
OBJECTIVE: To evaluate the predictors of the risk of long-term hospital readmission after radical prostatectomy (RP) in a single tertiary referral center where both open RP (ORP) and robot assisted RP (RARP) are performed.

MATERIALS AND METHODS: The risk of readmission was evaluated by clinical, pathological, and perioperative factors. Skilled and experienced surgeons performed the 2 surgical approaches. Patients were followed for complications and hospital readmission for a period of 6 months. The association of factors with the risk of readmission was assessed by Cox’s multivariate proportional hazards.

RESULTS: From December 2013 to 2017, 885 patients underwent RP. RARP was performed in 733 cases and ORP in 152 subjects. Extended pelvic lymph node dissection (ePLND) was performed in 479 patients. Hospital readmission was detected in 46 cases (5.2%). Using a multivariate model, independent factors associated with the risk of hospital readmission after radical prostatectomy (RP) and robot assisted RP (RARP) are performed.

CONCLUSIONS: In a large single tertiary referral center, independent predictors of the risk of long-term hospital readmission after RP included ORP, ePLND, and seminal vesicle invasion. When surgery is chosen as a primary treatment of PCA, patients should be informed of the risk of long-term hospital readmission and its related risk factors.

PMID: 31991418 [PubMed — as supplied by publisher]

Alzheimer Disease and Cancer: A National Inpatient Sample Analysis.

INTRODUCTION: Studies have demonstrated an inverse relationship between Alzheimer dementia (AD) and cancer. This inverse relationship was further explored. In addition, Pin1 expression has been implicated in the cell cycle regulation of both disease processes. The relationship of Pin1 expression in 10 cancer types and secondary diagnosis of AD was examined.

MATERIALS AND METHODS: A cross-sectional analysis was performed using discharge data from the National Inpatient Sample from 1999 to 2008. Cancer was defined as the primary discharge diagnosis and AD was defined as the secondary discharge diagnosis. Cancer types were grouped according to their Pin1 expression to examine its relationship with AD. Analysis was performed by logistic regression.

RESULTS: Of ~ 3 million cancer discharge diagnoses, 1.0% had a secondary diagnosis of AD. Discharge data of all 10 cancer types revealed a lower likelihood of secondary AD diagnosis. Prostate (crude odds ratios (OR): 0.26 (0.24 to 0.29), multivariate OR: 0.39 (0.35 to 0.43)), ovarian (crude OR: 0.38 (0.32 to 0.44), multivariate OR: 0.35 (0.30 to 0.41)), and lung cancer (crude OR: 0.39 (0.36 to 0.41), multivariate OR: 0.41 (0.39 to 0.44)) demonstrated the lowest odds of secondary AD diagnosis. When cancer types were grouped per Pin1 expression, cancer types with Pin1 underexpression were more likely to be associated with secondary diagnosis of AD than cancer types with Pin1 overexpression (crude OR: 1.4 (1.3 to 1.4), multivariate OR: 1.08 (1.02 to 1.14)).

DISCUSSION: This secondary data analysis further demonstrated an inverse relationship between AD and 10 cancer types, with prostate, ovarian, and lung cancers displaying the greatest inverse relationship. Pin1 underexpressing cancer types had a significantly higher likelihood of secondary diagnosis of AD than Pin1 overexpressing cancer types.

PMID: 31990712 [PubMed — as supplied by publisher]
Bone Health and Bone-Targeted Therapies for Prostate Cancer: ASCO Endorsement of a Cancer Care Ontario Guideline.

Related Articles

Bone Health and Bone-Targeted Therapies for Prostate Cancer: ASCO Endorsement of a Cancer Care Ontario Guideline.

J Clin Oncol. 2020 Jan 28; JCO1903148

Authors: Saylor PJ, Rumble RB, Tagawa S, Eastham JA, Finelli A, Reddy PS, Kungel TM, Nissenberg MG, Michalski JM

Abstract

PURPOSE: In 2017, Cancer Care Ontario’s Program in Evidence-Based Care released the Bone Health and Bone-Targeted Therapies for Prostate Cancer guideline. This guideline included recommendations across a relatively broad clinical spectrum within prostate cancer. Topics addressed ranged from management of osteoporotic fracture risk in nonmetastatic disease to management of men with castration-resistant prostate cancer metastatic to bone. ASCO has a policy and set of procedures for endorsing clinical practice guidelines that have been developed by other professional organizations.

METHODS: The Bone Health and Bone-Targeted Therapies for Prostate Cancer guideline was reviewed for developmental rigor by methodologists. An ASCO Expert Panel then reviewed the content and the recommendations.

RESULTS: The ASCO Expert Panel determined that the recommendations from the Bone Health and Bone-Targeted Therapies for Prostate Cancer guideline were clear, thorough, and based on the most relevant scientific evidence. ASCO wholly endorses the Bone Health and Bone-Targeted Therapies for Prostate Cancer guideline.

RECOMMENDATIONS: The ASCO Expert Panel endorses all the original guideline recommendations as written and offers a series of discussion points to guide practice for clinicians as they manage bone-related risks within this patient population.

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Bioconjugates of Chelators with Peptides and Proteins in Nuclear Medicine: Historical Importance, Current Innovations and Future Challenges.

Related Articles

Bioconjugates of Chelators with Peptides and Proteins in Nuclear Medicine: Historical Importance, Current Innovations and Future Challenges.

Bioconjug Chem. 2020 Jan 28;:

Authors: Jackson J, Hungnes I, Ma MT, Rivas C

Abstract

Molecular radiopharmaceuticals based on bioconjugates of chelators with peptides and proteins have had significant clinical impact in diagnosis and treatment of several types of cancers. In the 1990s, indium-111 and yttrium-90 labelled chelator-peptide/protein conjugates established the clinical utility of these radiopharmaceuticals for receptor-targeted γ-scintigraphy imaging and systemic radiotherapy. Second generation bioconjugates based on peptides targeting the somatostatin II receptor and the prostate specific membrane antigen are now widely used for management of neuroendocrine and prostate cancer respectively. These bioconjugates are typically radiolabelled with gallium-68 for imaging of target receptor expression with Positron Emission Tomography, and the β-emitter, lutetium-177 for targeted radiotherapy. Innovations in radioisotope technology and biomolecular therapies are likely to drive the future clinical development of radiopharmaceuticals based on radiometals. New chelator-peptide and chelator-protein bioconjugates will underpin nuclear medicine advances in molecular imaging and radiotherapy.

PMID: 31990543 [PubMed — as supplied by publisher]

Bacterial signatures and their inflammatory potentials associated with prostate cancer.

Related Articles

Bacterial signatures and their inflammatory potentials associated with prostate cancer.

APMIS. 2020 Jan 28;:

Authors: Brüggemann H, Al-Zeer MA

Abstract

Chronic inflammation can create a microenvironment that can contribute to the formation of prostate pathologies. Far less well understood is the origin of inflammation in the prostate. One
Potential source is microbial infections of the prostate. This review summarizes recent findings regarding the presence of bacteria in the prostate and the dysbiosis of bacterial populations in the urinary tract and the gastrointestinal tract related to prostate cancer, thereby focusing on next-generation sequencing (NGS)-generated data. The current limitations regarding NGS-based detection methods and other difficulties in the quest for a microbial etiology for prostate cancer are discussed. We then focus on a few bacterial species, including Cutibacterium acnes and Escherichia coli that are often NGS-detected in prostatic tissue specimens, and discuss their possible contribution as initiator or enhancer of prostate inflammation and prostate carcinogenesis.

Related Articles

Surface modification of super paramagnetic iron oxide nanoparticles via milk casein for potential use in biomedical areas.

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**Abstract**

Super paramagnetic iron oxide nanoparticles (SPIONs) have proved that they have tremendous potential to use in various biomedical applications. But the surface of pure iron oxide nanoparticles so fast oxidized, that is a major drawback for biomedical applications. Covered SPIONs have good surface activity. Therefore, the first goal the naked SPIONs were synthesized. Then we modified with 3-Aminopropyltriethoxysilane (APTES) and trichlorotriazine (TCT). Several techniques measurements were used to characterization the size and special features of naked SPIONs and TCT modified SPIONs. These results show that the SPIONs were synthesized. After that the SPIONs are coated with casein and indicate that there is an interaction between them. Moreover, we have investigated magnetic properties and anticancer effects of casein coated SPIONs. Therefore we showed casein could be used to increase the biocompatibility of the surface of SPIONs. At the end we show that bonding of dipyridamole (DIP) to the surface of casein coated SPIONs have good magnetite properties for targeted drug delivery. We find that the release of DIP by casein coated SPIONs-DIP was sensitive to pH. Both release curves in pH 5.5 and 7.4 showed the release of DIP by β-casein coated SPIONs-DIP better than α-casein coated SPIONs-DIP. The cell culture studies of the casein coated SPIONs-DIP provides good anticancer effects against both breast and prostate cancer cell lines. Here, we propose a simple and inexpensive chemical method for preparation of highly biocompatible core-shell SPIONs and binding of drug for using in targeted drug delivery system.

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**Age, Gleason Score, and PSA are important prognostic factors for survival in metastatic castration-resistant prostate cancer. Results of The Uroncor Group (Uro-Oncological Tumors) of the Spanish Society of Radiation Oncology (SEOR).**

**Related Articles**

**Surface modification of super paramagnetic iron oxide nanoparticles via milk casein for potential use in biomedical areas.**

J Biomol Struct Dyn. 2020 Jan 28;:1–14

Authors: Esmaili M, Dezhampanah H, Hadavi M

**Abstract**

INTRODUCTION: The treatment of metastatic castration-resistant prostate cancer (mCRPC) has changed significantly in recent years. Inhibitors of androgen receptors have shown especially significant benefits in overall (OS) and progression-free survival (PFS), with a good toxicity profile. Treatment selection depends on the patient’s individual clinical, radiological, and biological characteristics.

OBJECTIVE: To describe treatment outcomes (efficacy, toxicity) in a cohort of patients with mCRPC in Spain.

MATERIALS AND METHODS: Multicenter, retrospective study of patients with mCRPC included in a database of the Urological Tumour Working Group (URONCOR) of the Spanish Society of Radiation Oncology (SEOR). Metastatic CRPC was defined according to the prostate cancer working group 3 (PCWG3) criteria. The Kaplan-Meier technique was used to evaluate OS and the Common Terminology Criteria for Adverse Events (CTCAE, v.4.0) were used to assess toxicity. Univariate and multivariate Cox regression analyses were performed to identify the factors significantly associated with OS.

RESULTS: A total of 314 patients from 17 hospitals in Spain diagnosed with mCRPC between June 2010 and September 2017 were included in this study. Mean age at diagnosis was 68 years (range 45–89). At a median follow-up of 35 months, OS at 1, 3, and 5 years were 92%, 38%, and 28%, respectively. Grades 1–2 and grade 3 toxicity rates were, respectively, 68% and 19%. No grade 4 toxicities were observed. On the multivariate analysis, the
following factors were significantly associated with OS: age (hazard ratio [HR] 0.42, p = 0.010), PSA value at diagnosis of mCRPC (HR 0.55, p = 0.008), and Gleason score (HR 0.61, p = 0.009).

CONCLUSIONS: Age, Gleason score, and PSA at diagnosis of mCRPC are independently associated with overall survival in patients with mCRPC. The efficacy and toxicity outcomes in this patient cohort treated in radiation oncology departments in Spain are consistent with previous reports.

PMID: 31989474 [PubMed — as supplied by publisher]

The transcription elongation factor TCEA3 induces apoptosis in rhabdomyosarcoma.

Related Articles

The transcription elongation factor TCEA3 induces apoptosis in rhabdomyosarcoma.

Cell Death Dis. 2020 Jan 27;11(1):67

Authors: Kazim N, Adhikari A, Oh TJ, Davie J

Abstract

TCEA3 is one of three genes representing the transcription elongation factor TFIIIS family in vertebrates. TCEA3 is upregulated during skeletal muscle differentiation and acts to promote muscle specific gene expression during myogenesis. Rhabdomyosarcoma (RMS) is a pediatric cancer derived from the muscle lineage, but the expression or function of TCEA3 in RMS was uncharacterized. We found that TCEA3 expression was strongly inhibited in RMS cell lines representing both ERMS and ARMS subtypes of RMS. TCEA3 expression correlates with DNA methylation and we show that TBX2 is also involved in the repression of TCEA3 in RMS cell lines. Ectopic expression of TCEA3 inhibited proliferation of RMS cell lines and initiated apoptosis through both the intrinsic and extrinsic pathways. We found that only pan-caspase inhibitors could block apoptosis in the presence of TCEA3. While expression of TCEA3 is highest in skeletal muscle, expression has been detected in other tissues as well, including breast, ovarian and prostate. We found that ectopic expression of TCEA3 also promotes apoptosis in HeLa, MCF7, MDA-231, and PC3 cell lines, representing cervical, breast, and prostate cancer, respectively. Restoration of TCEA3 expression in RMS cell lines enhanced sensitivity to chemotherapeutic drugs, including TRAIL. Thus, TCEA3 presents a novel target for therapeutic strategies to promote apoptosis and enhance sensitivity to current chemotherapeutic drugs.

PMID: 31988307 [PubMed — in process]

Cancer cell’s neuroendocrine feature can be acquired through cell-cell fusion during cancer-neural stem cell interaction.

Related Articles

Cancer cell’s neuroendocrine feature can be acquired through cell-cell fusion during cancer-neural stem cell interaction.


Abstract
Advanced and therapy-resistant prostate tumors often display neural or neuroendocrine behavior. We assessed the consequences of prostate cancer cell interaction with neural cells, which are rich in the human prostate and resident of the prostate tumor. In 3-dimensional co-culture with neurospheres, red fluorescent human LNCaP cells formed agglomerates on the neurosphere surface. Upon induced neural differentiation, some red fluorescent cells showed morphology of fully differentiated neural cells, indicating fusion between the cancer and neural stem cells. These fusion hybrids survived for extended times in a quiescent state. A few eventually restarted cell division and propagated to form hybrid progenies. Clones of the hybrid progenies were highly heterogeneous; most had lost prostatic and epithelial markers while some had acquired neural marker expression. These results indicate that cancer cells can fuse with bystander neural cells in the tumor microenvironment; and cancer cell fusion is a direct route to tumor cell heterogeneity.

PMID: 31988304 [PubMed — in process]

Pharmacodynamics effects of CDK4/6 inhibitor LEE011 (ribociclib) in high-risk, localised prostate cancer: a study protocol for a randomised controlled phase II trial (LEEP study: LEE011 in high-risk, localised Prostate cancer).

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Pharmacodynamics effects of CDK4/6 inhibitor LEE011 (ribociclib) in high-risk, localised prostate cancer: a study protocol for a randomised controlled phase II trial (LEEP study: LEE011 in high-risk, localised Prostate cancer).

BMJ Open. 2020 Jan 26;10(1):e033667

Abstract
INTRODUCTION: Despite the development of new therapies for advanced prostate cancer, it remains the most common cause of cancer and the second leading cause of cancer death in men. It is critical to develop novel agents for the treatment of prostate cancer, particularly those that target aspects of androgen receptor (AR) signalling or prostate biology other than inhibition of androgen synthesis or AR binding. Neoadjuvant pharmacodynamic studies allow for a rational approach to the decisions regarding which targeted therapies should progress to phase II/III trials. CDK4/6 inhibitors have evidence of efficacy in breast cancer, and have been shown to have activity in preclinical models of hormone sensitive and castrate resistant prostate cancer. The LEEP trial aims to assess the pharmacodynamic effects of LEE011 (ribociclib), an orally bioavailable and highly selective CDK4/6 inhibitor, in men undergoing radical prostatectomy for high-risk, localised prostate cancer.

METHODS AND ANALYSIS: The multicentre randomised, controlled 4:1 two-arm, phase II, open label pharmacodynamic study will recruit 47 men with high risk, localised prostate cancer who are planned to undergo radical prostatectomy. Participants who are randomised to receive the study treatment will be treated with LEE011 400 mg daily for 21 days for one cycle. The primary endpoint is the frequency of a 50% reduction in Ki-67 proliferation index from the pretreatment prostate biopsy compared to that present in prostate cancer tissue from radical prostatectomy. Secondary and tertiary endpoints include pharmacodynamic assessment of CDK4/6 cell cycle progression via E2F levels, apoptotic cell death by cleaved caspase-3, changes in serum and tumour levels of Prostate Specific Antigen (PSA), pathological regression, safety via incidence of adverse events and exploratory biomarker analysis.

ETHICS AND DISSEMINATION: The protocol was approved by a central ethics review committee (St Vincent’s Hospital HREC) for all participating sites (HREC/17/SVH/294). Results will be disseminated in peer-reviewed journals and at scientific conferences.

DRUG SUPPLY: Novartis.

PROTOCOL VERSION: 2.0, 30 May 2019 TRIAL REGISTRATION NUMBER: Australian New Zealand Clinical Trials Registry (ACTRN12618000354280).

PMID: 31988233 [PubMed — in process]

Derivation of dose/volume constraints for the anorectum from clinician and patient-reported outcomes in the CHHiP trial of radiotherapy fractionation.

Related Articles
Derivation of dose/volume constraints for the anorectum from clinician and patient-reported outcomes in the CHHiP trial of radiotherapy fractionation.

Int J Radiat Oncol Biol Phys. 2020 Jan 24;:
Authors: Wilkins A, Naismith O, Brand D, Fernandez K, Hall E, Dearnaley D, Gulliford S, CHHiP Trial Management Group

Abstract
BACKGROUND: The CHHiP trial randomised 3216 men with localised prostate cancer (1:1:1) to three radiotherapy fractionation schedules: 74Gy/37 fractions (f) over 7.4 weeks, 60Gy/20f/4 weeks and 57Gy/19f/3.8 weeks. Literature-based dose constraints were applied with arithmetic adjustment for the hypofractionated arms. This study aimed to derive anorectal dose constraints using prospectively-collected clinician-reported outcomes (CRO) and patient-reported outcomes (PRO) and to assess the added predictive value of spatial dose metrics.
METHODS: A case-control study design was used, seven CRO and five PRO bowel symptoms were evaluated. Cases experienced a moderate or worse symptom 1-5 years post-radiotherapy, and did not have the symptom pre-radiotherapy. Controls did not experience the symptom at baseline, or between 1-5 years post-radiotherapy. The anorectum was re-contoured from the anal verge to the recto-sigmoid junction; dose/volume parameters were extracted. Univariate logistic regression, atlases of complication indices and bootstrapped receiver-operating-characteristic (ROC) analysis (1000 replicates, balanced outcomes) were used to derive dose constraints for the whole cohort (hypofractionated schedules were converted to 2Gy equivalent schedules using α/β=3Gy) and separate hypofractionated/conventional fractionation cohorts. Only areas under the curve (AUC) with 95% confidence interval lower limits >0.5 were considered statistically significant. Any constraint derived in