ml	15 - 25ml	
Sialography	300mg I/ml	0.5 - 2ml	
Gastrointestinal studies Oral use adults: children:		 Individual Individual	 Can be diluted Max. dose 50ml
CT- enhancement Oral use adults: children: Rectal use children:	 Dilute with water to ~6mgI/ml Dilute with water to ~6mgI/ml Dilute with water to ~6mgI/ml	 800-2000ml of the diluted solution over a period of time 15-20ml/kg b.w. of the diluted solution over a period of time. individual	 For example, dilute 300 or 350mg I/ml Omnipaque with water to 1:50

【Adverse Reaction】
General (applies to all uses of iodinated contrast media):
Below are listed possible general side effects in relation with radiographic procedures, which include the use of non-ionic monomeric contrast media. For side effects specific to mode of administration, please refer to these specific sections.
Undesirable effects associated with the use of iodinated contrast media are usually mild to moderate and transient in nature and less frequent with non-ionic than with ionic contrast media. Serious reactions as well as fatalities are only seen on very rare occasions.
The most frequent adverse event is a **mild, general sensation** such as a feeling of warmth or a transient metallic taste. Abdominal discomfort/pain and gastrointestinal reactions like nausea, vomiting and diarrhoea may occur.
Hypersensitivity reactions are rare and usually present as mild respiratory or cutaneous symptoms like dyspnoe, rash, erythema, urticaria, pruritus and angioedema. They may appear either immediately after the injection or up to a few days later. Severe manifestations such as laryngeal oedema, bronchospasm or pulmonary oedema are very rare. Severe and even toxic skin reactions have been reported.
Anaphylactoid reactions may occur irrespectively of the dose and mode of administration and mild symptoms of hypersensitivity may represent the first signs of a serious reaction. Administration of the contrast medium must be discontinued immediately and, if necessary, specific therapy instituted via the vascular access. Patients using **beta-blockers** may present with atypical symptoms of anaphylaxis, which may be misinterpreted as a vagal reaction.
Vagal reactions giving hypotension and bradycardia are seen on very rare occasions. **Headache** or **fever** may occur. Episodes of **hypertension** may also occur. **Pyrexia** with rigors is seen on rare occasions. **Iodism** or **"iodide mumps"** is a very rare complication of iodinated contrast media resulting in swelling and tenderness of the salivary glands for up to approximately 10 days after the examination.
The following adverse reactions (incidence rate not unknown) have been observed in post-marketing surveillance:
Immune system: Anaphylactic shock, serious anaphylactoid reactions, hypersensitivity reactions (may be life-threatening or fatal).

Intravascular use (Intraarterial and Intravenous use):
Please first read the section labelled "General". Below, only undesirable events with frequency during intra-vascular use of non-ionic monomeric contrast media are described.
The nature of the undesirable effects specifically seen during intraarterial use depends on the site of injection and dose given. Selective arteriographies and other procedures in which the contrast medium reaches a particular organ in high concentrations may be accompanied by complications in that particular organ. Distal **pain or heat sensation** in peripheral angiography is common (incidence>1:10). A transient increase in S-creatinine is common after iodinated contrast media, but usually of no clinical relevance. Renal failure is very rare. However, renal failure may occur in high risk patients and amongst such patients fatalities have been reported. **Arterial spasm** may follow injection into coronary, cerebral or renal arteries and result in transient ischaemia. **Neurological reactions** are very rare. They may include seizures or transient motor or sensory disturbances. On very rare occasions the contrast medium may cross the blood-brain barrier resulting in uptake of contrast medium in the cerebral cortex being visible on CT-scanning until the day following examination, sometimes associated with transient confusion or cortical blindness. Serious **cardiac complications,** including cardiac arrest, arrhythmia, depression or signs of ischaemia, are very rare. Post phlebographic thrombophlebitis or thrombosis is very rare. A very few cases of **arthralgia** have been reported. Severe **respiratory symptoms** and signs (including dyspnoea, bronchospasm, laryngospasm, non-cardiogenic pulmonary oedema) and cough may occur. **Thyrotoxicosis** may occur. **Flushing** may occur. **Injection site reactions** may occur.

Intrathecal use:
Please first read the section labelled "General". Below, only undesirable events with frequency during intrathecal use of non-ionic monomeric contrast media are described.
Undesirable effects following intrathecal use may be delayed and present some hours or even days after the procedure. The frequency is similar to lumbar puncture alone. **Headache, nausea, vomiting** or **dizziness** are common and may largely be attributed or pressure loss in the subarachnoid space resulting from leakage at the puncture site. Some of these patients may experience a severe headache lasting for several days. Excessive removal of cerebrospinal fluid should be avoided in order to minimize pressure loss. Mild local **pain, paraesthesia** and **radicular pain** occasionally (incidence<1:10, but>1:100) occur at the site of injection. **Cramping and pain** in the lower limbs are seen on very rare occasions. **Meningeal irritation** giving photophobia and meningism happens occasionally. Frank chemical meningitis appears on very rare occasions. The possibility of infective meningitis should also be considered. On very rare occasions, manifestations of **transient cerebral dysfunction** are seen. These include seizures, transient confusion or transient motor or sensory dysfunction. Changes in the EEG may be noted in a few of these patients. **Transient blindness** may occur. **Neck pain** may occur. **Injection site reactions** may occur.

Use in Body Cavities:
Please first read the section labelled "General". Below, only undesirable events with frequency during use of non-ionic monomeric contrast media in body cavities are described.
Systemic hypersensitivity reactions are rare. **Endoscopic Retrograde Cholangiopancreatography (ERCP):** Some elevation of amylase levels is common. Post ERCP renal opacification is seen on rare occasions and is associated with an increased risk of post ERCP **pancreatitis.** Rare cases of necrotizing pancreatitis have also been described. **Oral use:** Gastrointestinal upset occasionally occurs. **Hysterosalpingography (HSG):** Transient **pain** in the lower abdomen is common. **Arthrography:** Post procedural **pain** is common. Frank arthritis is rare. The possibility of infective arthritis should be considered in such cases. **Herniography:** Mild post procedural pain is common.

【Contraindications】
Manifest thyrotoxicosis. History of serious reaction to Omnipaque.

【Precautions】
Special precautions for use of non-ionic monomeric contrast media in general:
1. A positive history of **allergy, asthma**, or untoward **reactions** to iodinated contrast media indicates a need for special caution. Premedication with corticosteroids or histamine H_1 and H_2 antagonists might be considered in these cases.

2. The risk of serious reactions in connection with use of Omnipaque is regarded as minor. However, iodinated contrast media may provoke **anaphylactoid** reactions or other manifestations of **hypersensitivity.** A course of action should therefore be planned in advance, with necessary drugs and equipment available for immediate treatment, should a serious reaction occur.

3. Because the predict value of iodinate hypersensitivity pretest before administration of non-ionic contrast medium is very low and the pretest itself may cause severe hypersensitivity reaction, it is not suggested to use pretest to predict the iodinate hypersensitivity reaction.

4. It is advisable always to keep a smooth intravenous access throughout the entire X-ray procedure.

5. Non-ionic contrast media have less effect on the coagulation system *in vitro*, compared to ionic contrast media. When performing vascular catheterization procedures one should pay meticulous attention to the angiographic technique and flush the catheter frequently (e.g.: with heparinized saline) so as to minimize the risk of *procedure-related* thrombosis and embolism.

6. Adequate **hydration** should be assured before and after contrast media administration. This applies especially to patients with multiple myeloma, diabetes mellitus, renal dysfunction, as well as to infants, small children and elderly patients. Young **infants** (age<1 year) and especially **neonates** are susceptible to electrolyte disturbance and haemodynamic alterations. Care should also be taken in patients with **serious cardiac disease** and **pulmonary hypertension** as they may develop haemohynamic changes or arrhythmias.

7. Patients with **acute cerebral pathology,** tumours or a history of **epilepsy** are predisposed for seizures and merit particular care. Also **alcoholics** and **drug addicts** have an increased risk for seizures and neurological reactions. A few patients have experienced a temporary **hearing loss** or even deafness after myelography, which is believed to be due to a drop in spinal fluid pressure by the lumbar puncture per se.

8. To prevent acute renal failure following contrast media administration, special care should be exercised in patients with preexisting **renal impairment** and **diabetes mellitus** as they are at risk. Patients with **paraproteinemias** (myelomatosis and Waldenström's macroglobulinemia) are also at risk.

9. Preventive measures include:
- Identification of high risk patients
- Ensuring adequate hydration. If necessary by maintaining an i.v. infusion from before the procedure until the contrast medium has been cleared by the kidneys.
- Avoiding additional strain on the kidneys in the form of nephrotoxic drugs, oral cholecystographic agents, arterial clamping, renal arterial angioplasty, or major surgery, until the contrast medium has been cleared.
- Postponing a repeat contrast medium examination until renal function returns to pre-examination levels.

To prevent lactic acidosis, serum creatinine level should be measured in diabetic patients treated with **metformin** prior to intravascular administration of iodinate contrast medium. Normal serum creatinine/renal function: Administration of metformin should be stopped at the time of administration of contrast medium and not resumed for 48 hours or until renal function/serum creatinine is normal. Abnormal serum creatinine/renal function: Metformin should be stopped and the contrast medium examination delayed for 48 hours. Metformin should only be restarted if renal function/serum creatinine is unchanged. In emergency cases where renal function is abnormal or unknown, the physician should evaluate the risk/benefit of the contrast medium examination, and precautions should be implemented: Metformin should be stopped, patient hydrated, renal function monitored and patient observed for symptoms of lactic acidosis.
A potential risk of transient hepatic dysfunction exists. Particular care is required in patients with severe disturbance of both renal and hepatic function as they may have significantly delayed contrast medium clearance. Patients on **haemodialysis** may receive contrast media examination. Correlation of the time of contrast media injection with the haemodialysis session is unnecessary because there is no evidence that haemodialysis protects patients with impaired renal function from contrast medium induced nephropathy.
The administration of iodinated contrast media may aggravate the symptoms of **myasthenia gravis.** In patients with **phaeochromocytoma** undergoing interventional procedures, alpha blockers should be given as prophylaxis to avoid a hypertensive crisis. Special care should be exercised in patients with **hyperthyroidism.** Patients with multinodular **goiter** may be at risk of developing hyperthyroidism following injection of iodinated contrast media. One should also be aware of the possibility of inducing transient hypothyroidism in premature infants receiving contrast media.
Extravasation of contrast media may on rare occasions give rise to local pain, and oedema, which usually recedes without sequelae. However, inflammation and even tissue necrosis have been seen. Elevating and cooling the affected site is recommended as routine measure. Surgical decompression may be necessary in cases of compartment syndrome.

10. Observation-time:
After contrast medium administration the patient should be observed for at least 30 minutes, since the majority of serious side effects occurs within this time. However, delayed reactions may occur.

11. Intrathecal use:
Following **myelography** the patient should rest with the head and thorax elevated by 20° for one hour. Thereafter he/she may ambulate carefully but bending down must be avoided. The head and thorax should be kept elevated for the first 6 hours if remaining in bed. Patients suspected of having a low seizure threshold should be observed during this period. Outpatients should not be completely alone for the first 24 hours.

12. Effects on ability of drive and use machines: It is not advisable to drive a car or use machines during the first 24 hours following **intrathecal examination.**

13. Like all parenteral products, Omnipaque should be inspected visually for particulate contamination, discolouration and the integrity of the container prior to use. The product should be drawn into the syringe immediately before use. Vials are intended for single use only, any unused portions must be discarded.

14. This product may cause life-threatening or fatal hypersensitivity reactions, including allergic reaction, usually manifested as dyspnoea, laryngospasm, respiratory arrest, bronchospasm, angioedema or shock. Most severe reactions occur shortly after the start of the injection, but may also occur hours later. Patients with a history of previous allergic reactions to iodinated contrast media, known allergies (e.g. allergic asthma, drug or food allergies), or other allergies are at increased risk of hypersensitivity reactions. Applying antihistamines or corticosteroids prior to using this product cannot prevent serious life-threatening reactions, but may reduce their incidence and severity.

Patients should be questioned about the history of allergic reactions to iodine-containing contrast media and other history of allergies prior to the use of this medicinal product.

【Drugs for use by Women and Pregnancy or Lactation Period】
The safety of Omnipaque for use in human pregnancy has not been established. An evaluation of experimental animal studies does not indicate direct or indirect harmful effects with respect to reproduction, development of the embryo or fetus, the course of gestation and peri- and postnatal development. Since whenever possible, radiation exposure should be avoided during pregnancy, the benefits of an X-ray examination with or without contrast media, should be carefully weighted against the possible risk. Omnipaque should not be used in pregnancy unless the benefit outweighs the risk and it is considered essential by the physician.
Contrast media are poorly excreted in human breast milk and minimal amounts are absorbed by the intestine. Harm to the nursing infant is therefore unlikely.

【Drugs for Children Use】
see Section [Dosage and Administration]

【Drugs for Elderly Patients】
Adequate hydration should be assured for elderly patients before and after contrast media administration

【Interactions】
1. Use of iodinated contrast media may result in a transient impairment of renal function and this may precipitate lactic acidosis in diabetics who are taking **metformine** (see section**[Precautions]**).
2. Patients treated with **interleukin-2** less than two weeks previously have been associated with an increased risk for delayed reactions (flu-like symptoms or skin reactions).
3. All iodinated contrast media may interfere with tests on thyroid function, thus the iodine binding capacity of the thyroid may be reduced for up to several weeks.
4. High concentrations of contrast media in serum and urine can interfere with **laboratory tests** for bilirubin, proteins or inorganic substances (e.g. iron, copper, calcium and phosphate). These substances should therefore not be assayed on the day of examination.
5. Although no incompatibility has been found, Iohexol should not be directly mixed with other drugs. A separate syringe should be used.

【Overdose】
Preclinical data indicate a high safety margin for Omnipaque and no fixed upper dose level has been established for routine intravascular use. Symptomatic overdosing is unlikely in patients with normal renal function unless the patient has received an excess of 2000 mg I/kg body-weight over a limited period of time. The duration of the procedure is important for the renal tolerability of high doses of contrast media ($t_{1/2}$~2 hours). Accidental overdosing is most likely following complex angiographic procedures in children, particularly when multiple injections of contrast medium with high-concentration are given. In case of overdose, any resulting water- or electrolyte imbalance must be corrected. Renal function should be monitored for the next 3 days. If needed, haemodialysis may be used for clearance of excessive contrast medium. There is no specific antidote.

【Pharmacological and Toxicological Properties】
Animal studies show that the product provides contrast enhancement effects of the liver, aorta abdominalis and CT-enhancement in dogs. According to reference, the product has low toxicity compared with non-ionic contrast medium such as Metrizamide. Excretion studies by intravenous injection in rats, rabbits and dogs have shown that Iohexol is mainly excreted in the urine but also to a minor extent in the faeces (rats: 5%, dogs: 1%). No specific organ enrichment of Iohexol has been found, and no metabolites have been detected. The protein binding is less than 2%. Proteinuria induced by renal arteriography in dogs can be detected.

【Pharmacokinetic Properties】
It is reported that close to 100 per cent of the intravenously injected Iohexol is excreted unchanged in the urine within 24 hours. The maximum urinary concentration of Iohexol appears within approximately 1 hour after injection. No metabolites have been detected.

【Package & Approval Number】

Presentations		Package			Approval Number
300mgI/ml×10ml	Glass	1 vials/box	10 vials/box		国药准字X20000591
300mgI/ml×20ml	Glass	1 vials/box	6 vials/box	10 vials/box	国药准字X20000592
300mgI/ml×50ml	Glass/USB	1 bottles/box	10 bottles/box		国药准字X20000593
300mgI/ml×75ml	Glass/USB	1 bottles/box	10 bottles/box		国药准字X20000594
300mgI/ml×100ml	Glass/USB	1 bottles/box	10 bottles/box		国药准字X20000595
350mgI/ml×20ml	Glass	1 vials/box	6 vials/box	10 vials/box	国药准字X20000596
350mgI/ml×50ml	Glass/USB	1 bottles/box	10 bottles/box		国药准字X20000597
350mgI/ml×75ml	Glass/USB	1 bottles/box	10 bottles/box		国药准字X20000598
350mgI/ml×100ml	Glass/USB	1 bottles/box	10 bottles/box		国药准字X20000599
350mgI/ml×200ml	Glass	1 bottles/box	6 bottles/box		国药准字X20000600
350mgI/ml×200ml	USB	1 bottles/box	10 bottles/box		国药准字X20000600

【Shelf life】
36 months

【Storage】
Protected from light and well closed.

【Specification】
Specification number: Chinese Pharmacopoeia 2020
Drug Registration Specification: YBH00982017

【Special precaution for usage of auto injection/pumps】
The 500ml contrast medium bottles should only be used in connection with auto injectors/pumps approved for this volume. A single piecing procedure should be used. The line running from the auto injector/pump to the patient must be exchanged after each patient. Any unused portions of the contrast medium remaining in the bottle and all connecting tubes must be discarded at the end of the day. When convenient, smaller bottles can also be used. Instruction from the manufacturer of the auto injector/pump must be followed.

【Marketing Authorization Holder】
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No.1 Niudun Road, China (Shanghai) Pilot Free Trade Zone
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Telephone: + 86 21 38954500
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