

Experiences with iohexol (Omnipaque) at urography

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Abstract. In a prospective study of 547 pediatric intravenous pyelographies with a new non-ionic contrast medium (iohexol), only 5 (0.9%) minor reactions were observed. The higher price seems justified, and iohexol is strongly recommended in neonates as well as older children.

Ionic contrast media traditionally gives a certain number of side-effects when given i.v. and even deaths have been reported [1, 2]. Non-ionic contrast media have lead to a decrease in these figures [3, 4]. Few reports have been given [5, 6] as to the use of non-ionic contrast media in intravenous pyelography (IVP) in children.

We present our experiences based on 547 examinations using non-ionic medium, iohexol.

Material and methods

Five hundred and seventy-four consecutive i.v. pyelographies in children were evaluated prospectively from September 1982 until April 1985 as to the frequency of possible side-effects. The age and sex distributions are shown in Figure 1.

As the only preparation in neonates, the feeding was stopped 3-4 h prior to examination. In most of the elder children, preparation was this: no solid food from the previous evening, 1 or 2 enemas and no liquid intake from the morning of the examination. This was to avoid aspiration due to contrast-induced nausea and vomiting. No anti-allergic prophylactic drugs were given. Twenty millilitres of iohexol (Omnipaque R Nyco) 240 mg I/ml at room temperature was given i.v. with an injection time of less than 2 min. Ureteral compression was carried out on all patients except those recently operated. One film was taken prior to injection. Films were taken at 1, 5, 8, and 10 min after the injection - the last after removal of the compression. In newly operated patients, usually only one 10-min film was exposed.

Most patients were observed for 1 h after injection.

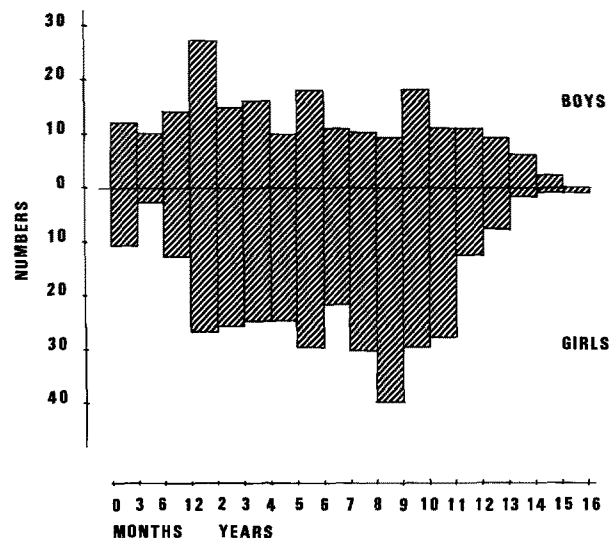


Fig. 1. Age and sex distribution

Results

In 547 examinations we observed the five following reactions (0.9%): a mild periorbital and facial oedema in a girl 3 days of age; one 2-year-old girl developed minor urticaria and started sneezing; one 4-year-old girl got urticaria on her neck, shoulder and back; and one 13-year-old girl with known allergy started sneezing. These four reactions came immediately after injection. Widespread urticaria developed 20 min after injection in a boy of 3 years. No treatment was necessary. No other side-effects were observed, and no deaths occurred.

We experienced no complaints of heat, nausea or discomfort whatsoever. Even when the contrast medium extravasated, there were no complaints or sign of discomfort.

The urographic opacification was generally good to excellent. None of the examinations were considered non-diagnostic.

Discussion

The overall incidence of adverse reactions in uro- and angiographic procedure with ionic media is stated to be 5–10% [1, 2]. The mortality at IVP is reported to be 1 in 14000 [1]. The reports concerning children are few. Stake et al. [8] reported a low frequency of adverse reaction with metrizamide.

A non-ionic contrast medium (metrizamide) has been used with a good experience for some years, and also in urography [1, 5–7], but having to make up the solution just before the examination is a disadvantage.

The toxicological and pharmacological clinical properties of iohexol seem to be the same as of metrizamide [9]. The report of Schrott et al. on nearly 25000 adult IVPs seems to support this [3]. The price of iohexol is approximately 6 times higher than ordinary ionic contrast agents, but only one third of the price of metrizamide.

Our results seem to support the positive experience of other authors [4, 5, 8, 10]. However, our material is to our knowledge the largest. We feel that the disappearance of the former problems of heat sensation, nausea and vomiting represent an important improvement. We intend gradually to reduce the fluid intake restrictions.

Conclusion

We experienced minor side-effects in 5 out of 547 IVPs (0.9%) in children.

No nausea nor heat sensations nor any reactions or complaints after extravasation and no examination had to be disrupted.

The higher price of iohexol in this connection is, in our view, justified and we strongly recommend its use in pediatric urograms.

References

1. Edwards D (1980) The urinary tract: methods of examination. In: Sutton P (ed) A textbook of radiology and imaging, 3rd edn. Churchill Livingstone, Edinburgh London Melbourne New York, p 826
2. Breitweiser P (1984) Nebenwirkungsärmere Röntgenkontrastmittel. *Urologe (B)* 24: 138
3. Schrott KM, Behrends B, Claub W, Kaufmann J, Somasundaram K (1985) Drug monitoring für 50 bzw. 100 ml Omnipaque R-300 in der Ausscheidungsurographie. *Urologe (B)* 25: 24
4. Shehadi WH, Tohioli G (1980) Adverse reactions to contrast media. A report from the Committee on Safety of Contrast Media of the International Society of Radiology. *Radiology* 137: 299
5. Bolz KD, Skalpe IO, Gutteberg TJ (1984) Iohexol and metrizoate in urography in children. Comparison between a non-ionic and a ionic contrast medium. *Acta Radiol [Diagn]* 25: 155
6. Brun B, Egeblad M (1979) Metrizamide in pediatric urography. *Ann Radiol* 22: 198
7. Siegle RL, Davies P, Fullerton GD (1982) Urography with metrizamide in children. *AJR* 139: 927
8. Stake G, Smevik B (1983) Iohexol and metrizamide for urography in infants and children. *Acta Radiol [Suppl]* 366: 39
9. Lindgren E (1980) Iohexol. A non-ionic contrast medium. Pharmacology and toxicology. *Acta Radiol, Suppl* No 362
10. Herreweghe W van (1980) Urography and micturition cystourethrography in pediatric age group. *J Belge Radiol - Belgisch Tijdschr Radiol* 63: 49
11. Jorulf H (1983) Iohexol compared with diatrizoate in pediatric urography. *Acta Radiol [Suppl]* 366: 42
12. Meradji M, Ben Gershome E (1984) Excretory urography with four different contrast media: radiological and biochemical trials in 294 young infants. *Ann Radiol* 27: 199

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