DELEGATE ABSTRACTS

EP01

PDO Chemo-Sensitivity Assay Guided Precision Therapy In A Case Of Relapsed Rectal Cancer

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INTRODUCTION:
Chemotherapy is the mainstay of treatment in metastatic colorectal cancers. Combination of oxaliplatin, irinotecan, 5fluorouracil, capecitabine with or without biologicals are usually recommended in metastatic disease. In second-line and third-line set up the choice of drug is limited. Very recently NGS based analysis is assisting oncologist to choose appropriate therapy, however this test is very expensive and resultant targeted drug may not be available for clinical use. The patient derived organoid (PDO) assay is a rapid chemo-sensitivity assay on fresh tumor tissue is being applied to choose specific anticancer agents for treatment.

CASE REPORT:
We treated a case of relapsed and metastaticrectal cancer that spread to the upper mediastinum one year after adjuvant pelvic radiotherapy and chemotherapy forstage-II disease. He was managed with XELIRI and bevacizumab chemotherapy for his metastatic disease. During the course of chemotherapy, the tumor marker (CEA, and CA 19.9) levels were increased progressively with development of pleural effusion. Pleural fluid drainage was arranged and about 6-litres of hemorrhagic fluid was drained. Following drainage of pleural effusion, pleural metastatic disease was biopsied and fresh tumor tissue was subjected to PDO based chemo-sensitivity assay (Invitrocue, Singapore). Multiple anticancer agents were tested against tumor tissue. As per PDO based chemo-sensitivity assay result, the patient was treated with carboplatin and irinotecan combination chemotherapy every 3- weeks. He responded well to above therapy with progressive decline in tumor markers and improvement in chestsymptoms.

CONCLUSION:
Chemo-sensitivity guided precision therapy could be an option for treating patients with progressive disease failing earlier lines of therapy.

DELEGATE ABSTRACTS

EP02

Real-World Clinical Outcomes Of Palbociclib With Letrozole As First Line Treatment Of ER Positive, HER2 Negative Metastatic Breast Cancer In Malaysia: A Multicentre Retrospective Study

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INTRODUCTION:
The emergence of CDK 4/6 inhibitors have made significant improvement in the outcomes of hormone receptor positive metastatic breast cancer patients1. Palbociclib (a CDK4/6inhibitor) had obtained regulatory approval in 2016 for the first line treatment of postmenopausal women with estrogen receptor (ER) positive, human epidermal growth factor receptor 2 (HER2)–negative metastatic breast cancer. There is yet to be any published data on the efficacy and tolerability of this drug in our local population. This study aims to address this.

MATERIALS AND METHODS:
In this multicentre retrospective observational study, participating physicians reviewed medical records of patients treated between October 2017 and September 2019.

RESULTS AND DISCUSSION:
A total of 15 patients across 6 centers fulfilled the pre-determined criteria to be included in the study. The mean age of patients was 51.8 years (SD±9.55) with Malay and Chinese patients constituting 40% of the population respectively. Visceral metastasis (lung, liver) was seen among 46.7% of patients while 54.3 % had non visceral metastasis (bone, soft tissue, non-regional lymph nodes). During the study period, one (1) patient had a complete radiological response, six (6) patients (40%) had stable disease and eight (8) patients (53.3%) had progressive disease. The median progression free survival duration was yet to be reached at the time of study closure. The median study follow-up time was 18.4 months. The most common adverse event encountered was neutropenia (73.3%), with 60% of patients having Grade 3 or 4 neutropenia. None of these patients developed sepsis or needed hospital admissions. Mean duration of onset of neutropenia was 3.2 cycles after starting treatment. This resulted in ten (10) patients having dose modifications.

CONCLUSION:
Palbociclib in combination with Letrozole has shown favourable treatment outcomes among patients in our local setting. Further follow up of these patients will be needed to ascertain long term outcomes.

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DELEGATE ABSTRACTS

EP03

Sentinel Lymph Node Scintigraphy With SPECT/CT And Biopsy In The Management Of Early-Stage Breast Cancer; First Experience In East-Coast Region Of Peninsular Malaysia

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INTRODUCTION:
Establishing an accurate sentinel lymph node mapping (SLNM) for the staging of early-stage breast carcinoma is very crucial to achieve an effective lymphatic biopsy (SLNB) procedure. The chief purpose of this medical case report is to highlight the importance of SLNM using radioisotope, in combination with the traditional blue dye method and SPECT/CT imaging for the management of early-stage breastcancer.

CASE DESCRIPTION:
Case 1 was a 61-years-old female presented with a one-month history of right breast swelling and brownish discharge at the nipple. Sentinel node lymphoscintigraphy was performed prior to surgery. Four injections of 0.7 mCi of 99mTc-nanocolloid in 0.2 ml were injected subdermally at the periphery of the right breast tumor. Immediate dynamic imaging showed three foci of increased tracer uptake at the upper outer quadrant of the right breast, which relates to subcentimeter lymph nodes at right level I axillary region on SPECT/CT. Skin marking at the sentinel node was done using gamma probe and real-time scanning. SLNB was conducted with concurrent methylene blue dye injection intraoperatively. Three lymph nodes which were hot on the gamma probe and visually stained blue were removed. Frozen sections of all three lymph nodes were negative for breast cancer metastasis. The immunohistochemical (IHC) study for estrogen receptor (ER) and progesterone receptor (PR) were positive. The patient was then planned for external beam radiotherapy to the right chest wall and started on hormonal therapy with aromatase inhibitor.

DISCUSSIONS AND CONCLUSIONS:
This case study of SLNM and SLNB utilizing blue dye and radionuclide techniques (99mTc-nanocolloid with the addition of SPECT/CT image acquisition) is the first ever performed at the East-Coast region of the Peninsular of Malaysia. This combination method has significantly improved the management of early-stage breast cancer in our center.

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DELEGATE ABSTRACTS

EP04

Outcome Of Triple Negative Breast Cancer (TNBC) Patients In Multi- Ethnic, Single Centre Institution, In Malaysia

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INTRODUCTION:
In Malaysia, breast cancer accounts for 32% of cancers in 2018,most common cancer in females and the leading cause of cancer death[1]. TNBC occurs in younger women, tend to behave more aggressively with higher propensity for CNS and visceral organ metastasis[2].

MATERIALS AND METHODS:
A retrospective analysis was done for TNBC patients diagnosed in UMMC from 2013-2015. Median follow up for the patients were 5 years.

RESULTS:
63/513 (12%) patients had TNBCs from 2013-2015. Most patients were of Chinese (37.1%), Malay (33.9%), Indians 22.6%. 85.5% had localised disease (stage I-III), 14.5% had metastatic disease. At a median follow up of 5 years, 76.3% of Stage I-III are still alive whereas only 11% of patients are alive in stage IV. Patients with localised disease had median PFS of 24.6 months versus 6.7 months in metastatic patients.

DISCUSSIONS:
The proportion of TNBC in UMMC remains similar to previous years 2005-2007 at about 17%, also comparable worldwide proportion of TNB, 12-17%[3]. Compared to New Zealand and Dutch cohort, our population has a longer PFS of 24.3 months vs 18 months (NZ and Dutch). [4]This raises questions whether genetic predisposition leads to better outcomes.

CONCLUSION:
TNBC represents a cohort with poor prognosis. We first need to understand our patient population,local barriers to treatment and identify reasons to improve outcomes.

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DELEGATE ABSTRACTS

EP05

Case Report: Brachytherapy In Pantai Hospital Kuala Lumpur

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INTRODUCTION:
Gynae-related cancer is the second killer of cancer among the female in Malaysia. Besides surgery, chemotherapy and radiotherapy, brachytherapy will be done to provide better tumor control for the patient. Brachytherapy at PHKL started in January 2019 and has now treated more than 30 patients.

MATERIALS AND METHODS:
Material:
1. SagiNova
2. SagiPlan software
3. Electrometer
4. Ionization chamber

Method:
1. To compare the dwell time: formula versus treatment planning system
2. To investigate the size of the applicator against the dwell time
3. To calculate the dwell time difference with the same prescription dose for a full course treatment of 2weeks.

RESULTS:
1. The increase in diameter of cylinder applicator will result in increase of treatment dwell time.
2. There are no changes in dwell time result even though OAR were introduced in the treatment plan.
3. There will be 1-2s increase in dwell time if the treatment is done 7-12 days from the first treatment day.

DISCUSSIONS:
1. The increase in dwell time for different cylinder size is due to increase in distance between 60C0 source and the prescribepoint.
2. Dose to OAR is directly proportional to cylinder applicator size but no changes in dwell time because calculation didn't take into account of CTinformation.
3. No significant changes in treatment dwell time after a treatment gap because of the 5 years half-life of 60C0source.

CONCLUSION:
Dwell time is directly proportional to the cylinder applicator size. There is no significant changes in treatment dwell time if the patient is treated within 2 weeks. Hence, same treatment plan can be used.

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DELEGATE ABSTRACTS

EP06

Cervical Cancer With Breast Metastasis Abstract

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INTRODUCTION:
Cervical cancer is one of the most common malignancies among women. Human papillomavirus (HPV) is central to the development of cervical neoplasia and can be detected in most cervical cancers. The common site of distant metastasis includes lung, liver, bones, and supraclavicular nodes. There have been documented evidence of rare metastasis to the heart, brain, and skeletal muscles. We report a case of a 44-year old lady who initially presented with unusual symptoms of gastric outlet obstruction and a massive pelvic mass. Further assessment revealed a diagnosis of cervical cancer. The patient underwent chemoradiation which gave an adequate control over the disease. Her disease was stable for 6 months until she developed a new breast lump. Biopsy of the breast mass revealed secondary to cervical cancer rather than a primary breast cancer. She progressed systemically, hence she was offered palliative chemotherapy. At the point of writing, there is no definite guidelines on its approach. This is the first case in our experience of metastasis to the breast from a primary cervical carcinoma. Metastases to the breast are rare entities in themselves and there is a wide variation on the management of suchcases.

DELEGATE ABSTRACTS

EP07

Nasopharyngeal Carcinoma (NPC) In Pregnant Lady With Systemic Lupus Erythemathosus (SLE): Case Presentation Of Radiotherapy Consideration

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INTRODUCTION:
A 33 year old teacher with SLE, diagnosed with non-keratinising NPC. She presented with 3 months history of unilateral otitis media at 12 weeks pregnant via In Vitro Fertilization (IVF). Her Magnetic Resonance Imaging (MRI) showed T2N0M0. She was planned for radical radiotherapy alone after Multiple Multidisciplinary Teams (MDTs) discussions.

MATERIALS AND METHODS:
Literature review (1,2) and consulted other radiotherapy center.

RESULTS:
The total fetal dose recommendation is less than 0.1Gy for the entire treatment (3). She was planned for radiotherapy of 70Gy/33# using volumetric modulated arc therapy (VMAT) (2 arcstherapy).

DISCUSSIONS:
We planned to start radiotherapy after 16 weeks post-conception as most organogenesis has completed (3). Antromorphic study done showed our CT simulation TLD dose with lead gown shielding (at14 weeks pregnant) was 0.701mGy and0.07Gy using VMAT without abdominal shielding. For cost effective shielding, Cerrobend was used. To reduce collimator scatter to peripheral, custom built Cerrobend shield placed beneath collimator head to reduce fetal dose by a factor of 3.5(4).

CONCLUSION:
As nasopharyngeal carcinoma is at a distant from fetus, efforts should be made to employ radical radiotherapy safely, which is feasible with modern radiotherapy techniques such as VMAT. Unfortunately this lady decided to take up alternative therapy instead.

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DELEGATE ABSTRACTS

EP08

Presenting Complaints Of Patients And Palliative Care Referral Patterns

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INTRODUCTION:
Palliative care consultation services have been demonstrated to impart a dramatic impact on patients' quality of life[1]. Although the benefits of providing palliative care to non-cancer patients have been increasingly recognized, the use of palliative services among non-cancer patients remain slow in contrast to cancer patients[2]. This study is carried out to elucidate the difference of referral patterns and symptom experiences upon referral to palliative care unit between advanced cancer patients and those with non-cancer disease.

MATERIALS AND METHODS:
This is a retrospective observational study of all patients referred to palliative care service from January to December 2018 at Beacon Hospital, Petaling Jaya, Selangor, Malaysia. Patients were stratified into cancer and non-cancer groups and data including reason for referral, duration of care and presenting symptoms were qualitatively analysed. Data were collected from the referring form, assessment form and case notes. The dataset is presented using descriptive statistics.

RESULTS:
This study comprised of 139 patients, of which 131 were cancerand 8 non cancer patients. The majority of patients were referred to palliative care for symptoms management, followed by 13% for psychosocial support and only 8% for end of life care. The most common symptoms upon referral were pain and reduced mobility for cancer patients; pain, insomnia and dyspnoea for non-cancer patients.

DISCUSSIONS:
The findings from this study represents an initial attempt to assess different end-of-life care needs between cancer and non-cancer patients. Assessment of presenting symptoms facilitates the detection of symptoms that might otherwise have been overlooked.

CONCLUSION:
Recognizing the difference in presenting symptoms enables us to focus on assessing and managing care needs from the perspectives of patients and their families.

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EP09

Complete Remission Of Cervical Adenocarcinoma Treated With Neoadjuvant Chemotherapy : A Case Report

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INTRODUCTION:
Cervical adenocarcinoma comprised of about 25 percent of all the cervical cancers. There are documented differences between cervical squamous cell carcinoma and cervical adenocarcinoma in terms of their epidemiology, prognostic factors, relapse pattern and response to specific treatments. The current management of cervical cancer is mainly based on the trials in which the majority are squamous cell carcinomas. On average, adenocarcinoma only constitutes 10% of the population in cervical cancer studies. No prospective trial had focused solely on adenocarcinoma.

Literature had shown that the outcomes of primary radiotherapy or post-operative adjuvant radiotherapy alone in cervical adenocarcinoma are inferior to squamous cell carcinoma. Surgery had significant advantage over radiotherapy alone in cervical adenocarcinoma. The best approach of treatment in this histology subgroup remains unclear.

CASE PRESENTATION:
We hereby present a case of a 55 years old female who was diagnosed to have cervical adenocarcinoma stage FIGO IIB. The gold standard treatment for cervical cancer FIGO IIB would be concurrent chemoradiation. She was however given induction chemotherapy paclitaxel and carboplatin. Radiological assessment post chemotherapy revealed good response. Subsequently she underwent extra-fascial hysterectomy, bilateral salpingo-oophorectomy and pelvic lymph node dissection. Histopathological examination showed a complete response. Post- operatively she was given adjuvant radiotherapy to the pelvis and vaginal brachytherapy. The patient is currently remains free from relapse more than 18 months post therapy.

CONCLUSIONS:
This case report suggests that neoadjuvant chemotherapy followed by surgery in cervical adenocarcinoma is feasible in achieving tumour complete response and possible long term remission.

DELEGATE ABSTRACTS

EP10

A Rare Case Of Aggressive Late Relapse Pediatric Ewing Sarcoma After 15 Years

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INTRODUCTION:
Extraosseous Ewing sarcoma is a rare tumour arising from soft tissue, a subset under the Ewing sarcoma family of tumours (EFT). We report an unusual case of a young adult with left orbital extraosseous Ewing sarcoma who first presented at 2 years of age, recurring 2 and 18 years later. The patient presented in 2001 with left orbital extraosseous Ewing sarcoma, underwent tumour debulking and adjuvant chemotherapy. She was offered radiotherapy but declined. Two years later, she had a local relapse and was given 17 cycles of vincristine, cyclophosphamide and actinomycin, followed by radiotherapy 44Gy/26# to left orbit with curative intent. This was complicated with anthracycline-induced dilated cardiomyopathy (ejection fraction 25%). She was in remission for 15 years. At 19 years old,she presented with recurrent left eye swelling for 2 months. Investigations ruled out second malignancy. MRI and PET scan showed FDG-avid local disease without distant metastasis. She underwent left orbital exenteration and removal of left zygoma, with post-operative histology showing rare late relapse of Ewing sarcoma. This was followed by adjuvant radiotherapy 45Gy/25# to left orbital bed. High risk adjuvant chemotherapy due to poor cardiac function was offered but declined. Four months after radiotherapy, surveillance MRI and PET scan showed recurrence with brain and multiple skeletal metastasis. Patient deteriorated rapidly and succumbed to the disease 2 months later.

DISCUSSIONS:
The case above depicts an uncommon later elapse of Ewing sarcoma amongst the pediatric population with local relapse of disease despite completing radiotherapy. Immunohistochemical and genetic analysis to identify possibility of progressive genetic mutation should be considered in such cases. This case also highlights challenges in survivorship of pediatric oncological patients.

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DELEGATE ABSTRACTS

EP11

Treatment Outcome Of Nasopharyngeal Carcinoma In The Era Of Intensity Modulated Radiotherapy (IMRT) – A Single Institutional Experience

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INTRODUCTION:

Nasopharyngeal carcinoma (NPC) is an endemic malignancy in South East Asia. Radiotherapy (RT) with or without concurrent chemotherapy (CRT) still remain the mainstay of treatment. The Malaysian National Cancer Institute (NCI) is a tertiary public institution established about 5years ago. This study aims to analyse the treatment outcome in patients with localized NPC treated with IMRT in our institution.

MATERIALS AND METHODS:

All newly diagnosed locally advanced NPC patients (Stage I–IVB) with a histopathology confirmation of NPC from September 2013 to April 2018 in NCI who had received radiotherapy to faciocervical 70Gy/35F/7weeks with IMRT technique were identified from internal database at radiotherapy unit. Staging and Diagnostic evaluation of NPC was based on AJCC Staging 7th Edition (2010). Histopathology diagnosis was based on WHO classification. These patients were either receiving or not receiving weekly CRT. Some patients also received induction chemotherapy 2-3 cycles prior to radiotherapy. The date of local recurrence and distant metastasis were acquired. The data collected were analysed using 'R' version 3.5.3.

RESULTS:

277 patients were identified in the study. Median follow up time was 30 months. The majority were in Stage III and Stage IV presentation accounting for 75.8% which could be the reason that induction chemotherapy was given in the majority of the cohort (62.1%). CRT with IMRT was favourable prognostic factor for OS and PFS. The 3-year progression-free survival (PFS) and overall survival (OS) rates were 66.6% (95% CL60.1:72.3) and 77% (95% CL71.1:81.9) respectively. 12 patients experienced loco-regional failure and distant metastasis occurred in 29 patients. 19 patients had both loco-regional and distant failure.

CONCLUSION:

IMRT is effective in achieving good loco-regional control. Distant metastasis is the commonest site of failure. CRT improves PFS and OS. A longer follow-up is required as median OS and PFS has not been reached in this cohort.

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DELEGATE ABSTRACTS

EP12

Case Report Of Primary Renal Squamous Cell Carcinoma (SCC)

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INTRODUCTION:
Squamous cell carcinoma (SCC) of renal is a rare primary malignancy. It was often reported to be strongly associated with renal calculi and radiologically mimics xanthogranulomatous pyelonephritis (XGP) .

CASE REPORT:
A 59 years old female with no comorbidities presented with 6 weeks history of right flank pain. Contrast-enhanced computed tomography (CECT) scan showed heterogeneously enlarged right kidney with dilated renal calyces giving a multiloculated appearance likened to a paw print of a bear (bear's paw sign) suggestive of right XGP with staghorn calculi. There are suspicious right adrenal lesions, perinephric and para-aortic lymph nodes and indeterminate solid liver lesion. She underwent open right retroperitoneal nephrectomy and histopathological examination (HPE) showed an enlarged right kidney measuring (12.5x6x6)cm with serial sectioning showing multiple yellowish brownish hard stones. Microscopically it shows infiltration of malignant cells with lymphovascular invasion and renal capsule involvement. Keratinization with keratin pearls was seen. Adrenal gland was positive for malignant cells. Post-operatively patient was ill and unfit for further oncological treatment. She was offered palliative care.

DISCUSSIONS:
This is a very rare tumor which constitutes <1% of all urinary tract neoplasms, hence there is no standard guideline for management. However radical nephrectomy may be curative if the disease is localized. Patients often responded poorly to chemotherapy, radiotherapy or surgery in metastatic setting with a median survival of 3.5 months. Most patients were diagnosed at an advanced stage due to insidious onset of symptoms and the lack of pathognomics sign. Hence, primary renal SCC should be considered in patient with chronic urolithiasis presenting with renal mass and radiologically suggestive of XGP. High index of suspicion and biopsy are important to differentiate the 2 entities, in the hope for early diagnosis and curative treatment.

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EP13

Implementation Of FDG PET-CT Simulation Protocol For Head And Neck Cancers: Our Experience

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INTRODUCTION:
Positron Emission Tomography-Computed Tomography (PET-CT) scan, which combines the benefit of metabolic PET data and anatomical CT data, has been clinically proven to provide valuable information which could improve the accuracy of the target volume delineation. However, the process of co-registration of an existing PET-CT images with CT simulation images could hinder the accuracy of co-registration as the patient's position is different from the two different scans especially for Head and Neck cancer. The aim of this report is to share our experience in implementing PET-CT simulation for head and neck cancer patients.

REPORT:
Before 18F-FDG administration, education regarding PET-CT simulation procedure is given to the patient by the Radiation Therapist. Later, the patient is positioned on the carbon fiber flat table top, aligned with external lasers, immobilized with headrest and thermoplastic mask. Once the thermoplastic mask is customized, staff nurse took over and 3Mbq/kg of FDG is administered. A minimum of 45mins is allowed for FDG uptake before imaging. The radiation therapist is then present during the beginning of PET/CT simulation to assist Nuclear Radiographer in reproducing the radiotherapy simulation position. Patient is then scanned in the same position as they are for radiotherapy. PET/CT images are then exported to Treatment Planning System for target volume delineation.

CONCLUSION:
With the cooperation of multidisciplinary team, PET-CT simulation protocol for head and neck cancers had been fully integrated into routine clinical practice, with image registration accuracy <1mm in all directions. The challenges in implementing PET/CT simulation are the additional time required in patient immobilization and radiation exposure to the Radiation Therapists.

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DELEGATE ABSTRACTS

EP14

Breast Radiotherapy In Older Women: University Malaya Medical Centre Experience In 2014

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INTRODUCTION:
WHO defines older population as being 60 years old and above[1]. In Malaysia, older women (>60) represents almost 50% of breast cancer patients[2]. This study investigates UMMC practice of adjuvant radiotherapy in older women.

MATERIALS AND METHODS:
Retrospective review of Electronic Medical Records of patients receiving adjuvant breast radiotherapy in University Malaya Medical Centre for the year 2014.

RESULTS:
In 2014, 191 women underwent adjuvant breast radiotherapy and 44/191 (23%) were over 60 years old; 38/44 (86%) aged 60-70, 6/44(14%) 70-80 years old. In this group, most 27/44 (61%) were Chinese, 10/44 (23%) were Malay and 7/44 (16%) were Indian.

At median follow up of 4.5 years, 2/44 (4%) had local-regional recurrence; each had stage 2 and 3 disease respectively. 6/44 (13%) developed distant metastasis. All patients completed their course of 40Gy in 15 fractions. 18% recorded radiation induce dermatitis. 31 (70%) patients are still alive, 6 (14%) died and 7 (16%) lost to follow up at 4.5years. All (3/44) T1N0, ER +, HER 2 - patients are still alive, with no local recurrence.

DISCUSSIONS:
Our rate of local-regional recurrence (4%) is comparable to pivotal START-A trial (3.5% after 41.6Gy)[3] patients remain alive suggesting treatment efficacy. However, breast radiotherapy carries risks of dermatitis, cardiac toxicity, and pneumonitis. As no stage 1 patients developed local-regional recurrence, we propose a deeper review into treatment benefit of low risk group. Patients with T1N0, ER+, HER- can beidentified for treatment de-escalation with Intraoperative Radiotherapy or omission as per PRIMETIME study[4.]

CONCLUSION:
Our study shows treatment compliant (100%) and efficacy with low (4%) local-regional recurrence rate in older women. We propose further research for treatment de-escalation in ensuring provision of value-based medicine to our patients.

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DELEGATE ABSTRACTS

EP15

Early Experience With Nursing Led Grade Based And Electronic Medical Record (EMR) Based Radiotherapy Side Effects Management

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INTRODUCTION:
All Radiotherapy patients receiving external radiotherapy are at potential risk of developing radiation toxicities within the treatment field but there is inconsistency in side effects recording and managements by healthcare providers, because of the free text format. Hence, it is crucial to introduce a standard for scoring adverse effects for consistent and accurate analysis of the radiation toxicities and to develop grade based side effects management.

MATERIALS AND METHODS:
National Cancer Institute Common Terminology Criteria for Adverse Events (version 4.03) in ARIA® OIS and side effects management guidelines which have been reviewed and approved by Clinical Oncologists were used and all curative radiotherapy patients with radiotherapy of more than 10 fractions were assessed by Radiation Oncology nurses on every Fridays. Each of these patients had electronic toxicity grading recorded.

RESULTS:
In the 3 months after grade and EMR based implementation, 60% toxicity grading was recorded. A total of 10 episodes of high-grade toxicity were identified during this period. This type of data also provided us with a range of expected toxicity for our patient population.

DISCUSSIONS:
The introduction of the grade and EMR based radiotherapy toxicity recording system resulted in improvement in documentation of toxicity and patients' side effect management.

CONCLUSION:
An EMR based radiotherapy toxicity recording practice enables consistent, timely and accurate of the treatment toxicity documentation and approved grade based side effect management guidelines enables radiation oncology nurses to manage radiotherapy patients with Clinical Oncologist acceptance which is important to improve quality of life for patients.

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DELEGATE ABSTRACTS

EP16

Cancer Awareness Survey Among Students In Three Secondary Schools In Kelantan

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INTRODUCTION:

Cancer and cancer related problems contribute significantly to the health & economic burden, more so to developing countries like Malaysia. According to the Malaysian National Cancer Registry 2007-2011, the incident (age-standardized) rate for males and females were 86.9 and 89.0 per 100,000 population respectively[1,4]. These numbers have since seen an increased over the years with 1 in 7 Malaysian is estimated to be diagnosed with cancer[2,3]. A significant number of cancer deaths are actually preventable with early detection and treatment. Unfortunately 58.8% of patients were stage III or IV at diagnosis[1]. Increased awareness of cancer among population has shown to improve diseaseoutcome.

MATERIALS AND METHODS:

A cross sectional survey utilizing a self-administered single sheet, 27-questions, Malay-language questionnaire was conducted among secondary school students from three different schools in the east-coast state of Kelantan. Socio-demographic characteristics of the respondents were analysed and tabulated. Descriptive statistics were performed for all variables in the study and the questionnaire scores (individual questions & total) were expressed as mean and standard deviations.

RESULTS:

A total of 271 respondents participated in this study consisting of 79, 94, and 98 students from 3 schools respectively. The mean age of respondents were 18.32 years old with female accounting for 68.6% of the total respondents. The mean score was 17/27 (58.03%) with only 15.13% (41/271) of the entire study population obtained a score of 74% (20/27) or higher. No association was observed between total score among students with family history of cancer, age or gender. The least correctly answered question was the role of LPPKN in cancer screening and detection whereby only 13.12% of respondent answered correctly.

DISCUSSIONS AND CONCLUSION

There is poor understanding and awareness of cancer among these secondary school students, similar to other studies cancer awareness among population in Kelantan[7,8]. This could be attributed to several factors which are; young age of respondents, education level, socio-demographics, cultural perception towards cancer and previous experience with cancer among family members which are consistent with published researched by Al- Dubai et al. (2011) and Ismail et al. (2018)[5,6]. Although the result of this study is not a true reflection of the state of awareness of cancer among students in Malaysia or even in a single state of Kelantan, it is surely an eye opener to all parties as to the extent of understanding on cancer and cancer related issues among high school students in Malaysia.

We hope this small study would serve as a platform for a larger more thorough study on cancer awareness and would also help to initiate programs intended to improve cancer knowledge among targeted population in the future. Furthermore, survey design and awareness program should be targeted to specific objectives and disease specific, in other words one-size-fit-all concept is not recommended[2].

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DELEGATE ABSTRACTS

EP17

Li Fraumeni Syndrome in Young Breast Cancer: A Management Dilemma

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INTRODUCTION:
Breast cancer in young patients may suggest a genetic predisposition. Apart from BRCA, other important genetic mutation is TP53 in Li Fraumeni syndrome. Although it is known that approximately 5-8% of women with breast cancer under 30 years old have TP53 gene mutation, we hardly see these cases in Malaysia. Here we report a case of Li Fraumeni syndrome in a young patient with breast cancer.

CASE PRESENTATION:
A lady was diagnosed with left breast invasive carcinoma at 32 years of age. She has completed adjuvant chemotherapy, radiotherapy & targeted therapy following a wide excision and axillary clearance. After a year of surveillance, she had high grade ductal carcinoma in-situ with microinvasion of right breast, in which she underwent wide excision and axillary clearance followed by radiotherapy. While she was on hormonal therapy, she had bilateral breasts recurrence. Left mastectomy and right breast wide excision done, followed by right mastectomy few months after that due to inadequate margin. Further questioning noted she has strong family history of malignancy, inwhich genetic testing revealed TP53 mutation. As of date, she is planned for chemotherapy.

DISCUSSIONS:
This case illustrates the challenges faced in managing breast cancer with germline mutation. Multiple episodes of recurrence noted despite surgeries and oncological treatment. TP53 mutation is still under-reported in Malaysia.

CONCLUSION:
Testing of germline mutations in young patients with breast cancer in line with proper research could give light to optimal management and treatment of this type ofcancer.

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DELEGATE ABSTRACTS

EP18

A Case Of Mucinous Adenocarcinoma Of The Colon: Challenge In Diagnosis

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INTRODUCTION:

Mucinous adenocarcinoma of colon is a distinct subtype of colorectal cancer, usually diagnosed at advanced stages. Here, we report and discuss a delayed diagnosis of colonic mucinous adenocarcinoma despite patient's earlypresentation.

CASE PRESENTATION:

A 48- year old lady presented with right lumbar pain, altered bowel habit and significant weight loss for 1 month with first degree family history of malignancy. Systemic examination noted a mass of 10cm x 7cm at right lumbar with raised CEA. CT scan done suggestive of hepatic flexure tumour, however biopsy from colonoscope showed chronic colitis with focal granulation tissue formation. A repeat colonoscope showed edematous mucosa with slough and diverticulum. She was treated as pericolonic abscess secondary to complicated diverticulitis. Her condition did not get better with treatment. Repeated CT scan 4 months later showed enlarging hepatic flexure tumor. Right hemicolectomy done, however her disease progressed after 3 months, in which no further surgery can be done. Poor performance status makes her unfit for oncological treatment.

DISCUSSION:

This case illustrated endoscopic diagnosis of mucinous adenocarcinoma could be difficult. Despite the CT scan findings suggestive of malignancy, the colonoscopy and biopsy results revealed presence of ulcers, inflammation and granulation tissue formation.

CONCLUSION:

CT scan could be superior in detecting of colorectal mass with malignancy. Multidiscipline discussion would be helpful to avoid misdiagnosis.

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DELEGATE ABSTRACTS

EP19

Frequency Of KRAS, NRAS, BRAF And HER2 In Colorectal Cancer In Pantai Premier Pathology

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INTRODUCTION:
Mutational testing of RAS and BRAF has become a standard practice in the management of patients with metastatic colorectal cancer (mCRC). HER2 amplification have been demonstrated as a mechanism of resistance to anti-EGFR in mCRC. This study aimed to determine the frequency of KRAS, NRAS, BRAF and HER2 in our routine molecular diagnostics laboratory.

MATERIALS METHODS:
DNA was extracted from 169 colorectal cancer tissue samples using GeneRead DNA FFPE kit (Qiagen). KRAS, NRAS and BRAF mutations were determined using pyrosequencing. HER2/neu amplification by FISH was done on 26 of 169 samples using Vysis PathVysion DNAProbe.

RESULTS:
The frequency of RAS and BRAF mutations was 50.9% and 1.8%, respectively. Majority (92%) of the cases had KRAS mutations in codon 12, 13 and 61 with the most common mutation was G12D (33.8%). Among RAS-WT, 3 (3.4%) cases harbored a BRAF V600E mutation. Of 26, 6 (23.1%) cases showed HER2 amplification.

DISCUSSIONS:
RAS mutations account for 50.9% in our cases and 23.1% HER2 amplification in RAS-WT cases. HER2 amplification was found in small percentage of unselected mCRC patients, however higher percentage have been reported in cetuximab-resistant RAS, BRAF and PIK3CA WT cases. According to HERACLES-A trial, patients with HER2-positive mCRC may obtain clinical benefit from anti-HER2treatment.

CONCLUSION:
Determining the status of RAS, BRAF and HER2 in mCRC is practical in order to identify the full potential benefit from targeted cancer therapy.

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DELEGATE ABSTRACTS

EP20

Tumour Regression Grading In Neoadjuvant Chemotherapy-Treated Oral Squamous Cell Carcinoma

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INTRODUCTION:
This study aims to assess the effectiveness of neoadjuvant chemotherapy (NAC) in patients with oral squamous cell carcinoma (OSCC) in Malaysia through histological assessment according to various tumour regression grading (TRG) models.

MATERIALS AND METHODS:
TRG was performed by 2 examiners using TRG Systems (Mandard-TRG; Ryan-TRG; Braun-TRG; Becker-TRG; Rodel- TRG, Dworak-TRG; AJCC-TRG) on all surgically excised tumour specimen slides for 14 OSCC patients treated with NAC, and subsequently surgery between 2012 and 2017.

RESULTS:
Ryan-TRG (κ=1.000), Rodel-TRG (κ=1.000), Dworak-TRG (κ=0.811), AJCC-TRG (κ=0.736) and Braun-TRG (κ=0.736) showed high Kappa scores of inter-observer agreement. Samples showed complete regression (14.3%), moderate regression (14.3%), mild regression (7.1%) and poor regression/ absence of regression (64.3%). AJCC-TRG was significantly correlated with larger tumour size (ypT) (p=0.001) and strongly associated with advanced stage, positive margin, positive lymph node metastasis, extracapsular spread and poorly differentiatedtumour.

DISCUSSIONS:
AJCC-TRG is a 4-tier classification that fulfills the criteria of a good regression grading system which should be simple and reproducible as reflected by the high kappa scores, with the proven ability to indicate prognosis. A relevant histological representation for OSCC was also factored in when considering all the TRGs. More than 70% of the tumours had little to absence of regression indicating no added benefit for NAC as a treatment option, consistent with findings from Lau et al. (2016)[1].

CONCLUSION:
We suggest the use of AJCC-TRG system for tumour response grading in NAC-treated OSCC. NAC as a treatment option for OSCC did not prove promising.

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DELEGATE ABSTRACTS

EP21

To Assess The Feasibility And Accuracy Of Using Optical Surface Monitoring System (OSMS) In Tattoo-Less Breast Radiotherapy

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INTRODUCTION:
Radiotherapy set up during CT Simulation requires permanent tattoos on patient skin for reproducibility and daily setup. Several studies report that these marks can cause anxiety and body confidence issues.

This study is to assess the feasibility and accuracy of using Optical Surface Monitoring System (OSMS, Vision RT) as an alternative method in patient setup. OSMS is a technique that using non-ionizing camera technology to track patients' surface in 3D for both daily setup and motion management during radiotherapytreatmentdelivery.

MATERIALS AND METHODS:
A total of 47 patients receiving breast radiotherapy from Jan 2019 to June 2019 are selected in this study. The first groups of patient (23 patients) received standard tattoos; the second group of patients (24 patients) had no tattoo and positioned using OSMS CT based data then was exported to OSMS workstation through which the reference surfaces were generated in DICOMfile.

EPID Daily Imaging for the first three days was obtained for both groups, then the vertical(z), longitudinal(y), lateral(x), pitch, roll and rotation shift were analyzed.

RESULTS:
For both group average shift were not more than 0.2cm for all magnitude shift. The average shift for first group (z:0.167; y:0.061; x:0.005; pitch:-0.017; roll:-0.07& rotation:-0.028). For second group result (z:0.062; y:0.05; x:0.01; pitch:-0.11; roll:-0.006 & rotation:-0.006).

DISCUSSIONS:
This study has shown set up using no tattoo with OSMS is comparable with using tattoo. SGRT is useful tool in the accuracy positioning of breast patients.

CONCLUSION:
SGRT shows significant improvement in positioning accuracy for breast radiotherapy and improved patient experiences having radiotherapy treatment without having permanent marks on their body.

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DELEGATE ABSTRACTS

EP22

Phantom Validation Of Geometric Accuracies Of 3-Tesla (T) Magnetic Resonance Imaging (MRI) In Gamma Knife Radiosurgery (GKRS)

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INTRODUCTION:
The high precision of MRI is essential to GK RS treatment planning. 3T MRI compared to 1.5T, may enhance visualization and resolution of small targets, in turn improving the accuracy of radiation delivery. However, the increased potential for spatial error from magnetic susceptibility at high field strengths may result in geometric inaccuracies, leading to compromised delivery. This study consisted of the investigation of phantom geometric accuracy on MPRAGE sequence with and without geometrical distortion correctionalgorithm.

MATERIALS AND METHODS:
The QUASAR GRID phantom by Modus Medical Devices Inc. were used to evaluate geometrical distortion for stereotactic radiosurgery. 2 MR scans (MPRAGE3D and MPRAGE 3D without distortion correction algorithm) were obtained. The phantom was scanned on 3T Skyra MRI Siemens scanner using the CP angle head coil. The analysis was done by using Leksell GammaPlan (LGP) to compare the maximum & mean fiducial errors for 2 scans. 22 geometrically known positions (targets) and coordinates were obtained and deviation of these locations were calculated using ExcelSheet.

RESULTS:
Mean fiducial error for MPRAGE 3D is 0.7 mm where mean error is 2.3 mm for MPRAGE 3D without geometrical distortion correction. Maximum fiducial error for MPRAGE 3D is 0.9 mm where maximum fiducial error for MPRAGE 3D without distortion correction is 3.1 mm. Mean absolute error for MPRAGE 3D is 1.04 mm and the maximum error required is 1.78 mm. Mean absolute error for MPRAGE 3D without distortion correction is 1.05 mm and the maximum error required is 1.99mm.

DISCUSSIONS:
The acceptable tolerance for mean and maximum fiducial error is less than 1.0 mm. MPRAGE 3D meets the criteria where MRPAGE scan without distortion correction fails to. Increased geometrical distortion wasdetected on MPRAGE 3D without applying geometrical distortion correction algorithm. This stem an effective performance of the automated distortion correction algorithms integrated in the Siemens MRI. Increased geometrical distortion will affect the precision of treatment volume and shift the functional target location for treatment (etc trigeminal neuralgia). AAPM Task Group 40 suggests that tolerance of geometric uncertainty in MRI used in SRS treatment planning should not more than 2mm. MPRAGE 3D is well within acceptance level. Further work is still needed to fully characterize MR-relateddistortion.

CONCLUSION:
Analysis on phantom QA data demonstrated the accuracy of our Gamma Knife 3T MRI imaging protocols, where the geometric accuracy of the 3 T MRI imaging protocol is operating within the appropriate tolerance.

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DELEGATE ABSTRACTS

EP23

Deep Inspiration Breath-Hold (DIBH) Technique For Heart Sparing During Radiation Therapy Of Left Breast Cancer: A Single Institution Experience

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INTRODUCTION:
Cardiac morbidity and mortality are the main complication challenges for the radiation treatment of left-sided breast cancer. The location of the heart which is more anteriorly towards the left side of the chest wall results in heart receiving more radiation dose when treating left-sided breast cancer case. Latty et al. (2015) [1] in their meta-analysis of 18 studies highlighted the relative heart mean dose reduction of ranging from 26.2% to 75% when using DIBH technique.

MATERIALS AND METHODS:
Dosimetric comparisons were made retrospectively for 10 patients with left-sided breast cancer. Two sets of CT simulation scans were performed; Free Breathing (FB) and DIBH scans. The Varian Real-time Position Management (RPM) system (Varian Medical Systems, Palo Alto, CA, USA) was used to monitor the breath-hold technique where patients were coached and voluntarily hold their breath. Treatment plans of 6 MV energy for both the FB and DIBH scans were generated using Eclipse Treatment Planning System (TPS) workstation (Eclipse, Varian Medical System, Palo Alto, CA). The isocentre was prescribed with dose 40 Gy in 15 fractions. The Optical Surface Management System (OSMS) was used during treatment for positioningpurposes.

RESULTS:
The result were evaluated by comparing the 3D-conformal plans for both CT scans of DIBH and FB techniques for heart and left lung dosimetric parameters. The mean difference of Maximum Heart Distance (MHD) was 0.81cm (0.20cm - 1.60cm), with average of 0.54cm for DIBH plans and 1.35cm for FB plans. A significant mean reduction of 60% (ranging from 23% to 91%) for MHD were observed in the DIBH plans. In addition, mean heart dose was similarly decreases in the DIBH plans (56% reduction and 216cGy mean dose difference), as well as total heart volume receiving 25Gy (V25Gy) (4.7% mean difference with 84% total reduction). The Central Lung Distance (CLD) for left breast demonstrated 7% reduction with DIBH plans. Other than that, total left lung volume receiving dose of 20 Gy (V20Gy) and 5Gy (V5Gy) are also reduced for DIBH plans, with 19.7% and 13.1% total reduction respectively.

DISCUSSIONS:
The DIBH plans were clinically delivered and FB plans were planned as such to keeping the adequate target coverage while trying to maintain the parameters as close as possible as DIBH plans. DIBH technique greatly reduced the MHD and mean heart dose due to inspiration which increases the distance between heart and chest wall. As a result, heart is pushed away from the edge of the tangential beam. Various techniques have been implemented to minimise the cardiac dose such as beam angle manipulation, Field in Field (FiF) combination and multi-leaf collimator (MLC) blocking. The drawback of aforementioned techniques is that they compromise the breast tissue coverage.

CONCLUSION:
DIBH technique has shown a significant benefit in reducing the cardiac and lung dose during left breast irradiation. A further studies on patient selection criteria for this technique are necessary to account for the individual patient's anatomy.

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DELEGATE ABSTRACTS

EP24

Genomic Analysis Of Malaysian Breast Cancers Unravels Molecular Differences From Caucasian Breast Cancers

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INTRODUCTION:
Breast cancer is the leading cause of cancer death among women, and incidence in Asia is increasing in large part because of changes in reproductive and lifestyle factors. Several appreciable differences exist between breast cancers in Asian and Caucasian women. For example, Asians have a younger median age of incidence and correspondingly, a higher prevalence of hereditary factors, and together, these suggest that they may be crucial differences at the molecular level.

MATERIALS AND METHODS:
We performed whole exome sequencing (WES) on 576 Malaysian breast cancers (at median coverage 75X) and their matched normal blood (40X) to detect single nucleotide variations (SNVs) and small insertions and deletions (indels). We also performed shallow whole genome sequencing (sWGS) to detect major chromosomal aberrations, and transcriptomic sequencing (RNA-seq) to measure geneexpression.

RESULTS:
We captured known copy number changes, together with major breast cancer genes and their phenotypes, for example high frequency of SNVs in hotspot regions in PIK3CA and indels in GATA3. Interestingly, Malaysian breast cancer show higher prevalence of Her2+ molecular subtypes and TP53 mutations, as well as higher immune scores compared with Caucasian breast cancer cases, consistent with previous findings in other smaller Asian data sets.

DISCUSSIONS:
Asian breast cancer appears to be similar to Caucasian breast cancer at the molecular level, but with some important caveats. Our results highlight the importance of Her2 targeted therapy, and support the importance of further research into immunotherapy for breast cancer in Asia.

CONCLUSION:
These results underlie the molecular differences between Asian and Caucasian breast cancers and point to potential differences in therapy and outcome.

DELEGATE ABSTRACTS

EP25

Efficacy And Safety Of Lanreotide 120 mg In The Treatment Of Clinical Symptoms Associated With Inoperable Malignant Intestinal Obstruction (IMIO): Results From A Phase Ii Multicenter Study

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INTRODUCTION:
Intestinal obstruction is a severe complication in patients (pts) with digestive or gynecological cancers. For inoperable pts, there is a need to relieve symptoms and limit nasogastric tube (NGT) use. Previous studies have suggested the efficacy of somatostatin analogues in relieving obstruction-related symptoms.

MATERIALS AND METHODS:
In this single arm, prospective study, Pts with IMIO received one injectionofLAN120mgatday0(D0).Evaluationswereperformed on D7, 14 and 28. The primary endpoint was the proportion of responders before or at D7. Response was defined as ≤2 vomiting episodes/day or no vomiting recurrence, during at least 3 consecutive days at any time point between the D0 and D7. 30% responders were used as reference for defining statistical significance. Responders at D28 were offered a second LAN 120 mginjection.

RESULTS:
52 pts with advanced GI or ovarian malignancies were included in 15 Belgian sites. 17pts without NGT and 35pts with NGT. 21pts received as econddose of LAN. On D7 the proportion of responders in the ITT population was 46.2%, significantly greater than the reference proportion of 30% (p=0.006). Pts without NGT responded better (88.2%) than pts with NGT (25.7%). Pts without ascites responded better (57.7% vs 34.6%). Pts with NGT showed a steady trend for clinical improvement leading to sustainable responses of 45.7% on D14. Median time to response was 9 days for the overall population; 3 days for patients without NGT vs 14 days for patients with NGT (p<0.001). The most frequently reported AEs were GI disorders (diarrhea and abdominalpain).

CONCLUSION:
Our study is the first using long acting LAN 120mg in patients with IMIO and suggests an effect in controlling clinical symptoms in pts with and without NGT at baseline. LAN 120 mg safety profile was similar to that reported for the other indications.

DELEGATE ABSTRACTS

EP26

Association Of Adverse Events (AEs) With Efficacy Outcomes For Cabozantinib (C) In Patients (pts) With Advanced Hepatocellular Carcinoma (aHCC) In The Phase III CELESTIAL Trial

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INTRODUCTION:
Class-specific AEs occurring with tyrosine kinase inhibitors have been associated with improved efficacy outcomes in several tumor types including aHCC. In phase 3 CELESTIAL trial, C, an inhibitor of VEGFR, MET, and AXL, improved overall survival (OS) and progression-free survival (PFS) vs placebo (P) inpts with previously treated aHCC. Here, we retrospectively evaluate the association of palmar-plantar erythrodysaesthesia (PPE) and hypertension (HTN) with OS and PFS for C in the CELESTIAL trial.

MATERIALS AND METHODS:
707pts with aHCC were randomized 2:1 to receive 60mg C or P once daily. Eligible pts had Child-Pugh score A, ECOGPS≤1, must have received prior sorafenib, and could have received up to two prior regimens of systemic therapy for HCC. OS and PFS with C were evaluated for pts with any grade PPE or grade≥3 HTN within first 8 weeks of treatment.

RESULTS:
In the first 8 weeks of treatment, 188 (40%) of C-treated pts developed any grade PPE vs 11 (5%) of P-treatedpts, and 61 (13%) of C-treated pts developed grade≥3HTN vs 3 (1%) of P-treatedpts. Median OS with C was 14.4 mo for pts with any grade PPE vs 8.4 mo for pts without PPE (HR 0.59), and median PFS with C was 6.5 mo vs 3.7 mo, respectively (HR 0.63). Median OS with C was 16.1 mo for pts with grade≥3 HTN vs 9.5 mo for pts without grade≥3 HTN (HR 0.56), and median PFS with C was 7.4 mo vs 4.4 mo, respectively (HR0.59). Some imbalances in baseline characteristics were present. Pts with PPE and hypertension had better ECOG PS, better liver function, and less macrovascular invasion than those without.

CONCLUSION:
The development of PPE or HTN with C was associated with prolonged OS and PFS in pts with previously treated aHCC.

DELEGATE ABSTRACTS

EP27

A Case Report: Non Small-Cell Lung Cancer With Superior Vena Cava Obstruction In An Adolescent

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INTRODUCTION:
Adolescent or childhood lung cancer is uncommon, and non small cell lung cancer (NSCLC) is exceptionally rare. We herein report a case of extensive stage NSCLC in an adolescent patient with superior vena cava obstruction(SVCO).

CASE DESCRIPTION:
A previously healthy 15-year old presented to the hospital with complains of cough and haemoptysis for 2 months. He also had swollen head, neck and both upper limbs. Review of plain chest radiograph suggestedright pleural effusion. Thoracic CT showed a large mass measuring 5.8 x 3.9 x 4.3cm located at right hilar and mediastinal causing bronchus obstruction with right pleural effusion. Because of the patient's age, a differential diagnosis of lymphoma or germ cell tumour was formulated, but workup including tumour markers was negative. Patient underwent video assisted thoracoscopic surgery with right pleural nodule resection. Histopathology examination of the specimen showed poorly differentiated squamous cell carcinoma. Patient had a chest tube inserted to drain the right pleural effusion and was started on high dose dexamethasone for the SVCO. Treatment following adult protocol consisted cisplatin-based chemotherapy and radiation therapy. Patient then was started on chemotherapy Gemcitabine at 1000mg/m2 day 1 and day 8 with Carboplatin AUC 3 day 1 and day 8. However, pre cycle 2 patient developed sudden onset on lower limb weakness. MRI whole spine showed bone metastasis to T8 causing compression fracture. There was also intraspinal extension along T7 to T9 with spinal canal narrowing and encasement of spinal cord at T7 level. Patient had radiotherapy to his spine for cord compression. However, the treatments received did not help much to control the disease and he finally succumbed to his illness.

DISCUSSION:
Diagnosis and treatment of primary lung carcinoma in a in children remains challenging given its rarity. Only a handful of case reports on NSCLC in adolescent has been published earlier.

The long-term prognosis of NSCLC in patients is generally poor, even if desirable initial treatment responses are obtained. In order to improve their prognosis, additional reports on paediatric NSCLC are needed to evaluate appropriate treatment and perhaps new trials with other anti-cancer agents should be performed.

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DELEGATE ABSTRACTS

EP28

Primary Extragonadal Germ Cell Tumour Of The Liver

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INTRODUCTION:
Germ cell tumours (GCTs) arise from totipotent primordial germ cells. About 5% of malignant GCTs are extragonadal (located outside the gonads), typically mediastinal, pinealorretroperitoneal. GCT softheliver are extremely rare and account for <1% of all liver tumours. Only 20-25 cases of malignant primary germ cell tumours of the liver have beenreported.

REPORT:
A 33-year-old man presented with epigastric pain in November 2018. Liverenzymes (ALT/AST) andalpha-fetoprotein (AFP) were markedly elevated. Other biochemical parameters and tumour markers were within normal limits. Computed tomography (CT) showed multiple heterogenous lesions in the liver with minimal normal liver parenchymal tissue. Percutaneous liver biopsy was performed.Histopathological diagnosis was consistent with primary liver GCT. Immunohistochemical staining was positive for CK7, CK20 and AFP and negative for HepPar and TTF1. No other site of tumour was detected by extensivestaging.

He was started on chemotherapy – Bleomycin, Etoposide and Cisplatin (BEP) with 50% dose in view of poor liver function.

CONCLUSION:
This man has an extensive primary liver GCT (poor prognosis group), planned for 4 cycles of BEP with the aim of a curative resection of the liver tumour.

Although his liver function improved during chemotherapy, his AFP never normalized completely indicating the presence of active disease. A CT post chemotherapy showed good response in the liver but evidence of new lung metastases.He has been started on salvage chemotherapy with a view of resection of the primary tumour if there is good response tochemotherapy.

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DELEGATE ABSTRACTS

EP29

Neutrophil Lymphocyte Ratio And Platelet Lymphocyte Ratio As A Prognostic Factor In Locally Advanced Lung Cancer

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INTRODUCTION:
Baseline Neutrophil Lymphocyte Ratio (NLR) and Platelet Lymphocyte Ratio (PLR) have been touted as reliable prognostic indicators for advanced lung cancer. A metaanalysis1 found that NLR ≥4 is associated with poorer survival. Multiple other studies2,3 found that PLR ≥250 indicates poorer survival. We aimed to investigate the role of NLR and PLR as prognostic markers in patients with locally advanced Lung Cancer at our centre.

MATERIALS AND METHODS:
This is a retrospective analysis. Records of all patients with Locally Advanced Lung Cancer (Stage 2B-3C) who were treated radically in Hospital Kuala Lumpur from 2012-2019 were analysed. There were 18 patients with complete records (including available Full Blood Counts pre-treatment). NLR and PLR were calculated as pre-specified.

RESULTS:
The median progression free survival (PFS) of patients with high NLR was 12 months vs low NLR 24months ($P<0.001$) and high PLR was 9 months vs low PLR 24 months ($p=0.002$). Median overall survival with high and low NLR was 10 months and 28 months respectively ($p<0.001$),high PLR vs low PLR was 10 months v s25 months ($p=0.04$).

DISCUSSIONS:
High NLR and PLR showed to be strongly associated with poorer prognosis. Further studies should be conducted to see if there is any impac to fNLR and PLR on different stages and treatment modalities (surgery vs concurrent radiotherapy).

CONCLUSION:
High baseline NLR and PLR was associated with significantly worse progression free survival and overall survival.

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DELEGATE ABSTRACTS

EP30

Neutrophil Lymphocyte Ratio (NLR) Kinetics As A Biomarker Of Treatment Response And Outcome

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INTRODUCTION:
Neutrophil Lymphocyte Ratio (NLR) at baseline has been shown to be a biomarker of prognosis in many malignancies. However, few studies have addressed if NLR kinetics (pre- and post-treatment) affects treatment responses and outcomes[1]. It has been postulated that NLR differences of more than double (over baseline) is associated with pooreroutcomes[2].

MATERIALS METHODS:
This is a retrospective analysis. Records of all patients with Locally Advanced Lung Cancer (Stage 2B-3C) who were treated radically in Hospital Kuala Lumpur from 2012-2019 were analysed. There were 18 patients with complete records (including available Full Blood Counts pre-treatment). Difference in NLR (baseline and post treatment) was calculated. The difference in NLR, as a ratio to the baseline NLR was calculated and tabulated as High (doubled or more) or low/stable (less than double).

RESULTS:
The median progression free survival (PFS) of patients with high NLR was significantly shorter than those with low/stable NLR (12 months vs 24 months, p=0.02). The median overall survival showed a trend towards improvement with low/stable NLR compared to high NLR (25 months vs 14 months, p=0.063).

DISCUSSIONS:
NLR is an acute phase reactant which is a systemic inflammatory marker. It has been hypothesized that persistent inflammation is detrimental. NLR kinetics may be an index of response to treatment and prognosis that will need to assessed in prospective studies.

CONCLUSION:
NLR which doubles or more post treatment was associated with significantly worse progression free survival and a trend towards worse overall survival.

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DELEGATE ABSTRACTS

EP31

Experience In Establishing Reference Dosimetry For A Newly Commissioned Varian Halcyon Linac

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INTRODUCTION:
Halcyon is a 6MV-FFF (flattening filter free) single energy ring- gantry linac. It is designed for fast assembly and factory pre-configured and pre-commissioned. We established reference dosimetry based on IAEA TRS 398 with adaptation to TRS 483 for absolute dosimery for this FFF system.

MATERIALS AND METHODS:
The reference dosimetry was done using a MedTec 1-D water tank and a 0.6cc waterproof Farmer chamber (PTW 30013) and PTW Unidos electrometer. Orthogonal MV images were taken to position the chamber reference point at the reference depth. Polarity correction factor, kpol, ion recombination factor, ks and beam quality were determined in accordance to IAEA TRS 398. Independent audit of output dose calibration were done by irradiating TLD provided.

RESULTS:
kpol and ks factor are 1.001 and 1.006 respectively. TPR20,10 obtained is 0.629 and kQ values for FFF beams for Farmer chambers were obtained from IAEA TRS 4832 is 0.995.

DISCUSSIONS:
After performing reference dosimetry, our output was 0.9998 cGy/MU and it was independently verified by MD Anderson Cancer Center's Radiation Dosimetry Services (RDS).

CONCLUSION:
We have successfully implemented the TRS 398 protocol for reference dosimetry for the Halcyon FFF beam.

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DELEGATE ABSTRACTS

EP32

Case Report Of Developing Congestive Heart Failure During Osimertinib Treatment

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INTRODUCTION:
Osimertinib is an oral, irreversible epidermal growth receptor tyrosine kinase inhibitor (EGFR- TKI). It has improved overall survival in non-small cell lung carcinoma with epidermal growth receptor (EGFR) mutation and EGFR T790M resistance mutation. It is generally well-tolerated and less toxic. Cardiac toxicity is rare but remains a safety concern. We herein report a case of congestive heart failure that developed in a patient receivingosimertinib.

A 62 year old woman was initially diagnosed with Stage IIIA non-small cell lung carcinoma in 2017. She under went VATS right lower lobe lobectomy, followed by adjuvant chemotherapy (cisplatin- pemetrexed) and mediastinum radiotherapy 50.4Gy/28#. Baseline echocardiogram was normal with an ejection fraction of 55%.

Her disease relapsed in October 2018 with metastasis to bilateral lung and biopsy further confirmed lung adenocarcinoma harbouring EGFR exon 19 deletion. She was then started on Osimertinib in December 2018. Six months after osimertinib initiation, she presented with heart failure symptoms such as dyspnea and peripheral edema. Chest X-ray showed enlargement of the cardiac silhouette and Kerley lines. A repeat echocardiography revealed severely reduced left ventricular systolic function with an ejection fraction of only 15%. Cardiac MRI showed dilated cardiomyopathy with severe biventricular systolic dysfunction likely drug-induced cardiotoxicity and no myocardial oedema, infiltration or previous infarction. She was not taking other medications associated with cardio toxicity and the heart dose in radiotherapy was within tolerant limits. She has since recovered well after heart failure medications and cessation of osimertinib.

Our case underscores the rare adverse event of heart failure secondary to osimertinib. Report by Watanabe et al., has supported the mechanism of this rare side effect secondary to HER2 inhibition[1]. Hence, careful follow-up of cardiac function during osimertinib treatment is needed.

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DELEGATE ABSTRACTS

EP33

Treatment Outcomes Of Patients With Advanced Gastrointestinal Stromal Tumours (GIST) Treated With Imatinib Mesylate: A Multicenter Study

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INTRODUCTION:
Imatinib mesylate, a selective tyrosine kinase inhibitor of KIT and PDGFRα is the first line treatment for inoperable and metastatic gastrointestinal stromal tumours (GIST). This study aims to assess the treatment outcomes of patients treated with this targeted therapy in our setting.

MATERIALS METHODS:
A retrospective analysis involving 107 patients treated in UMMC, UKMMC and HKL between January 2002 and December 2012 was done. The relevant patient, disease and treatment characteristics were obtained from the medical records and analysed.

RESULTS:
Among the 107 patients, 84 (78.5%) had metastatic disease, 17 patients (15.9%) had inoperable disease and 6 patients (5.6%) had locally recurrent disease. The mean age of patients was 56.5 years (S.D. ±13.6). GIST was most commonly seen among males (57.9%) and those of Chinese ethnicity (57.9%). Stomach was the most common primary tumour site (40.2%) and the mean tumour size was 12.3 cm (±S.D. 6.0). Treatment related side effects were mainly Grade 1-2 nausea and periorbital edema in about a third of patients. Fifty two (52) patients (54.2%) achieved stable disease, 26 patients (27.1%) had partial response, 7 patients (7.3%) had progressive disease and 1 patient (1.0%) had complete response (on CT assessment). Ten (10) of the 11 patients who had PET CT scans as their assessment modality had complete metabolic responses. The median progression free survival duration of patients in this study was 4.9 years (95% CI 2.87-7.13) while the median overall survival duration was 6.0 years (95% CI 4.56- 6.12).

CONCLUSION:
The survival outcomes of advanced GIST patients treated with Imatinib in this cohort of patients seems at least as good as published data. Treatment related side effects were minimal and acceptable.

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DELEGATE ABSTRACTS

EP34

Concordance of RAS Mutation Status Between OncoBEAM-Based Liquid Biopsy And Tissue Analysis In Metastatic Colorectal Cancer: A Preliminary Results

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INTRODUCTION:
A highly sensitive platform is required to detect the low abundance of circulating-tumour DNA (ctDNA) in metastatic colorectal cancer (mCRC) patient. BEAMing digital PCR technology offers a high sensitivity detection than standard quantitative PCR. The aim of this study was to determine the concordance between plasma ctDNA and tumour tissue RAS mutation status in mCRC patient.

MATERIALS METHODS:
A total of 20 matched tumour tissue and blood mCRC patients were included in this study. RAS mutations detection on tumour tissue were done using pyrosequencing and in plasma using digital PCR, OncoBEAM. Results were then compared between tissue DNA pyrosequencing and ctDNA, OncoBEAM.

RESULTS:
Out of 20 patients, 16 were concordance between ctDNA and tumour tissue analysis. The overall percentage agreement was 80% with 71.4% and 84.6% for positive and negative agreement respectively.

DISCUSSIONS:
The high concordance percentage observed in this study where due to the high sensitivity by OncoBEAM platform. However, a larger sample size is needed to correlate the concordance of ctDNA and tumour tissue sample to obtain higher confidence level.

CONCLUSION:
The high overall agreement between plasma and tissue results indicate that blood-based RAS mutation testing can be an alternative to tissue-based RAS testing.

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