treatment of the primary disease. The aim in this study was to assess the role of cryotherapy as part of a multidisciplinary treatment in patients with endobronchial metastases.

Methods. Between 1995 and 2011, 35 patients (23 men; age range 22–80 years) with endobronchial metastases (11 colorectal, 11 renal, 4 oesophageal, 9 other) received endobronchial cryotherapy under general anaesthetic via a rigid and fiberoptic bronchoscope (temperature 70 °C; exposure to probe 240 s, number of freezing cycles 1–4, number of procedures 1–5) as part of the multidisciplinary treatment for the primary tumour. The main presenting symptom was dyspnoea in 14, stridor in 9, haemoptysis in 7, and cough in 5 patients.

Findings. There were no peri-operative or in-patient deaths. Endobronchial cryotherapy was undertaken as a day-case procedure in more than 80% of cases.

Survival from starting cryotherapy was from 10 days to 4 years and 8 months, with a median of 34 weeks. Twenty-two patients reported a significant improvement in their main presenting symptom. In half the patients, endoluminal patency was increased by 50% or more after cryotherapy. Improvement allowed the majority of the patients to continue systemic treatment of their primary tumour.

Interpretation. Endolumenal cryotherapy is a safe and effective treatment modality in patients with symptoms secondary to endobronchial metastases. Cryotherapy gives rapid resolution of symptoms and can be undertaken as a day-case procedure in most patients. It improves the patient's condition, permitting systemic treatment of the primary tumour.

The authors declared no conflicts of interest.

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AOS8 EFFECTIVENESS OF AN EDUCATION-COMBINING EXERCISE PROGRAMME FOR CHEMOTHERAPY-RELATED FATIGUE IN WOMEN WITH BREAST CANCER

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Background. In Thailand, breast cancer ranks the highest among all types of cancers and the number of cases is likely to continue increasing each year. Postsurgical chemotherapy to prevent cancer metastasis and eradicate cancer cells is associated with a favourable outcome. Despite its efficiency, the effects of the chemotherapy on various organ systems affect patients physically, cognitively, emotionally, and socially. Chemotherapy-related fatigue (CRF) occurs in 80–100% of patients with cancer during their chemotherapy and can affect their quality of life.

Methods. In this study we aimed to assess the effect of an education-combining exercise programme on fatigue in 40 patients with cancer who were given chemotherapy ($N = 40$). Twenty patients were assigned to an education-combining exercise programme (experimental group) and 20 were assigned to normal medical treatment (control group). The patients and the research assistant were not aware of group assignments. The experimental instruments consisted of handbooks and pamphlet about chemotherapy-related fatigue and exercise practice. The data were analysed and presented using percentage, mean, standard deviation, Chi-square, and repeated measures analysis of variance (ANOVA).

Findings. The education-combining exercise programme significantly reduced the fatigue.

Interpretation. These results suggest that the cause of CRF is multifactorial and lends support to the use of the education-combining exercise programme. The use of this programme should be encouraged and a standard manual should also be provided to help nurses in providing advice to patients.

The authors declared no conflicts of interest.

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AOS9 MORTALITY IN CHILDREN OF WOMEN DIAGNOSED WITH CANCER: A POPULATION BASED COHORT STUDY

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Background. With increasing risks of cancer and improving chances of survival, an increasing number of female survivors are starting or extending their family post-diagnosis. The mortality risks in the offspring of mothers with a history of cancer were evaluated.

Methods. From the Swedish Multi-generation Register and the Cancer Register, we identified all 174,893 children whose mothers had been diagnosed with invasive cancer between 1958 and 2001. For these children, we calculated relative risks of death (standardised mortality ratios, SMRs) compared with the background population and assessed trends in SMRs.

Findings. With the exception of offspring of mothers with tobacco-related cancers (head and neck, thoracic, cervical; SMR 1.23 [95% confidence interval (CI) 1.13–1.33]), offspring of mothers with a history of cancer did not have increased mortality risk (SMR 1.00 [95% CI 0.97–1.03]). Children born within 1 year of their mother's diagnosis had an increased mortality risk (SMR 1.66 [95% CI 1.25–2.13]), particularly if their mother was primiparous at diagnosis of breast cancer (SMR of 11.07 [95% CI 2.09–27.13]). Offspring born more than 1 year after their mother's diagnosis of haemopoietic cancer were also at increased risk of death (SMR 2.07 [95% CI 1.10–3.35]).

Interpretation. Timing of childbirth in relation to the mother's diagnosis and type of cancer modifies mortality risks in the offspring. The increased mortality risk in children conceived around the time of the mother's diagnosis suggests a negative effect of the cytotoxic treatment on the offspring, which primiparous women are more likely to accept than women who have given birth before. Despite the high relative risks, absolute increases in mortality risks are small.

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AOS10 PROGNOSTIC FACTORS FOR PATIENTS WITH LEPTOMENINGEAL METASTASES FROM SOLID TUMOURS

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Background. This study was designed to identify the factors affecting survival in patients with leptomeningeal metastases from solid tumours and define the role of various treatments.

Methods. Medical records of 82 patients who were diagnosed with leptomeningeal metastases from solid tumours from January 1, 2004, to May 31, 2011, were retrospectively reviewed. The most frequent site of origin was the lung (57.1%) followed by breast (25%) and stomach (15.5%). Median age of patients was 54 years (range 27–78). Two-thirds of patients had an Eastern Cooperative Oncology Group (ECOG) performance status class of 1 or 2. Patients were treated with various combinations of intrathecal chemotherapy (85.7%), whole brain radiotherapy (65.5%), systemic chemotherapy (31%), and spinal radiotherapy (22.7%). 29.3%, 42.7%, and 23.2% of patients were treated with single, dual, and triple modalities, respectively.

Findings. Median survival was 2.6 months and the 1-year survival rate was 9.7%. Univariate analysis showed significantly different survival rates according to age, site of origin, cerebrospinal fluid (CSF) leukocytosis, CSF cytology, intrathecal chemotherapy, systemic chemotherapy, and combined modality. Furthermore, there was a trend towards improved survival with an increase in the number of cycles of chemotherapy and whole brain radiotherapy. Multivariate analysis showed that positive cytology in CSF (positive [6.3 months] versus negative [2.2 months], $p = 0.003$), intrathecal chemotherapy (done [2.7 months] versus not done [2.1 months], $p = 0.009$), systemic chemotherapy (done [7.6 months] versus not done [1.9 months], $p = 0.029$), and combined modality treatment (single [1.2 months] versus dual [3.5 months] versus triple [8.3 months], $p = 0.002$) had statistically significant effects on survival.

Interpretation. Unlike previous reports, no factors among the characteristics of patients and symptoms at the time of diagnosis of leptomeningeal metastases affected survival, including performance status, and survival in patients with primary non-small cell lung cancer (NSCLC) tumours was comparable with that in patients with primary breast tumours. Furthermore, survival improvement was significant with combined modality treatment over single modality treatment. Thus, multimodality treatment should be sought for patients with feasible performance in tolerating treatment and those with not only breast primary but also NSCLC primary tumours.

The authors declared no conflicts of interest.

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AOS11 TRABECTEDIN IN SARCOMA: INITIAL EXPERIENCE IN THE ASIAN SETTING

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Background. Trabectedin has recently been approved for treatment of soft tissue sarcoma (STS) and has shown interesting anti-tumour activity in a wide spectrum of bony sarcomas. Published literature about its use in Asian patients is limited.

Methods. Twenty consecutive patients with histology-confirmed sarcoma treated with trabectedin at our institution were included in this single-centre retrospective study. Per institutional guidelines, imaging studies were done after 2–3 cycles of treatment; response rates and drug-emergent toxicities were evaluated using Response Evaluation Criteria in Solid Tumors (RECIST) (version 1.1) and CTACE (version 4), respectively.

Findings. Median age was 57 years (range, 22–72), 60% of patients were female and 95% had STS. Common histotypes included undifferentiated pleomorphic sarcoma (UPS, 30%), leiomyosarcoma (LMS, 20%), and liposarcoma (LPS, 15%). Eighty-five per cent of patients had bulky primary tumours (>5 cm); the lung was the most common metastatic site (44%). Patients had previously been given a median of 1 line of chemotherapy (range 0–4). A total of 59 cycles of trabectedin was administered with a median dose of 1.2 mg/m^2 (range 0.6–1.5 mg/m^2) and a median of two cycles (range 1–10). At a median follow-up of 4 months, 2 patients were still on drug treatment; the most common reason for discontinuing trabectedin was disease progression. Objective response rate was 5% (patient with LMS) and 25% of patients achieved stable disease as the best response. Three patients (15%) received more than six cycles of trabectedin; 20% of patients did not have evidence of disease progression at 6 months (2 patients with LPS, 1 each with LMS and UPS). Median PFS was 1.5 months. Trabectedin was generally well tolerated; the most common grade 3/4 toxicity was self-limiting ALT/AST elevations.

Interpretation. Trabectedin is safe and well tolerated in Asian patients with sarcoma. A significant subset of patients achieved prolonged clinical benefit. Biomarker development is urgently needed to better identify this group of patients.

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AOS12 EFFICACY AND SAFETY OF TRABECTEDIN VERSUS GEMCITABINE/DOCETAXEL IN PATIENTS WITH SARCOMA AFTER FAILURE OF ANTHRACYCLINE AND/OR IFOSFAMIDE

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Background. Trabectedin and gemcitabine/docetaxel are routinely used in the treatment of advanced sarcoma after failure of anthracycline and/or ifosfamide. The optimum regimen remains unclear. We aimed to assess the efficacy and safety of trabectedin versus gemcitabine/docetaxel in patients with sarcoma after failure of standard therapy.

Methods. Twenty-nine patients with advanced sarcoma who had received trabectedin or gemcitabine/docetaxel after failure of anthracycline and/or ifosfamide were included in this single-centre study. Three patients received both regimens and were included in the initial treatment group for the purpose of this analysis. Per institutional guidelines, imaging studies were repeated after 2–3 cycles of treatment; response rates and drug-emergent toxicity were evaluated using Response Evaluation Criteria in Solid Tumors (RECIST) (version 1.1) and CTACE (version 4), respectively.

Findings. Sixteen and 13 patients received trabectedin and gemcitabine/docetaxel, respectively. Median age (53 versus 56 years) and sex (44% versus 46% males) were not significantly different between the two groups. Patients in both cohorts had previously received a median of 1 line of chemotherapy (range 1–3). A median of two cycles were administered in both cohorts (range 1–10 and 1–6, respectively). Median administered dose of trabectedin was 1.2 mg/m^2 (range 0.9–1.5 mg/m^2) and, per institutional practice, gemcitabine was administered routinely at 900 mg/m^2 on days 1 and 8 and docetaxel at 75 mg/m^2 day 8, supported by growth factors. With the exception of self-limiting grade 3/4 ALT elevations in 50% of patients in the trabectedin group versus none in the gemcitabine/docetaxel ($p = 0.003$), both treatments were generally well tolerated with no significant differences in toxicity profiles. Objective response rates were 6% (trabectedin) versus none