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THE DURATION of chemotherapy in patients with small cell lung cancer (SCLC) has been debated for many years, and for many years the 'standard' length of treatment was 12–18 months. More recently, several randomised studies have demonstrated that 4–6 months of treatment is equal to prolonged treatment when survival time is considered as the final endpoint.

The major limitation of treatment in SCLC is the relatively short duration of response due to the occurrence of chemoresistant tumour cells. Several treatment approaches to overcome resistant mechanisms have been tested, including the 'maintenance therapeutic approach', which in most cases consists of maintenance chemotherapy, i.e. cytostatic treatment after achieving a maximum tumour response in an individual patient with a given induction therapy. The topic is still under debate and is in this issue discussed by Dr Sculier (pro) and Drs Joss and Schefer (contra). Both articles contain a critical review of published studies and focus on both conventional dose of chemotherapy and high-dose maintenance chemotherapy/late intensification. In addition, they describe several important methodological problems in the design of such studies, with subsequent implications for the interpretation of the results. The groups of patients receiving maintenance chemotherapy are very heterogenous. In some studies, only patients in complete remission went on to receive maintenance therapy, while in other studies both patients in complete and partial remission were treated. In other studies, patients with stable disease have also been included. Another problem is that the induction chemotherapy used in most of the early studies from the 1980's must be considered inferior treatment today because many of them did not include platinum and etoposide. After the publication of most of the reports, the routine use of chest irradiation has been introduced for patients with limited disease, resulting in

an improvement in survival. In many centres, chest irradiation is applied after completion of chemotherapy, while in other centres, it is given concomitant with the chemotherapy. Large randomised trials are needed in order to define the most optimal timing as well as the schedule and dose of chest irradiation.

Another major question is the 'maintenance chemotherapy' itself. Different regimens have been used. In some studies, the induction chemotherapy was used, while in others a completely different regimen was applied. However, very few studies have tested beforehand whether or not the maintenance therapy used was a truly 'non-cross resistant' therapy. The emergence of new agents with different mechanisms of action, e.g. topoisomerase I-inhibitor and the taxanes, makes the 'question of maintenance chemotherapy' more interesting.

Unfortunately, in many of the studies published the number of patients entering the maintenance part of the study was relatively small, which makes the statistical validation rather limited.

Other types of maintenance chemotherapy, such as 'high-dose chemotherapy' with or without bone marrow support, have also been studied. It is conceivable that high-dose chemotherapy with autologous bone marrow transplantation may improve the treatment results in a small number of selected patients, but again prospective studies with improved methodology (peripheral stem cell support, bone marrow purging, whole blood autotransfusion, etc.) are needed to define the role of this treatment approach in the overall management of patents with SCLC. Studies with interferons as maintenance therapy after induction chemotherapy have also been performed, but with disappointing results. More modern approaches, including the use of metalloproteinase inhibitors (e.g. marimastat) and inhibitors of angiogenesis, as well as vaccination against GD3 present on SCLC cells (BEC2) are presently being studied, and the results of these new approaches are awaited with interest.

Several other questions regarding maintenance chemotherapy are still awaiting more definite answers. Even if SCLC is a potentially curable disease, the treatment of SCLC for most patients is still palliative. Therefore, the quality of life assessment is important and must be taken into consideration when discussing maintenance treatment or not.

Follow-up of long-term survivors after treatment for SCLC has shown a high risk of developing secondary malignancies. The studies available in the literature do not indicate that the length of chemotherapy contributes to an increased risk of secondary malignancies. However, we still need much more information and long-term follow-up in this special group of patients. It is to be hoped that new studies focusing on maintenance therapy will investigate the above topics.