Table 1. Carboplatin toxicities at starting dose level (A) and at 160 mg/m² (B)

	1		2		3	
	A	B	A	B	A	B
Leukopenia	6	1	5	5	0	1
Thrombocytopenia	3	2	2	5	2	0
Anaemia	7	2	2	1	0	1
Nausea/vomiting	9	5	2	0	0	0
Diarrhoea	0	0	1	0	0	0
Alopecia	5	1	0	0	0	0
Infections	0	0	1	0	0	0

A = starting dose: 23 patients, 48 cycles (median 2, range 1–4).
B = dose level 160 mg/m²: 11 patients, 20 cycles (median 2, range 1–4).

first cycle or without major response after the third cycle received salvage treatment with ELF [7]. Patients were considered evaluable for response and toxicity if they had received at least one cycle of carboplatin. Tumour response, response duration and toxicity were classified according to WHO criteria [8].

24 consecutive patients were studied: 20 men, 4 women, age range 49–77 (median 65), WHO status 0–2 (median 1). 23 were evaluable for response and toxicity. Chemotherapy was discontinued for 1 patient after the first dose of carboplatin due to empyema of the gall bladder. 23 patients received 68 cycles of carboplatin (median 3, range 1–6) and 11 received 20 courses at 160 mg/m². Carboplatin induced 2 (9%) partial remissions with a duration of 4 months each (95% CI 0–21%). 13 patients (57%) showed no change and 8 (35%) had progressive disease. 20 patients received salvage treatment with ELF. One CR and 9 PR for an overall response rate of 50% were achieved.

The worst toxicities are outlined in Table 1. Leucopenia and thrombocytopenia (grade 3) were observed in 0 and 7% of the patients at starting dose level, and in 9 and 0% of the patients after dose escalation to 160 mg/m² intravenously on days 1, 3 and 5, respectively. Anaemia (grade 3) occurred in 1 patient who was treated at the higher dose level. The median nadir of leucocytes and platelets was observed on days 14 and 16, respectively. Median time to recovery for leucocytes and thrombocytes was 20 and 21 days, respectively after start of cycles. Non-haematological toxicities above grade 2 were not seen.

We have confirmed the good tolerance of carboplatin. The main haematological side-effect was thrombocytopenia which was severe in 7%. The remission rate in our study (9%) was low, and is similar to response rates reported in other studies [2, 3, 9]. Overall, studies show that carboplatin induced 4 partial responses in 67 patients (6%, 95% CI 0–21%). These data suggest that carboplatin has marginal activity in the tested schedules in stomach cancer.

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Untunnelled Subclavian Vein Catheters in Haemato-oncology Patients

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IN HAEMATO-ONCOLOGY, reliable venous access through indwelling right atrial catheters is necessary in an increasing number of patients. Unlike tunnelled Hickman-like catheters and subcutaneous ports of the Port-A-Cath type, untunnelled catheters can be inserted, removed and reinserted simply [1–3]. We report our prospective study of untunnelled subclavian vein catheters in 200 patients over a 19-month period.

The "short-term" group (n = 48) included patients who required a catheter only for administration of high-dose and/or continuously infused chemotherapy. Patients who were pancytopenic for longer than 7 days and who were candidates for intensive care were included in the "long-term" group (n = 152), and received partial, intestinal decontamination with colistin, trimethoprim and amphothericin [4]. Febrile patients were evaluated by physical examination, chest X-ray, blood cultures and other investigations as indicated. If granulocytopenic, patients received broad-spectrum intravenous antibiotics, using

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Table 1. Complications of catheter placement and use

	Short term (n = 48)	Long term (n = 152)
Failure of insertion	0	2*
Pneumothorax	1	1
Exit-site bleeding	0	5†
Time to removal (days) (mean, range)	5.0 (3–6)	32.1 (0–149)
Exit-site infections	0	1
Septicaemia	0	26
Catheter-associated septicaemia	0	8
Irreversible obstruction	0	4*
Dislodgement	0	4*
Total no. of failures	0	11

*Due to failure of insertion or during use.
†One of these necessitated catheter removal.

imipenem–cilastatin as first choice, vancomycin with aztreonam as second choice and amphotericin-B if a fungal infection was proven or suspected.

Single-lumen Certofix catheters (Braun, Melsungen, F.R.G.) were percutaneously inserted on the 18-bed haematology ward aseptically under local anaesthesia. Catheter care and use was done by the 22 nurses and 5 doctors. Whenever the exit site was exposed, or an open connection between the catheter lumen and the air created, aseptic procedures were followed. Exit-site care and changing of the tubes were done daily, with povidone-iodine and sterile gauze for dressing. The catheters were used for administering chemotherapy, antibiotics, blood products, nutrition fluids, other intravenous medication and collecting blood samples. All medications and fluids were given through port blocks except blood platelets which were infused separately. 2000 U heparin locks were used if appropriate, and renewed daily. Catheter exit-site infection was diagnosed if obvious signs of infection were present at the exit site. Catheter-associated septicaemia was diagnosed if fever and positive blood cultures drawn from the catheter were present, and blood cultures taken by venipuncture were negative, and/or any clinically evident source for septicaemia was absent.

Diagnoses of patients were: acute leukaemia (103), malignant lymphoma (84) and multiple myeloma (13). Age ranged from 18 to 76 years (mean 50.4). 21 of 152 long-term patients were thrombocytopenic (platelets lower than $20 \times 10^9/l$) at insertion and 148 of them were or became granulocytopenic (granulocytes lower than $0.5 \times 10^9/l$) for a mean of 20 days and a range of 7–51 days.

Complications of catheter placement and use are given in Table 1. 2 cases of pneumothorax occurred and were aspirated without problems. Bleeding was infrequent, and caused premature catheter removal only once. Four other catheters were removed because of fibrinolytic therapy-resistant obstruction and four because of accidental dislodgement. Two insertion procedures failed (total failure 11). Vein thrombosis did not occur and septicaemia only developed in the long-term group. In 8 of 26 episodes septicaemia was judged to be catheter-associated—1 of these caused by *Candida albicans*, the 7 others by *Staphylococcus epidermidis*. Exit-site infection occurred once and all infections were cleared by antibiotics without catheter removal [5].

The use of untunnelled intravenous subclavian vein catheters in haemato-oncology patients was feasible, well accepted by patients, and with the use of meticulous catheter care, was not associated with a high infection rate.

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