TABLE 1. TISSUE CONFIRMED HYPERPLASIA

Patient No.	Adrenal scan	Plasma aldosterone (ng/dl) Recumbent	Upright	Selective adrenal venous sampling: aldosterone (ng/dl)/cortisol (μg%)	Bilateral adrenal venography
11 L. adrenalectomy	Left unilateral	—	—	—	—
12 R. adrenalectomy	Both	51.9	34	R. 4821/89 L. 125/5.8	R. normal L. normal
15 R. adrenalectomy	Both	47.6 49	13.9 128	R. 669/27.8 L. 143/28.2	R. normal L. normal
16 L. adrenalectomy	Both	45	53.2	R. failed L. 2248/68	R. failed L. Normal
18 L. adrenalectomy	Both	38.1	42.4	R. failed L. 780/34	R. failed L. 1 cm tumor

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Effectiveness of Photochromic and Glass Lenses for Radiation Protection in Nuclear Medicine

It has been recently reported that photochromic lenses provide radiation protection to the eye by decreasing the transmission of x-rays in the diagnostic energy range (*1*). While this report can be interpreted as significant for radiology practitioners, one might be tempted to extrapolate to the nuclear medicine community a similar protective value of these lenses. The primary radionuclide used in nuclear medicine today is Tc-99m with a principle photon of 140 keV, which is considerably greater than those energies used to establish effectiveness of these lenses in radiology.

We have measured the attenuation of Tc-99m photons by two types of photochromic lenses (Photosun®, Photogray®)* and also nonphotochromic white crown optical glass. In our experiment, No. 4 Gelatin capsules containing lithium fluoride TLD-100 were placed directly behind the lenses, at a point 30 cm from a Tc-99m source. Two additional capsules, without lenses, were similarly placed. Normal pre- and postannealing procedures for lithium floride were followed. The results obtained in our experiment (Table 1) indicate minimal effect by photochromic and normal glass lenses upon the transmission of Tc-99m photons.

TABLE 1. PERCENTAGE OF TRANSMISSION OF Tc-99m PHOTONS BY PHOTOCHROMIC AND A NORMAL OPTICAL LENS

Lens*	% transmission
Photosun	84%
Photogray	86%
Crown White	93%

* Plano lenses 2.0 mm in thickness.

The measured transmission of Tc-99m photons with normal crown white glass agrees with the calculated value for transmission (93%), assuming an attenuation coefficient for crown glass of 0.144 cm^2/gm and a density of 2.5 gm/cm^3. In addition, the observed transmissions of Tc-99m photons through photochromic lenses are consistent with the calculated values assuming an effective atomic number of 31, as previously reported (*1*). From these results, it can be concluded that the effectiveness of these lenses for eye protection in nuclear medicine is negligible.

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FOOTNOTE

* Corning Optical Products, Corning, N.Y.

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Differential Renal Function Using Technetium-99m Dimercapto-Succinic Acid (DMSA); In-Vivo Correlation

Using dogs with induced unilateral kidney dysfunction, Daly et al. (*1*) have demonstrated an excellent correlation between separate kidney function and relative accumulation of Tc-99m DMSA. They conclude that in-vivo studies in humans will be necessary to judge the merits of Tc-99m DMSA accumulation as a tool for separate relative kidney function determination in clinical practice. This prompts us to present some of our preliminary data on this topic.

We have compared the relative uptake of Tc-99m DMSA in each kidney with the I-123 hippurate accumulation in the corresponding kidney region in the same patient. Renography can provide information of the relative function of each kidney by computer integration of the counts of the accumulation phase over each kidney after appropriate background subtraction (*2*). We performed scintigraphy of the kidneys 2 hr after intravenous injection of 1-2 mCi Tc-99m DMSA in six patients with various disorders of the kidneys and the upper urinary tract (see table