Achievements of local tumour control may interfere with life threatening progression of cancer but the limitation of a regional treatment is that the treatment intensity is confined to the region. In absence of objective response, pain alleviation in pancreas and pelvic cancer could improve the quality of life. The isolated limb perfusion with TNFalpha and melphalan is a model whereby a double targeting is obtained: TNFalpha is destroying the tumour vascularisation and the chemotherapy the tumour cells themselves.

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Determining and comparing the costs of treatments

N. Neymark[1]. [1]*EORTC Data Center, Health Economics Unit, Brussels, Belgium*

This lecture sets out the basic principles of how to determine the costs of medical treatments and illustrates the proper use of such cost calculations.

Calculation of the costs of a medical treatment or other intervention begins with determining the perspective from which the costs shall be assessed. What is to be included as costs, and particularly the appropriate unit prices, is determined by the perspective chosen, which may be that of society at large, the sickness insurance system, the hospitals or the patients. The next step is to identify all the different types of resources involved in each of the compared treatments. Such resources may be the time and knowledge of physicians and other health care personnel, medications used, examinations and tests performed, days spent in hospital, etc.

When the relevant resources have been identified, the next steps are to assess how much of each is used per patient, and to find a proper unit price for each type of resource. Finding appropriate unit prices, for instance for a CT scan, is a major problem for cost assessments, because there is usually no market price. Further, the accounting systems used by most hospitals do not allow one to determine the costs of a specific procedure performed on a particular patient. Usually, the economic analysts will have to content themselves with approximative estimates of the proper unit prices. The final step is to determine the average total cost per patient by multiplying the average quantity used of each resource by its unit price and summing over these products.

The cost of a medical treatment must be related to its outcome in terms of improvement of the patients' health in order to be interpreted meaningfully. The principal purpose of economic evaluations of treatment options in health care is to carry out so-called incremental analyses, in which the costs and outcomes of each of the options are simultaneously considered. Ultimately, an economic evaluation will result in an estimate of the change in average costs that will accompany the change in expected outcome by shifting from one treatment option to the other.

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Clinical applications of photodynamic therapy with second line photosensitizer

P. Baas[1]. [1]*The Netherlands Cancer Institute, Department of Chest Oncology, Amsterdam, Netherlands*

Over the last years major advances have been made in the clinical application of photodynamic therapy (PDT). The more powerful second generation photosensitizers, suitable light sources and applicators of light makes this type of treatment more useful for the clinician. Of the second generation photosensitizers (Foscan, BPD, 5-ALA, Npe6, SnET2 and texaphyrin), the different absorption peaks and pharmacokinetic profiles all lead to specific indications. The basic mechanism of action is generally the same and based on vascular occlusion at illumination. Selectivity of the drug for tumour tissue has not proved to be very high. In general local light application is given hours to days after injection of the photosensitizer. Oxygen is required for the type II reaction, which leads to primarily vessel damage rendering the tumour hypoxic. To lesser amount, direct cell kill occurs.

Therefore, application of PDT for advanced tumours is limited because of hypoxic areas in the tumour occurs and light cannot always penetrate deeply in large volume tumours. Clinical applications are especially the early stage tumours in head and neck, Barrets oesophagus, early stage oesophageal and bronchial cancers, skin tumours (multipel basic cell carcinomas), bladder cancer and brain tumours.

A new field of application of PDT is as an adjunct to surgical resection after gross tumour resection (e.g. mesothelioma or abdominal surgical resections). Non oncologic applications of PDT are treatment of atherosclerosis, rheumatoid artritis and macular, ocular degeneration.

[1] Radiotherapy and Oncology 48 (1998) 233–245.