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Background. Geriatric oncology services are not routinely available in Singapore and most cancer physicians have little access to it. The management of elderly patients with cancer is often suboptimal with no standardised methods for decision making.

Methods. We surveyed practising cancer physicians in Singapore about their attitudes towards the treatment decision-making process for geriatric patients with cancer and compared their pattern of disclosure of the cancer diagnosis to older versus younger patients.

Findings. Fifty-seven cancer physicians participated—69% medical oncologists, 17% radiation oncologists, and 14% haematologists. Most physicians (52.6%) listed performance status (PS) as the top single factor affecting their treatment decision, followed by cancer type (23%) and the patient's decision (11%). When asked to list the top five factors, they included PS (94.7%), comorbidities (75.4%), cancer stage (75.4%), cancer type (75.4%), patient's decision (52.6%), and age (51%). Seventy-two per cent of physicians indicated a general lower inclination to treat an older patient aggressively, even if the patient was physically fit with minimal comorbidities; 52.6% and 89.5% opted for less intensive treatments for older patients in two hypothetical clinical scenarios of high-grade lymphoma and early breast cancer, respectively. Fifty-four per cent of physicians chose to disclose cancer diagnosis to family members instead of the older patient compared with the preference to disclose cancer diagnosis directly to the younger patient, citing family preference as the main reason. Most participants (61%) have never engaged a geriatrician's help in treatment decisions, although 90% would welcome the introduction of a geriatric oncology programme.

Interpretation. Older age of the patient has a significant impact on the cancer physician's treatment decision-making process. Many cancer physicians in Singapore still practice non-disclosure of cancer diagnosis to the older patient at the family's request. Having a formal geriatric oncology programme in Singapore could help to optimise the management of the geriatric patient with cancer.

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AOS25 PREVALENCE OF PTEN LOSS IN TRIPLE NEGATIVE BREAST CANCER IN THE THAI POPULATION

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Background. Triple negative breast cancer (TNBC) is worse and more aggressive and rapidly relapsing than is hormone-receptor-positive breast cancer. PTEN, one of the important pathways in TNBC, could significantly worsen the disease progression. Primary outcome was the prevalence of PTEN loss in Thai patients with TNBC. Secondary outcome was the relation between PTEN loss and the progression of disease.

Methods. Female patients were diagnosed with TNBC and treated at King Chulalongkorn Memorial Hospital where PTEN was detected by use of immunohistochemistry (28H6 antibody) during June 2006 to December 31, 2011. Micro-array FISH was used to confirm those tumour samples that were HER2 positive.

Findings. Twenty-four (29.3) of 82 TNBC samples were PTEN negative. The average age of the patients with PTEN loss was 50.3 years and the women were mainly premenopausal (53.7%). The PTEN-negative disease was characterised by a tumour larger than 2 cm compared with PTEN-positive tumours (80% versus 68.8%), but not related to the severity of disease, lymphovascular invasion, and lymph node involvement. Although, the average disease recurrence time was worse in the PTEN-negative group than in the PTEN-positive group (17 months versus 24 months, hazard ratio 1.31, 95% confidence interval (CI) 11.13–22.87; $p = 0.05$), the survival rate was not different.

Interpretation. The PTEN loss reported in the patients with TNBC in Thailand is less than that reported in other studies. Although it is not prognostic for disease progression, we suggest that a longer follow-up to ascertain the survival rate of patients with the disease. Our study is the first report of PTEN loss in TNBC in Thailand.

The authors declared no conflicts of interest.

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AOS26 BEVACIZUMAB-INDUCED HYPERTENSION AND USE OF ANTI-HYPERTENSIVE DRUGS IS ASSOCIATED WITH IMPROVED OUTCOME IN PATIENTS WITH SOLID ORGAN TUMOURS TREATED WITH BEVACIZUMAB

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Background. Bevacizumab has been effective in the treatment of various solid organ tumours in several phase III trials. Hypertension is a common side-effect with bevacizumab because of it has anti-VEGF (vascular endothelial growth factor) activity. There are conflicting results about the role of hypertension as a marker for prediction of clinical efficacy. We reviewed the correlation between bevacizumab-induced hypertension and treatment response rate, progression free survival, and overall survival in patients with solid organ tumours.

Methods. We undertook a retrospective review of case records of patients who had histologically proven advanced or metastatic solid organ tumours and had received bevacizumab as part of their cancer treatment between 1st January 2006 and 31st December 2010 in a single cancer institute at a tertiary hospital.

Findings. One hundred and fifty-four of 171 patients had complete records that were available for review. Eighty patients (51.9%) developed grade 2 or greater hypertension with bevacizumab. Thirty-five (43.8%) of these were treated with anti-hypertensive drugs; 29 patients received only one anti-hypertensive drug and the remaining patients received two anti-hypertensive drugs. Median objective response rate was higher in patients who developed bevacizumab-induced hypertension than in those who did not (43.8% versus 16.2%, $p < 0.0001$). Patients who required anti-hypertensive medications during bevacizumab therapy had significantly longer progression-free survival than did those who did not (10.0 months versus 5.2 months, $p = 0.036$), and showed a trend towards improved overall survival (29.4 months versus 18.3 months, $p = 0.058$).

Interpretation. Initiation of anti-hypertensive drugs to control bevacizumab-induced hypertension is associated with better survival and warrants confirmation in prospective trials.

The authors declared no conflicts of interest.

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AOS27 EXTENSIVE JUVENILE NASOPHARYNGEAL ANGIOFIBROMA: A LONG-TERM STUDY OF 40 PATIENTS SUCCESSFULLY TREATED WITH RADIOTHERAPY

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Background. Juvenile nasopharyngeal angiofibroma (JNA) is a rare, highly vascular tumour, which is primarily seen in male adolescents and is characterised by aggressive local growth.

Methods. During 1990–2009, 40 male patients (aged 9–22 years) with extensive JNA were treated with definitive radiotherapy. The tumours were staged according to JNA classification (1987) based on clinicoradiological extensions. Radiologically, on computed tomography (CT) scan, all patients had extensive disease with tumours in paranasal sinus or orbits(s) or the intracranial compartment. Because of extensive disease, all patients were treated with a median radiotherapy dose of 50 Gy in 25 fractions over 5 weeks on a 6 MV linear accelerator or tele-cobalt unit.

Findings. Excellent symptomatic relief was seen during treatment in all patients, but radiological regression on follow-up CT scan was slow (range 2–8 years). None of the patients developed recurrence of the symptoms or progression of the disease during the 2–19 years of follow-up. One patient developed radiation-induced osteosarcoma of the mandible 17 years after the radiotherapy.

Interpretation. This series is one the largest number of angiofibroma cases that were successfully treated with radiation. Most of our patients had locally advanced lesions and many of them had only biopsy or incomplete resections before definitive radiation therapy. A course of definitive radiation not only made these patients asymptomatic but also halted the disease progression. Because of the extensive nature of the disease a higher than conventionally used dose of radiation was used in our patients. These patients must be followed up for the rest of their lives to detect radiation-induced squeal-like malignant lesions at the earliest manifestation in the irradiated region.

The author declared no conflicts of interest.

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AOS28 HIGH PATHOLOGICAL RESPONSE RATE WITH DOCETAXEL PLUS CISPLATIN PLUS FLUOROURACIL INDUCTION REGIMEN IN OESOPHAGEAL CANCER: INITIAL EXPERIENCE

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Background. Induction chemotherapy with cisplatin and fluorouracil is the standard of care for locally advanced oesophageal cancer, but is associated with a 5-year survival of less than 40% and pathological complete remission rate of less than 5%. We present our experience with docetaxel plus cisplatin plus fluorouracil (DCF) as induction chemotherapy in patients with carcinoma of the oesophagus.

Methods. We undertook a retrospective analysis of a prospective database of patients with locally advanced oesophageal cancer who were referred for induction chemotherapy before surgery. All patients had an Eastern Cooperative Oncology Group (ECOG) performance status of 0–1, with no uncontrolled comorbidities. Chemotherapy consisted of 2–3 cycles of standard DCF. Growth factors and prophylactic antibiotics were administered. After chemotherapy, a restaging scan was done. If disease was judged to be resectable, surgery was undertaken. Patients were followed up after surgery and then every 3 months. Toxicity was graded according to CTCAE (version 4.03), response was calculated as per Response Evaluation Criteria in Solid Tumors (RECIST) (version 1.1), and data were reported as percentages.

Findings. Between February 2010 and November 2011, 17 patients had received neoadjuvant DCF. The male-to-female ratio was 1.1:1, median age was 42 years (range 21–63), and median PS was 1. Sixteen patients had squamous cancer and one had adenocarcinoma. Significant (grade 3/4) toxicities included leucopenia (41%), neutropenia (65%), febrile neutropenia (24%), diarrhoea (41%), vomiting (24%), hyponatraemia (47%), hypokalaemia (41%), fatigue (24%), and mucositis (12%). Response rates were CR 41%, PR 41%, SD 12%, and PD 6%. Eleven patients underwent R0 resections, two underwent R1/R2 resection, two were judged to have unresectable tumour and were given chemoradiotherapy, and one had CR but surgery was postponed because of hyperthyroidism. Six (35%) patients had pathological complete remission and in 1 patient carcinoma cells were seen occasionally.

Interpretation. In a select group of patients, DCF induces high complete pathological remission with manageable toxicity. Further assessment of DCF as a neoadjuvant regimen is warranted.

The authors declared no conflicts of interest.

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AOS29 PREDICTIVE FACTORS FOR SEVERE NEUTROPENIA AFTER THE FIRST CHEMOTHERAPY CYCLE IN PATIENTS WITH BREAST CANCER

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Background. Neutropenia after chemotherapy can frequently lead to a life-threatening infection. Unexpected episodes of neutropenia can occur after the first cycle of chemotherapy. We sought to characterise predictive risk factors for severe neutropenia in patients with breast cancer after the first cycle of chemotherapy.

Methods. We prospectively collected data for patients with breast cancer who received the doxorubicin and cyclophosphamide (AC) regimen for any stage at the oncology unit during January to December 2011. Patients who received primary CSF prophylaxis were not included. The correlation between patient's demography, breast cancer history, blood chemistry, and occurrence of severe neutropenia and febrile neutropenia (FN) were analysed.

Findings. Seventy-five patients with breast cancer were included in this study. Their mean age was 49 years (SD $\pm$ 9). Most patients (98.9%) had a good performance status. None had received previous chemotherapy or radiotherapy. There were a few patients with comorbidities, including 1% with type 2 diabetes mellitus, and 19% with hypertension. 4% of the breast cancers were metastatic to the lung and bone. The mean body surface area was 1.59 m^2. All patients had normal baseline white blood cell counts. After the first cycle of AC, 84% and 60% of patients developed grade 3 and 4 neutropenia, respectively, which turned into FN in 20% of patients. Analyses of predictive factors showed no statistically significant correlation between grade 4 neutropenia and age greater than 60 years (RR 0.95, 95% confidence interval (CI) 0.49–2.06), bovine serum albumin (BSA) less than 1.45 m^2 (RR 1.10, 95% CI 0.73–1.67), underweight for body-mass index less than 18.5 kg/m^2 (RR 1.0, 95% CI 0.48–2.1), dietary protein index less than 0.5 g/kg/day (RR 1.05, 95% CI 0.50–2.22), and non-metastatic disease (RR 0.896, 95% CI 0.39–2.04).

Interpretation. Simple clinical factors cannot be used to reliably predict the risk of FN in patients with breast cancer during the first cycle of chemotherapy with AC. For development of future predictive models, the complex relation within datasets should be taken into account such as novel biomarkers or genetic profiles.

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