GLOSSARY

SIOPEL
Childhood Liver Tumors Strategy Group of the International Society of Pediatric Oncology

Spectral imaging in acute lymphoblastic leukemia

It is difficult to distinguish normal lymphocytes from acute lymphoblastic leukemia (ALL) cells using light microscopy. Diagnosis of this relatively common childhood malignancy, therefore, relies on immunologic, molecular and cytogenetic assessments. A new study by Katzilakis *et al*. investigates spectral imaging as an additional method.

Bone marrow smears taken from 15 children with ALL and 15 children with normal bone marrow were stained using the May–Grunwald–Giemsa method. A population of 300 cells from each smear was then studied using a spectral microscope system. Briefly, this involved the automated scanning of each sample across a range of wavelengths to produce a set of absorbance spectra. Results from ALL cells (lymphoblasts) and normal bone marrow cells (lymphocytes) were then compared.

The spectra produced from the two cell types were similar: absorbance peaks were at 535 nm for lymphocytes and 545 nm for lymphoblasts. The mean absorbance of the lymphocytes, however, was higher than that of the lymphoblasts throughout the spectral range. This difference was maximal at 630 nm. By comparing the difference in absorbance at 545 nm and 630 nm for each cell, the authors were able to demonstrate statistically significant differences between the spectra of normal lymphocytes and lymphoblasts ($P<0.0001$).

In summary, it was possible to differentiate between ALL and normal bone marrow cells using spectral imaging. This method may prove useful in the diagnosis of ALL and in assessing relapse of the disease.

Original article Katzilakis N *et al.* (2004) Spectral characteristics of acute lymphoblastic leukemia in childhood. *Leuk Res* **28:** 1159–1164

Single-agent cyclophosphamide in hepatoblastoma

There is currently no consensus regarding the treatment of children with resistant or relapsing hepatoblastoma. Partly because of the rarity of the condition, few chemotherapeutic agents have been rigorously tested in this setting. Until now, the efficacy of cyclophosphamide (CPM) as a single agent has not been assessed. Cacciavillano and colleagues from the SIOPEL group have recently published the results of their phase II trial, which was designed to evaluate the response to high-dose CPM in children with hepatoblastoma.

The international study included 18 children with refractory or relapsing hepatoblastoma, all of whom had received first-line chemotherapy according to the SIOPEL 2 or 3 protocols. One patient was excluded from the study after one course of CPM (disease stabilized); the remainder received between one and four courses of the drug and were then evaluated.

Only one patient responded to CPM, achieving complete response after three courses. Despite further treatment with carboplatin and doxorubicin, this child relapsed again and subsequently died. A second patient achieved stable disease but died during hepatic surgery. The remaining 15 patients all experienced disease progression and died.

Given the low response rate and severe side effects of CPM, the authors conclude that the drug is not effective as a single agent in this setting.

Original article Cacciavillano WD *et al.* (2004) Phase II study of high-dose cyclophosphamide in relapsing and/or resistant hepatoblastoma in children: a study from the SIOPEL group. *Eur J Cancer* **40:** 2274–2279

High-dose imatinib in metastatic GIST

Imatinib, a small-molecule tyrosine-kinase inhibitor, is approved worldwide for the treatment of gastrointestinal stromal tumors (GIST), at a recommended dose of 400 mg daily. A longer time to progression has been shown, however, using daily doses of 600 mg or greater. Verweij and colleagues have carried out an international, randomized trial to compare the recommended dose with the highest feasible dose of 400 mg twice a day.

A total of 946 patients with GIST were randomly allocated in a 1:1 ratio to 400 mg imatinib either once or twice a day. After a median follow-up of 760 days, progression-free survival was significantly higher in the twice-daily imatinib group compared with the once-daily group: 235 (50%) and 263 (56%) patients had