

# Two Pyelography Contrast Agents Compared

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**T**HE IDEAL CONTRAST MEDIUM for intravenous pyelography would be nontoxic, would have low viscosity for ease of injection, and would provide excellent visualization of the kidneys and ureters. The perfect medium has not been found, and probably never will be; we must simply keep looking for new ones which are an improvement over those previously available.

Preliminary reports on the use of Conray-400 for intravenous pyelography (in addition to its use for angiocardiology and aortography) indicated that it might be somewhat superior to other commonly-used iodine compounds.<sup>1, 2</sup> We therefore made a study of Conray-400 in comparison with Renografin-60.

## Method Used

Beginning on November 17, 1964, using Conray-400, we examined one hundred consecutive patients, performing intravenous pyelography on inpatients and on outpatients of both sexes and of all ages (57 males and 43 females, aged two to ninety-two). Except for emergency cases examined for possible ureteral calculi, patients were prepared by ingesting an ounce of castor oil on the afternoon preceding the day of examination, and by having a light supper, followed by restriction of food and liquids after 9:00 P.M. that evening.

In injecting the contrast media, we used 20-gauge disposable needles, except in some infant cases, where 22-gauge needles were used. Most of the adults were given 25 ml. doses, with children and infants receiving proportionately smaller doses. Eight patients were given appreciably larger doses (usually 50 ml.), in a rather rapid injection, and films were made

at 1-, 2-, and 3-minute intervals, for evaluation of possible renal etiology of hypertension.

Patients were questioned as to possible allergies, and each of those from whom suspicious histories were obtained, was given a small test dose of 0.1-0.2 ml. which, after a wait of several minutes, was followed by the full injection. Usually this was administered rather rapidly, taking less than one minute. Films were then made (with the patient supine), at the 5- and 10-minute intervals, followed by prone and upright films at 15 minutes and additional studies as indicated after preliminary films had been viewed.

After completing the one hundred studies using Conray-400, we injected the next one hundred consecutive patients with Renografin-60, starting December 29, 1964. Again, inpatients and outpatients of both sexes and all ages were examined, this time 55 males and 45 females, ages two to ninety-one. The same patient-preparation regimen was used. The customary dosage in adult patients was 30 cc., but four patients had larger doses, for hypertensive study. The average injection time was a little longer, averaging about 2 minutes.

## Results

The two series were compared as to the quality of the pyelograms and the number of side effects. In order to keep the evaluations of the quality of visualizations as standard as possible, either one of only two doctors took part in each rating—Dr. Cooper or Dr. Koch. As far as possible, the ratings were based on the intensity of radiopacity, independent of the quality of patient preparation. In other words, if there was good contrast of the intrarenal structures and the ureters, the pyelogram was rated excellent or good, despite poor preparation. Study results are as follows:

\* The authors are associated with the Department of Radiology, Lancaster General Hospital.

	Conray-400	Renografin-60
Excellent	62	31
Good	29	45
Fair	9	20
Poor	0	3
None	0	1*

\* This patient developed a severe asthmatic attack after a few cc. had been injected, and emergency measures had to be taken in the patient's behalf.

In recording side effects, we did not keep a record of sensation of warmth (flushing) nor of minor arm pain, but there was very little complaint from patients as to either reaction. Other side effects were:

	Conray-400	Renografin-60
Nausea and vomiting	1**	4
Nausea	4	3
Urticaria	1	0
Asthmatic attack	0	1†

\*\* Since the patient had been ill all night, requiring morphine for relief, we question the validity of this observation.

† Severe attack requiring emergency procedures.

In addition to the results listed, there was a subjective observation, by those who injected the material, to the effect that the lower viscosity Conray-400 made injection of the medium appreciably easier, especially in children and infants with small veins, for whom a 22-gauge

needle was used. Furthermore, despite the lower incidence of side effects, the injections of Conray-400 were made in half the average time required when Renografin-60 was used.

### Conclusion

The higher iodine content of Conray-400 (40 percent) compared with Renografin (29 percent) resulted in twice as many "excellent" visualizations with the former as were obtained with the latter. The number of side effects was appreciably less with Conray-400, and there were no serious or severe reactions. Finally, this medium's lower viscosity greatly facilitated ease of injection. On the basis of this study, we consider Conray-400 a very satisfactory medium for excretory pyelography, and probably superior to Renografin-60.

### REFERENCES

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## Amphetamine and Barbiturate Tablets

STIFF NEW federal controls, approved by Congress, on the manufacture and sale of amphetamine and barbiturate tablets, do not include physicians under the record-keeping and inspection provisions, with respect to drugs received and used in the course of their practice.

A practitioner must comply with these provisions only if he regularly engages in dispensing, to his patients, the drug for which they are charged—either separately, or together with charges for other professional services.

It was reported that the legislation was intended "to require record-keeping, and to permit inspection, in the case of those physicians who maintain a supply of pharmaceuticals or medicinals in their offices from which they compound prescriptions for their patients for a fee."

THE NEW LAW also provides that a prescription for a depressant or stimulant drug cannot be filled or refilled more than six months after its date

of issue, nor can such a prescription be refilled more than five times.

A physician can renew the prescription, however, either in writing or orally, if it is promptly put into writing and filed, by the pharmacist filling it.

## The Human Atrioventricular Function

THE INTRICATE structural relations of this crucial region of the cardiac conduction system were studied in twenty human hearts by the combined usage of microdissection, histologic examination of serial sections, and wax model reconstructions. Variations in muscle fiber size, as well as the multiple pathways into and through the A.V. node have been visualized by microscopic and model illustrations. Four juncture zones were noted in the fiber pathways to the A.V. node. Such junctures probably play important physiologic roles in both normal and abnormal cardiac conduction.—RAYMOND C. TRUEx, Ph.D, Fourteenth Hahnemann Symposium.