Costs associated with febrile neutropenia

General conditions
Evaluation of costs associated with a medical condition and cost effectiveness of therapy do not usually take into account the indirect harm that the condition causes in terms of deterioration of the quality of life. Febrile neutropenia (FN) is an illness requiring antimicrobial therapy and possible hospitalization, often disturbing the familial and social life; it may lead to reduction, delay, or even discontinuation of effective chemotherapy, causing thus a direct prejudice to the patient's health.

It should be stressed that the cost of medical care is very different from country to country, which makes generalizations difficult in this following chapter.

Magnitude of the costs associated with febrile neutropenia
A recent study from the USA [1] shows that patients with FN incurred greater costs (9628 USD per patient/month) than cancer patients without FN (8478 USD per patient/month). In patients with FN, hospitalization accounted for 53% of the costs while chemotherapy comprised the majority of costs in patients without FN. Patients with FN who died had the highest mean total costs compared to patients with FN who survived (24,214 USD vs 8227 USD per patient/month). Additionally, the majority of FN episodes (79%) occurred during the first chemotherapy course and the average costs for FN were highest for inpatients (22,086 USD)
compared to outpatients (985 USD); this difference was observed for most of the common tumor types (colorectal, non-Hodgkin’s lymphoma, ovarian, breast, and lung cancer).

Another retrospective study from the USA analyzed the costs and outcome associated with hospitalized cancer patients with FN [2]. The mean hospitalization costs were 18,042 USD for patients with neutropenia, 22,839 USD for those with FN, and 27,587 USD for patients with neutropenia and documented infection; mortality rates followed a similar trend: 8.3%, 13.7%, and 19.4%, respectively. It was concluded that cancer patients with FN are causing high inpatient hospitalization costs that actually exceed those previously reported.

In the late 1990s, a cost-minimization model utilizing cost and effectiveness concluded that the use of myeloid growth factors lowered the expenses when the risk of hospitalization was over 22% (Figure 7.1) [3,4]. This cut-off was based on an estimated daily cost of hospitalization for FN of between 1675 USD and 1892 USD. At the above threshold, the cost of treating FN occurrence was greater than the expense of primary myeloid growth factors prophylaxis. This led to the wide acceptance of a 20% threshold for the risk of developing FN in order to decide whether or not the administration of primary prophylaxis with myeloid growth factors was indicated.

These recommendations should be, nonetheless, critically analyzed. First, the costs of FN are probably underestimated and should be adapted to the present day situation; it might make the cost effectiveness of the myeloid growth factors primary prophylaxis look better. However, since hospitalization is no longer the rule for many patients with FN, this may make primary prophylaxis look less cost effective.

Reducing the cost of febrile neutropenia

Home therapy for febrile neutropenia

A recent study from Australia [5] analyses the cost of FN in ambulatory versus in-hospital settings. Two strategies for ambulatory care were studied in patients with a low risk of complications during FN (using a modified Multinational Association for Supportive Care in Cancer [MASCC] score): (1) outpatient care for the entire episode of FN or