European Journal of Cancer Vol. 31A, No. 9, p. 1545, 1995

0959-8049/95 $9.50 + 0.00

Letters

0959-8049(95)00187-5

Letter to the Editor: *Increased Arterial Inflow Demonstrated by Doppler Ultrasound in Arm Swelling Following Breast Cancer Treatment* by Svensson *et al.*, Volume 30, pp. 661–664, 1994

M. Molls and C. Kühl

CONCERNING THE publication "*Increased Arterial Inflow Demonstrated by Doppler Ultrasound in Arm Swelling Following Breast Cancer Treatment*" (Svensson *et al.*, *Eur J Cancer* 1994, **30**, 661–664) we are wondering that the paper passed the review system.

The conclusion of the investigation by Svensson and asssociates is that increased arterial blood flow is likely to contribute to arm swelling. Their hypothetical explanation for the increased flow is a neurological deficit with loss of sympathetic vasoconstrictor control. Regarding the hypothesis of the neurological deficit the authors discuss a paper of Stoll and Andrews. This paper suggested that following radical mastectomy and radiotherapy for breast cancer between 15 (55 Gy) and 73% (63 Gy) of the patients had clinically overt peripheral neuropathy. Although the title of the article was "Radiation-induced neuropathy" the authors "emphasised that in all these cases radiation was given to tissues recently subjected to radical surgery; the role of infections and sloughing in causing oedema and fibrosis must be accepted". Svensson and asssociates, however, postulate "that the blood flow changes may be due to autonomic nerve damage which is presumably induced by radiation".

Every clinician treating patients with breast cancer knows that after dissection of the axilla alone (no radiotherapy) neurological alterations can be observed. Therefore, in a modern publication considering the arm swelling after treatment for breast cancer the rate of patients who had axilla clearance should be indicated. In addition, the technique of axilla clearance (number of lymph nodes dissected etc.) should be described. The paper of Svensson and asssociates is missing any exact and numeric information about the treatment of the axilla. This is true not only with regard to surgical treatment but also radiotherapy.

The authors only describe that their patients had wide local excision, simple mastectomy, radical or modified radical mastectomy and a number of them radiotherapy (radiotherapy of the breast, the chest wall, the axilla, the supraclavicular region?).

Address correspondence to: Dr Kühl at Klinik und Poliklinik für Strahlentherapie und Radiologische, Onkologie der Technischen, Universität München, 81657 München, Ismaninger Straße 22, Germany.

In summary, the paper of Svensson and colleagues presents interesting results (increase of arterial blood flow in arm swelling). However, the interpretation and the discussion of the finding cannot be accepted. Unfortunately the study presented is lacking a differentiated oncological point of view considering the development of long term effects of an anticancer treatment.

Response from the authors:

Professor Molls and Dr Kühl question our suggestion that the increase in blood flow we have observed might be due to autonomic nerve damage secondary to radiotherapy.

We are not alone in our belief that radiotherapy causes nerve damage [1–9]. The title of our paper was chosen because we are aware that both surgery and chemotherapy have been implicated in the incidence of lymphoedema. It is probable that in most cases lymphoedema is caused by a combination of radiotherapy and surgery. We are not aware of any studies that satisfactorily answer the question as to whether it is the radiotherapy or the surgery which is responsible for the causes of lymphoedema but it is recognised that radiotherapy added to surgery increases the incidence of lymphoedema [10].

Our paper was written primarily to report an important phenomenon which is related to breast cancer treatment and may well be an important contributory factor in the aetiology of lymphoedema. The information regarding axillary clearance and number of lymph nodes dissected etc. is an interesting side to the debate on surgery versus radiotherapy as causes of lymphoedema but are not relevant to the purpose of this paper.

As Professor Molls and Dr Kühl say, we have presented interesting results regarding the increase of arterial blood flow associated with arms swelling following breast cancer treatment. We would have found it very helpful if Professor Molls and Dr Kühl had provided references, in their unreferenced letter, to refute our hypothesis.

W.E. Svensson FRCR
Consultant Radiologist & Honorary Senior Lecturer

1. Stoll BA, Andrews JJ. Radiation induced peripheral neuropathy. *Br Med J* 1966, 1, 834–837.
2. Kori SH, Foley KM, Posner JB. Brachial plexus lesions in patients with cancer: 100 cases. *Neurology* 1981, **31**, 45–50.
3. Thomas JE, Colby MY. Radiation induced or metastatic brachial plexopathy? A diagnostic dilemma. *JAMA* 1981, **222**, 1392–1395.
4. Partanen VS, Nikkanen TA. Electromyography in the estimation of nerve lesions after surgical and radiation therapy for breast cancer. *Strahlentherapie* 1978, **154**, 489–494.
5. Olsen NK, Pfeiffer P, Johannsen L,Schroder H, Rose C. Radiation-induced brachial plexopathy: neurological follow-up in 161 recurrence-free breast cancer patients. *Int J Radiat Oncol Biol Phys* 1993, **26**, 43–49.
6. Pierce SM, Recht A, Lingos TI, *et al.* Long-term radiation complications following conservative surgery (CS) and radiation therapy (RT) in patients with early stage breast cancer. *Int J Radiat Oncol Biol Phys* 1992, **23**, 915–923.
7. Wallgren A. Late effects of radiotherapy in the treatment of breast cancer. *Acta Oncol* 1992, **31**, 237–242.
8. Olsen NK, Pfeiffer P, Mondrup K, Rose C. Radiation-induced brachial plexus neuropathy in breast cancer patients. *Acta Oncol* 1990, **29**, 885–890.
9. Powell S, Cooke J, Parsons C. Radiation-induced brachial plexus injury: follow-up of two different fractionation schedules. *Radiother Oncol* 1990, **18**, 213–220.
10. Kissin MW, Querci della Rovere G, Easton D, Westbury G. Risk of lymphoedema following the treatment of breast cancer. *Br J Surg* 1986, **73**, 580–584.