# ${ m jnm}/{ m LETTERS}$ to the editor

## BREAST SCINTIGRAPHY WITH 99mTc-PERTECHNETATE AND 67Ga-CITRATE

We would like to draw the attention of Drs. Richman, Brodey, Frankel, et al (1) to our work. Over a 5-year period we also assessed the suitability of <sup>67</sup>Ga in the detection of breast cancer (2-4). Such imaging properties can only be determined from biokinetic studies. We therefore started detailed investigations in rats (5.6). To complement the authors' work we repeat our results below (5). Gallium-67 undergoes significant transfer to suckling neonates through mother's milk. Similar accumulation of 67Ga was observed in clinical investigations which showed that 67Ga uptake occurred even in nonlactating women and (what we consider to be of decisive importance) in different amounts in each breast. Thus, even 67Ga concentration in one breast does not present any conclusive evidence for diagnosing breast cancer. We therefore conclude that 67Ga, although undoubtedly valuable in several well-established clinical situations, is not useful in the detection of breast cancer.

G. HÖR

P. HEIDENREICH

H. KRIEGEL

H. LANGHAMMER

Technische Universität München Munich, West Germany

## REFERENCES

- 1. RICHMAN SD, BRODEY PA, FRANKEL RS, et al: Breast scintigraphy with <sup>60m</sup>Tc-pertechnetate and <sup>67</sup>Ga-citrate. J Nucl Med 16: 293–299, 1975
- 2. Langhammer H, Glaubitt G, Grebe SF, et al: "Ga for tumor scanning. J Nucl Med 13: 25-30, 1972
- 3. Langhammer H, Hör G, Heidenreich P, et al: Recent advances in tumor scintigraphy using <sup>67</sup>Ga. In *Medical Radioisotope Scintigraphy*, 1972, vol 2, Vienna, IAEA, 1973, pp 607–614
- 4. HÖR G, KEMPKEN K, KRIEGEL H, et al: Munich report on <sup>67</sup>Ga: A review of our experiences in nuclear biology, experimental and clinical nuclear medicine after four years' use. In *Proceedings of the First World Congress of Nuclear Medicine*, Tokyo, Sept 30-Oct 10, 1974, World Federation of Nuclear Medicine and Biology, pp 332-334
- 5. HÖR G, KRIEGEL H, HEIDENREICH P, et al: Untersuchungen zum biologischen Verhalten von Radio-Technetium, Radio-Indium und Radio-Gallium während der Laktation. Int J Appl Radiat Isot 24: 525-529, 1973
  - 6. HEIDENREICH P, KRIEGEL H, HÖR G: Biologische Un-

tersuchungen zur Verteilung von <sup>en</sup>Ga-Zitrat an Ratten in Abhängigkeit von Geschlecht und Applikationsart. *Int J Appl Radiat Isot* 25: 557-565, 1974

### **REPLY**

We thank our colleagues for their interest in our research and share with them some disappointment that <sup>67</sup>Ga did not provide a more sensitive test for breast carcinoma.

Perhaps some points regarding <sup>67</sup>Ga concentration in the breast need emphasis. Of particular importance are the clinical observations that <sup>67</sup>Ga is concentrated in human breast milk in significant amounts (1) and that breast activity occurs in the prelactating patient as well (2). Gallium-67 uptake in the breasts has also been reported in an occasional nonlactating woman (3) and in one case of gynecomastia (4). The use of experimental animals to confirm some of these observations is an interesting refinement.

Diffuse bilateral gallium activity throughout the mammary glands is thus a well-documented phenomenon. Such concentration may occasionally obscure <sup>67</sup>Ga localization in a breast carcinoma. However, an abnormal focal accumulation should be distinguishable in all instances from uniform homogeneous <sup>67</sup>Ga activity even when present in differing amounts in both breasts in the same patient. When observed, focal tracer increases therefore still warrant further investigation.

STEVEN D. RICHMAN National Institutes of Health Bethesda, Maryland

### REFERENCES

- 1. LARSON SM, SCHALL GL: Gallium 67 concentration in human breast milk. JAMA 218: 257, 1971
- 2. FOGH J: "Ga-accumulation in malignant tumors and in the prelactating or lactating breast. *Proc Soc Exp Biol Med* 138: 1086–1090, 1971
- 3. Larson SM, MILDER MS, JOHNSTON GS: Interpretation of the "Ga photoscan. J Nucl Med 14: 208-214, 1973
- 4. WINCHELL HS, SANCHEZ PD, WATANABE CK, et al: Visualization of tumors in humans using "Ga-citrate and the Anger whole-body scanner, scintillation camera, and tomographic scanner. J Nucl Med 11: 459-466, 1970

Volume 17, Number 3 223