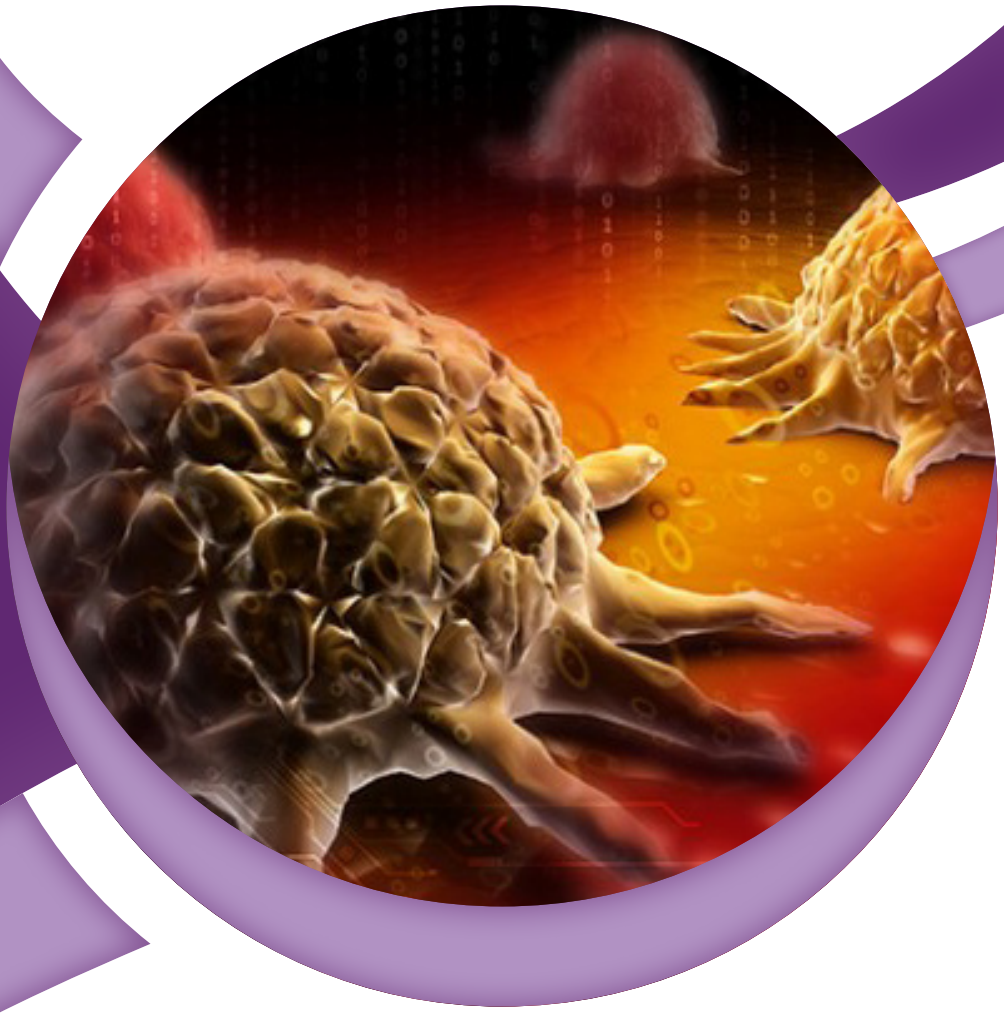

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Posters

Sang Youn Hwang et al., J Cancer Diagn 2018, Volume 3
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Long-term efficacy and safety of stereotactic body radiation therapy for hepatocellular carcinoma refractory or unsuitable for other therapeutic modalities

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Aim: The aim of this study was to evaluate long-term efficacy and safety of Stereotactic Body Radiotherapy (SBRT) for the naive or salvage treatment of inoperable Hepatocellular Carcinoma (HCC) were unsuitable for other therapeutic options.

Method: The authors reviewed the medical records of 58 patients that were treated by SBRT in our institution when they had HCC without another standard treatment option or complete response of loco-regional therapy between August 2010 and October 2015. All patients SBRT dosages (24-60 Gy from two to eight fractions) were administered according to tumor volume. Survival, response and toxicities were evaluated. Response evaluation was performed according to modified response evaluation criteria for solid tumors.

Result: 11 patients were Barcelona Clinic Liver Cancer A, 25 patients were Barcelona Clinic Liver Cancer B, 22 patients were Barcelona Clinic Liver Cancer C stage. 50 patients had Child-Pugh Class A disease, 8 patients had Class B disease. 26 patients had macrovascular invasion (14 portal vein thrombosis, 4 hepatic vein thrombosis, 8 both venous thrombosis), 3 patients had bile duct invasion. The median greatest tumor dimension was 30 mm (range, 8-170 mm). 49 patients (84.5%) achieved complete response (47 patients within 6 months and 2 patients between 6 and 12 months after complete SBRT), 4 patients (6.9%) had a partial response, 4 patients (6.9%) had stable disease and 1 (1.7%) patient had progression disease. Infield local recurrence was observed in 7 patients (12.1%) and outfield intrahepatic failure was 29 patients (50%) and extrahepatic metastasis was 14 patients (24.1%). The median Overall Survival (OS) was 23 months (range 3-60 months) and the median Progression-Free Survival (PFS) was 7 months (range 1-43 months). Especially 29 patients (50%) have the median OS over 24 months and the median OS of 18 patients with median PFS over 12 months was 35 months (range 18-50 months). Three patients (5.2%) experienced grade 3 gastrointestinal toxicity, 1 patients (1.7%) experienced grade 4 gastric ulcer perforation and 4 patients (6.9%) experienced mild pneumonitis and 1 patient (1.7%) experienced burn requiring skin graft. Three patients (5.2%) experienced grade 3 hepatotoxicity.

Conclusion: Our study suggests that SBRT can be effective and safe modality that achieves promising rates of long-term local control and survival in HCC refractory or unsuitable for other therapeutic options, even with vascular or bile duct invasion. A further well controlled, large scaled study to reduce toxicity (especially gastrointestinal and pulmonary and hepatic toxicity) is recommended.

Biography

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The role of Glutathione Peroxidase enzyme 4 (GPX4) in human squamous cell carcinoma of the oral cavity

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GPX family, a selenoprotein, was first described as an enzyme that protects hemoglobin from oxidative degradation. The expression and activity of GPX4 depends on selenium. The liver is particularly sensitive to moderate selenium deficiency since other organs such as brain and reproductive system take up selenium with higher priority. Selenium-containing enzyme GPX4 antagonizes this damage by reducing lipid hydroperoxides to respective hydroxides. However, the role of GPX4 in human oral cancer remains unclear. Then, this study examined the role of GPX4 in human oral squamous cell carcinoma. Five Human Oral Squamous Cell Carcinoma (HOSCC) cell lines, HSC-2, HSC-3, HSC-4, Ca9-22 and SAS, were used in this study. As a result of real-time quantitative RT-PCR and Western blotting, GPX4 expression levels were the highest in SAS cells. GPX4 knockdown with GPX4 siRNA in SAS cells revealed to decrease the cell number. Then, suspecting apoptosis-induced cell death, caspase activity was also determined. It was indicated that GPX4 knockdown in SAS cells did not lead to apoptosis via the activation of caspases. In other words, it was suggested that GPX4 knockdown in SAS cells led to non-apoptotic cell death such as ferroptosis. In addition, the localization of GPX4 and p53 proteins in HOSCC tissues were examined using immuno-histochemistry. The positive reaction for MAb GPX4 was observed on the membrane of tumor cells in HOSCC tissues. Meanwhile, p53 immunoreactivity was clearly observed, especially consistent with GPX4 positive cells. These findings suggest that GPX4 plays a significant role in the proliferation of oral cancer.

Biography

Masakatsu Fukuda has completed his PhD from Nihon University and Postdoctoral studies from International Agency for Research on Cancer, Lyon, France. He is currently working as a Junior Associate Professor of Division of Oral and Maxillofacial Surgery, Department of Diagnostic and Therapeutic Sciences, Meikai University School of Dentistry. He has published more than 45 papers in reputed journals.

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Abdomen depth and rectus abdominis thickness predict surgical site infection in patients receiving elective radical resections of colon cancer

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Surgical Site Infection (SSI) significantly hampers the benefits of surgical interventions and requires early identification and prediction especially in colorectal surgeries. The aim this study is to investigate the association between abdominal physiological features (including Subcutaneous Fat Thickness (SFT), Rectus Abdominis Thickness (RAT), abdomen depth and the occurrence of SSI in patients receiving elective radical resection of colon cancer. We conducted a retrospective case-control study. 55 patients in SSI and non-SSI groups were collected using propensity score match. Demographics, clinical characteristics, pre- and intra-operative data were compared between groups. Significant elements were subsequently brought into logistic regression and receiver-operating characteristic analysis for further identification. Patients in SSI group exhibited lower preoperative albumin (p=0.0022), higher RAT (p=0.014), AD (p=0.029) and the multiplied value (RAT×AD) (p=0.0026) compared to patients in non-SSI group. RAT×AD was an independent risk factor for SSI (OR=1.007, p<0.001) and could serve as a biomarker for SSI prediction (AUC=0.83, 95% CI: 0.74~0.91) in this cohort of patients. In conclusion, pre-operative rectus abdominis thickness and abdomen depth correlate with the risk of postoperative SSI in patients receiving elective radical resection of colon cancer.

Biography

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STING controls mucosal Th17 immunity for host defenses against microbial DNA in gut

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Microbial DNA binds to host intracellular protein-STING encoded by *Tmem*173. In this study, we demonstrate that STING triggers adaptive immune responses that control Th17 differentiation. Microbial DNA recognition enables Classical Dendritic Cells (CDCs) that predominantly express CD103 to induce Th17 lymphocytes in an IL-6/IL-1β-dependent manner in gut. STING expression in human lamina propria is associated with the severity of mucosal inflammation and clinical disease activity in patients with Crohn's disease. Mice deficient in *Tmem*173 fail to mount Th17 responses or prevent immune evasion of enteroinvasive pathogens. In summary, STING in mucosal cDCs controls Th17 sub specification that is essential for host defenses against microbial infection in gut-associated immune system.

Biography

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Accepted Abstracts

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The effects of syndecan-2 fragments on TGF-β induced genes in breast cancer cells

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Introduction & Aim: Syndecan-2 (Sdc-2) is a transmembrane heparin sulfate proteoglycan that is up-regulated in breast tumors. Preliminary data indicates that over expression of Sdc-2 peptides in Breast Cancer Cells (BCC's) increase their migratory and immune-suppressive properties. Sdc-2 fragments were designed and cloned into a vector to mimic a component of endogenous Sdc-2. Overexpression of TGF-β results in pro-tumorigenic modifications to cells in the tumor microenvironment. Therefore, inhibition of the TGF-β pathway would be a rational approach in breast cancer therapies. Our objective was to determine the role of Sdc-2 on the TGF-β pathway in MDA-MB-231 BCC's.

Method: Cultured MDA-MB-231 breast cancer cells were transfected with Fc empty vector, Sdc-F1 or Sdc-F2. A serum starvation and a TGF-β3 time course were carried out. RNA was harvested from the cells at 0, 1, 2, 4, 6 after TGF-β3 treatment. The RNA was purified and quantified, followed by cDNA synthesis via reverse transcription. qPCR was carried out to determine the effect of Sdc-2 fragments on TGF-β induced genes such as SMAd7, Serpine1 and CTGF.

Result: Promising data was collected from all three experiments, however due to sensitivity of qPCR the figures were different preventing statistical significance. Throughout all three experiments consistent trends were observed such as SMAD7 and Serpine1 down-regulation by Sdc-2-Fc-peptides indicating TGF-β suppression especially at the 6-hours' time point.

Conclusion: Further investigation of Sdc-2-Fc-peptides is imperative since data collected revealed Sdc-2 interaction with TGF-β induced genes.

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Long-term exposure of particle matter and ozone for cancer risk according to obesity and health-related behaviors: A nationwide population-based cross-sectional study

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Long-term exposure to ambient particulate matter (PM10) and ozone (O3) has been suggested to be associated with an increased risk of cancer. However, there is little evidence on association between cancer and air pollution according to obesity and health-related behaviors. We selected 100,867 subjects from the 2012 Korean Community Health Survey and socioeconomic characteristics, health-related behaviors and previous cancer history were surveyed. Daily average concentrations of hourly measured PM10 and O3 (2003-2012) from the Korean Air Pollutants Emission Service were obtained. The risk of cancer for the interquartile increase of particulate matter and ozone was evaluated using multiple logistic regression analysis according to age, obesity and health-related behaviors. PM10 and O3 were positively associated with cancer risk in univariate analysis (PM10: Odds ratio [OR] 1.18, 95% confidence interval [CI] 1.06-1.31. O3: 1.04, 1.01-1.07). We found out the increased risk of cancer with the obese subjects aged 50 years and older. However, we did not confirm these trends in non-obese and alcohol status. About PM10, obese men, obese ever smoker, obese inactive subjects were associated with the increased cancer risk. For O3, the cancer risk significantly increased in obese adults aged 50 and older, regardless of sex, smoking, alcohol intake and physical activity. However, active subjects aged 50 and older had no significant association with cancer risk. In conclusion, long-term exposure to ambient air pollution is associated with the risk of cancer, reinforced with obesity, smoking and physically inactivity over 50 years old.

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Rational combinations of active and passive immunotherapy mobilize immune and clinical responses in terminal cancers

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Solid tumors encroach on the host's immune microenvironment to favor its own proliferation. Strategies to enhance the specificity of the endogenous T cell population against tumors have been met with limited clinical success. We aimed to devise a 2-tier protocol coupling in vivo whole antigen priming with ex vivo cellular expansion to clinically evaluate survival in patients following re-infusion of primed, autologous T cells, determining treatment efficacy. Treatment commenced with the acquisition of whole tumor antigens from tumor cell lines corresponding with patients' primary malignancy. Lysate mixture was inoculated intradermally while Peripheral Blood Mononuclear Cells (PBMCs) were periodically extracted via phlebotomy and expanded in culture ex vivo for re-infusion. Post treatment tumor-specific T cell response and cytotoxicity was confirmed via ELISpot and Real-Time Cell Analyzing (RTCA) Assay. Serum cytokine levels and cytotoxicity scores were evaluated for associations with survival status and duration. There was significant increase in cytotoxicity exhibited by T cells measured using both ELISpot and RTCA following treatment. Correlation analysis determined significant association between higher post treatment cytotoxicity scores and survival status (R=0.52, p=0.0028) as well as longer survival duration in months (R=0.59, p=0.005). Our use of whole cell antigens proved effective in its task of in vivo priming, thereby greatly facilitating the ex vivo cell expansion as previously noted. The unique PBMC culture system used in this study achieved over 85% CD8+ lymphocyte concentration post expansion. The data showed a clear increase in tumor-specific cytotoxicity post treatment (p=0.037), which directly translated to an improved survival rate both categorically (p=0.0028) as well as duration in months (p=0.005). This same trend was backed up by the IFN-γ ELISpot count which demonstrated a positive association of the IFN- ELISpot score with survival duration (p=0.04). In the future, dedicated studies in the recruitment of sufficient patients of specific cancers will streamline this process and allow more in-depth analysis of post treatment changes segregated by each defined tumor cell line chosen. Conduction of formal randomized controlled trials will be the direction to take in future studies.

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Diagnostic evaluation of pregnancy associated breast cancer

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Pregnancy-associated breast cancer is the breast cancer detected during pregnancy and within one year postpartum. It is a rare and challenging problem. Diagnosis of Pregnancy-Associated Breast Cancer (PABC) is frequently delayed, due to the difficulty in characterizing tumors in the gravid breast, less general awareness and reluctance of patients as well as physicians to perform diagnostic imaging or intervention in pregnancy. PABCs are commonly found at advanced stage, have higher recurrence and mortality rates relative to non PABC. Delay in diagnosis is one of the major causes of aggressive presentation of PABC. The most significant etiological factor is that most of the masses presenting in this period are benign. Multidisciplinary approach is mandatory for management of PABC which depends upon the gestational stage at which cancer is detected. This article highlights radiological appearances of PABC and defines diagnostic approach for the evaluation of palpable lumps in pregnant and lactating women. To evaluate radiological appearance of pregnancy associated breast cancer on various imaging modalities along with determination of diagnostic accuracy of these imaging modalities in PABC. Study would be conducted in the Department of Diagnostic Radiology of Shaukat Khanum Hospital and Research Centre Lahore. All breast cancers diagnosed at our institution during pregnancy or during the 12 months post-partum will be reviewed from 1st April 2008 to 30th April 2018, describing the radiological as well as histological features of pregnancy-associated breast cancer emphasizing diagnostic difficulties. Since all the patients who get enrolled in the inpatient of SKMCH have already consented at the time of entry to be the part of any research and study that's been done in the hospital, no formal consent has been taken. Their data would be retrieved from the system for the last ten years. Their sonographic, mammographic and MRI features would be assessed by the multiple radiologists of the department. Radiological interpretations along with histological features, duration of symptoms as well as associated risk factors shall be recorded on the pro forma as given in Appendix. These findings would be compiled and results finalized.

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Reliability and validity of the multidimensional scale of perceived social support in cancer patients

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Social Support (SS) is considered as an important component in improving quality of life of cancer patients. In Sri Lankan context how SS can be measured and evaluated in cancer patients is not well understood. This study examined the Sinhala version of the Multidimensional Scale of Perceived Social Support (MSPSS) for its psychometric properties. The scale has 3 dimensions; Family (FA), Friends (FR) and Significant Others (SO) support. The research was approved by the Ethics Review Committee, Faculty of Medicine, Galle. A total of 40 cancer patients at the radiotherapy unit, oncology ward, Teaching Hospital, Karapitiya in southern Sri Lanka were enrolled in the study. Participants were asked to complete three scales; the MSPSS, the Centre for Epidemiological Studies- Depression scale (CES-D) and the World Health Organization-Quality of Life-Brief scale (WHOQOL-BREF). Test-retest reliability of the scale was assessed. Results were regarded as statistically significant if $p<0.05$. Mean (±SD) age of the sample was 61±12 years. Mean score (±SD) for overall SS was 65±7. Factor analysis produced three-factor solutions with total variance of 96%. The internal consistency of the overall scale was good (Cronbach's alpha-0.75). FA and SO showed high Cronbach's alpha (0.983 and 0.996). The test-retest reliability was found to be 0.86. The Sinhala-MSPSS was found to have a negative correlation with the CES-D, but was positively correlated with the WHOQOL-BREF. The Sinhala version of MSPSS is a reliable and valid tool to assess SS of cancer patients.

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