a place of mind
THE UNIVERSITY OF BRITISH COLUMBIA
Faculty of Medicine
Department of Medicine

37th Annual Resident Research Day

Wednesday, June 2, 2021
9:30am - 4:45pm

Virtual Presentation

https://ubc.zoom.us/j/64282849270?pwd=QUNIQzBBTndQQnJvVUMxSldvVjdnQT09

Meeting ID: 642 8284 9270

Password: 916300

Welcome to UBC Department of Medicine 37th Annual Resident Research Day

Schedule

9:30a	Opening Remarks - Anita Palepu
9:40a	Two Virtual Streams Open
9:45a	Virtual Presentations - Session 1
10:45a	Break
10:55a	Virtual Presentations - Session 2
11:55a	TEDx Talk: "Healing Assembly Line Medicine"
12:10p	Lunch
1:00p	Virtual Presentation - Session 3
2:00p	Break
2:10p	Virtual Presentations - Session 4
3:10p	Break
3:20p	Virtual Presentations - Session 5
4:35p	Closing Remarks

Introduction

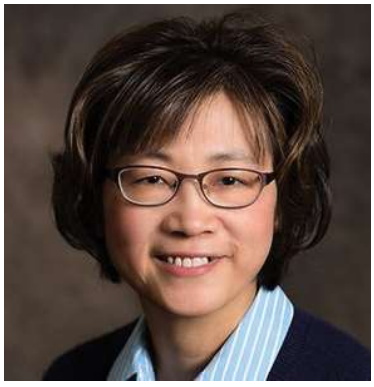
We are very pleased to welcome you here today to the 37th Annual Resident Research Day, an important celebration of the scholarly endeavors of the Residents and Fellows in our program. Today we take time to recognize the many hours of hard work, dedication and effort necessary to execute these scholarly research projects, and acknowledge the efforts of the faculty mentors who have contributed to the success of these projects.

The Department of Medicine is the largest department in the Faculty of Medicine, with over 1200 faculty members and staff across the province of BC. Our members represent 18 distinct divisions which focus on understanding the nature, cause, and prevention of adult disease. The mission of the Department is to provide the highest possible standards of excellence in patient care, teaching, and research. As residents trained in the Department of Medicine, you all play an integral part in helping deliver this mission by directly contributing to the high standards of patient care and research for which UBC Department of Medicine is recognized. Each year your hard work contributes to the over 1000 peer reviewed publications and abstracts. Your dedication to the creation, dissemination and translation of new knowledge is part of evolving health care landscape.

Today we encourage you to reflect on the lessons you have learned throughout your research projects and carry these forward as you develop your own practice. We hope that you will continue to develop and utilize evidence to inform your decision making, and contribute to the strong history of patient care through innovation.

Anita Palepu, MD, MPH, FRCPC, MACP
Head, Department of Medicine
Professor, Division of General Internal Medicine
UBC Department of Medicine

Andrea Townson, MD, FRCPC, MScHPEd
Medical Co-Chair, Regional Rehab Program, VCHA
Clinical Professor, Division of Physical Medicine and Rehabilitation
Associate Head Education and Co-Acting Head,
UBC Department of Medicine



Teresa S.M. Tsang, MD, FRCPC, FACC, FASE
Director of Echo Lab, VGH and UBC
Professor, Division of Cardiology
Associate Head Research and Co-Acting Head,
UBC Department of Medicine

Stream 1

Moderator & Adjudicators

Moderators & Adjudicators

Dr. John A. Staples is an academic general internist based at Vancouver General Hospital. His research training includes a Masters of Public Health (Harvard), an Editorial Fellowship (New England Journal of Medicine), and a research fellowship at Canada's premiere health services research facility (Institute for Clinical Evaluative Science). His research works have been discussed by over 125 media publications including TIME, Newsweek, The Globe and Mail, BBC, Freakonomics, The New York Times and The Washington Post.

John Staples, MD, FRCPC, MPH

Adjudicator

Dr. Amiri attended internal medicine and rheumatology training at the University of British Columbia. She undertook additional training in management of rheumatic diseases in pregnancy at the Organization of Teratology Information Specialists (OTIS), University of California, San Diego and University of Toronto. She is the director of PReDICT clinic (Pregnancy and Rheumatic Disease Clinic) at St. Paul's Hospital. Her other areas of interest include medical education. She is a staff rheumatologist at VGH, SPH, and LGH, and also practices in North Vancouver.

Neda Amiri, MD, FRCPC

Adjudicator

Dr. Katherine Plewes is a clinical assistant professor in the Department of Medicine at the University of British Columbia (UBC), a principal investigator at the Vancouver Coastal Health Research Institute (VCHRI) and Honorary Visiting Research Fellow in Tropical Medicine, University of Oxford.

She is specialized in Adult Infectious Diseases graduating from UBC, then completed the UBC Clinical Investigator Program and a DPhil in Clinical Medicine at the University of Oxford focused on the pathophysiology of malaria. She also completed a Diploma in Tropical Medicine and Hygiene at the University of Liverpool and is currently a committee member to the PHAC Canadian Advisory on Tropical Medicine and Travel. Dr. Plewes' research interests focus on malaria and tropical diseases. She continues to work with an international and multidisciplinary team at the Mahidol Oxford Research Unit located in Bangkok, Thailand, focused on the pathophysiology and treatment of severe malaria, and the causes of fever and sepsis management in low- and middle-income settings.

She has over 10 years of field experience, currently working on active projects in Bangladesh, Malaysia, and the Democratic Republic of the Congo. In 2019, Dr. Plewes was awarded a 3-year CIHR Project Grant and MSFHR Health Professional-Investigator award to assess the renoprotective role of acetaminophen in severe pediatric malaria.

Katherine Plewes, MD, FRCPC, MHSc

Stream 2

Moderator & Adjudicators

Moderators & Adjudicators

Dr. Allison Mah is a clinical assistant professor with the Division of Infectious Diseases, Department of Medicine, and is the program director for the adult ID training program. She completed her medical training and internal medicine residency at the University of Alberta followed by subspecialty training in ID at the University of British Columbia. She completed additional training at MD Anderson Cancer Center with a focus on infections in patients with hematologic malignancy or undergoing stem cell transplantation.

Allison Mah, MD, FRCPC, MPH

Adjudicator

Dr. Nadia Fairbairn is a research scientist whose research is focused on addictions care in drug-using populations, in particular strategies to reduce overdose and improve addiction treatment outcomes among people with opioid use disorders. She is an Assistant Professor and recipient of the Philip Owen Professorship in Addiction Medicine in the Department of Medicine at the University of British Columbia, and a Research Scientist at the BC Centre on Substance Use. Dr. Fairbairn is also a board-certified internal medicine specialist, having completed an American Board of Addiction Medicine Foundation-accredited fellowship program. She is Program Director for the one-year National Institute on Drug Abuse (NIDA)-funded International Collaborative Addiction Medicine Research Fellowship and Physician Lead for the Addiction Medicine Consult Team at St. Paul's hospital. She is the recipient of a Michael Smith Foundation for Health Research Scholar Award for her work focused on improving prescribing practices to reduce overdose.

Nadia Fairbairn, MD, MPH, FRCPC

Adjudicator

Dr. Anna Tinker is a Medical Oncologist at the British Columbia Cancer Agency, Vancouver Centre and a Clinical Associate Professor in the Department of Medicine at the University of British Columbia. Her clinical expertise is in the treatment of women with gynecologic cancers. Her research interests are in the area of clinical trial development and translational research. She is an active member of B.C.'s OvCaRe Group and is presently the Director of OvCaRe's Ovarian Cancer Outcomes Unit. She is an active member of the Canadian Clinical Trials Group, and is the Gyne disease site representative to the CCTG Investigational New Drug Committee.

Anna Tinker MD, FRCPC
Clinical Associate Professor, UBC, Faculty of Medicine and the UBC Division of Obstetrics and Gynecology.
Medical Oncologist, British Columbia Cancer Agency

Virtual Presentations
Stream 1

Session 1

9:45a Ulnar Nerve Hypermobility at the Elbow: Is there an association with Ulnar Neuropathy at the Elbow
Geoff Frost, RE PGY5
Sponsor: Heather Finlayson

9:57a Safety and Efficacy of Nitazoxamide-Based Regimen for the Eradication of H.Pylori: A systematic review and meta-analysis
Daud Akhtar, IM PGY3
Sponsor: Umair Iqbal

10:09a Predicted Post-transplant Survival & Determinants of Transplant Waitlisting in Australian Dialysis Patients
Lachlan McMichael, Nephro Fellow
Sponsor: Adeera Levin, Abeed Jamal, Philip Clayton

10:21a Barriers to Living Donor Kidney Transplant as Perceived by Past and Potential Donors
Julia Zazoulina, GIM PGY4
Sponsor: Jagbir Gill

10:33a Primary Care Physician Volume and Quality of Care for Older Adults with Dementia: A retrospective cohort study
Natasha Lane, IM PGY1
Sponsor: Therese Stukel

10:45p Break

Session 2

10:55a The Role of Medical Assistance in Dying in Patients with Dementia: Assessing the attitudes of clinicians in Vancouver, British Columbia through analysis of quantitative and qualitative survey data
Lauren Cuthbertson, Geriatrics PGY4
Sponsor: Jocelyn Chase

11:07a Vancouver Notes: A collaborative trainee-led approach to educational resource development
Brandon Tang, Meiying Zhuang, IM PGY3, IM PGY3
Sponsor: James Tessaro

11:19a Improving the Detection of Homozygous Familial Hypercholesterolemia in British Columbia
Ahsen Chaudhry, IM PGY2
Sponsor: Liam Brunham

11:31a Duration of Neurocognitive Impairment with Medical Cannabis Use: A scoping review
Lauren Eadie, IM PGY1
Sponsor: Caroline MacCallum

11:43a How Does Patient Inclusion in the Medical Learning Environment Affect Medical Education and Patient Care?
Meredith Li, Daniel Ho, IM PGY3, PGY2
Sponsor: Cheryl Holmes, Cary Cuncic

11:55a Main Room: TEDx Talk "Healing Assembly Line Medicine"
Presenter: Brandon Tang

12:10p Lunch

Session 3

1:00p The Need for Telemedicine Integration into Adult Cardiology Training Curriculum in Canada
Aws Almufleh, ECHO PGY8
Sponsor: Parvathy Nair

1:12p Comparison of Targeted Ablation Index with Unipolar Electrogram Modification During Atrial Fibrillation Ablation: A Pilot Study
Mohammad Paymard, Electrophysiology Fellow
Sponsor: Santabhanu Chakrabarti

1:24p Trending Cardiac Biomarkers During Pregnancy in Women with Cardiovascular Disease
Alice Chang, CA PGY6
Sponsor: Jasmine Grewal

1:36p Incidence and Predictors of Adverse Events Among Initially Stable ST-Elevation Myocardial Infarction Patients Following Primary Percutaneous Coronary Intervention
Jaihoon Amon, IM PGY3
Sponsor: Christopher Fordyce

1:48p Cardiac Phenotyping of SARS-COV-2 in BC: A prospective echo study with strain imaging
Jeff Yim, IM PGY2
Sponsor: Teresa Tsang

2:00p Break

Session 4

2:10p Clinical Characteristics and Outcomes of COVID-19 Patients with Myocardial Injury: One-year experience in Vancouver, Canada
Jung-In Choi, IM PGY2
Sponsor: Jacqueline Saw

2:22p Management Strategies and Clinical Outcomes in Breast Cancer Patients Who Develop Left Ventricular Dysfunction During Trastuzumab Therapy
Robert Yao, IM PGY2
Sponsor: Margot Davis, Christine Simmons

2:34p Clinical Outcomes of ST-Elevation Myocardial Infarction Patients Presenting to Non-PCI Centers Treated with Fibrinolysis Compared to Primary PCI
Sam Ostad, IM PGY2
Sponsor: Graham Wong

2:46p Prevalence of LV Dysfunction in Patients with Surgical Coronary Anatomy
Shekoofeh Saboktakin, IM PGY2
Sponsor: Christina Luong

2:58p Increased Classical Monocyte Subsets in South Asians Compared to White Caucasians at Risk for Coronary Atherosclerosis
Farshad Hosseini, IM PGY1
Sponsor: Krishnan Ramanathan

3:10p Break

Session 5

3:20p Adjustment of Rate Control Medications Prior to Elective Cardioversion
Nelson Lu, IM PGY1
Sponsor: Matthew Bennett

3:32p Unnecessary In-Hospital Laboratory Test Ordering in Vancouver Coastal Health and Providence Health Care
Mitchell Vu, IM PGY2
Sponsor: Janet Simons

3:44p Ultrasound Versus Temporal Artery Biopsy in the Diagnosis of Giant Cell Arteritis
Ashley Yip, IM PGY3
Sponsor: Mohammad Bardi

3:56p Rheumatology Health Care Providers' Views and Practices on Obesity and Smoking Cessation Management in Rheumatoid Arthritis
Derin Karacabeyli , IM PGY2
Sponsor: Diane Lacaille

4:08p Indications and Diagnostic Outcome of Anti-neutrophil Cytoplasmic Antibody Testing in Hospital Medicine: A Canadian perspective
Gary Xu, IM PGY2
Sponsor: Natasha Dehghan

4:20p Association of Knee Effusion on MRI with the Development and Progression of Flexion Contractures
Yifan Zhang, IM PGY1
Sponsor: Jolanda Cibere

4:35p Closing Remarks

Virtual Presentations
Stream 2

Session 1

9:45a Circulating Tumor DNA Fraction (ctDNA%) Independently Predicts for Clinical Outcomes in Patients (pts) with Metastatic Castration Resistant Prostate Cancer (mCRPC)
Corinne Maurice Dror, Genitourinary Med Onc Fellow
Sponsor: Kim N. Chi

9:57a Acute Leukemia of Ambiguous Lineage: A single centre retrospective review of disease characteristics, treatment strategies, outcomes and novel therapeutic
Kevin Brown, PGY6 Leukemia/BMT Fellow
Sponsor: Dave Sanford

10:09a Plasma Exosome MicroRNA-155 Expression in Patients with Metastatic Renal Cell Carcinoma Treated with Immune Checkpoint Inhibitors: Potential biomarker of response to systemic therapy
Maryam Soleimani, Genitourinary Med Onc Fellow
Sponsor: Christian Kollmannsberger, Lucia Nappi

10:21a Outcomes After Iinitial Refusal of Curative Treatment in Patients with Hodgkin Lymphoma in British Columbia
Manik Chahal, Med Onc PGY5
Sponsor: Ciara Freeman

10:33a Using Blood Wisely in Oncology Patients: An institutional analysis of the Choosing Wisely Canada transfusion practices recommendations
Megan Tesch, Med Onc PGY5
Sponsor: Alina Gerrie

10:45p Break

Session 2

10:55a Outcome of Limited Stage Nodular Lymphocyte Predominant Hodgkin Lymphoma and the Impact of a PET-adapted Approach
Phoebe Cheng, IM PGY3
Sponsor: Kerry Savage

11:07a Outcome and Impact of Immune-related Adverse Events in Patients with Advanced Melanoma Treated with Checkpoint Inhibitors
Arkhjamil Angeles, IM PGY2
Sponsor: Kerry Savage

11:19a Age-Based Differences in the Management of Patients with Advanced Melanoma: A population-based cohort study
Eric Sonke, IM PGY2
Sponsor: Doran Ksienski

11:31a Improving Transfusion Reaction Reporting at Vancouver General Hospital - A Quality Improvement Initiative
Alexa Clark, Endo PGY5
Sponsor: Krista Marcon

11:43a Dysmenorrhea Experiences and Ovulatory Characteristics: A one-year observational cohort study in healthy, spontaneously menstruating, initially ovulatory women
Sewon Bann, IM PGY1
Sponsor: Jerilynn Prior

11:55a Main Room: TEDx Talk "Healing Assembly Line Medicine"
Presenter: Brandon Tang

12:10p Lunch

Session 3

1:00p Epidemiology, Risk Factors, and Treatment Considerations for Pyogenic Liver Abscess (PLA) in the Calgary Health Zone (CHZ) Revisited: A population-based study
Jennifer Losie, ID PGY4
Sponsor: Michael Parkins

1:12p AMH Across the Reproductive Lifespan in WLWH Enrolled in the CARMA Cohort
Clara Van Ommen, IM PGY2
Sponsor: Melanie Murray

1:24p Viral Suppression with Antiretroviral Therapy Initiated in Hospital Compared to in the Outpatient Setting
Wayne Leung, IM PGY1
Sponsor: Mark Hull

1:36p Comparison of Liver-related Outcomes and All-cause Mortality in PSC-IBD Versus PSC Alone
Andrew Fetz, IM PGY2
Sponsor: Hin Hin Ko

1:48p Underwater Colonoscopy: A new era in obviating the need for colorectal surgery even for complex lesions
Ciaran Galts, IM PGY2
Sponsor: Robert Barclay

2:00p Break

Session 4

2:10p Significance of Inflammatory Bowel Disease Diagnosis From British Columbia Colon Screening Program
Harjot Bedi, IM PGY2
Sponsor: Bill Salh

2:22p Impact of Telehealth on Medication Adherence in Gastroenterology Chronic Disease Management
John Kim, IM PGY2
Sponsor: Sarvee Moosavi

2:34p Evaluating the Acceptability and Efficacy of Cytosponge for Barrett's Esophagus and Eosinophilic Esophagitis: A single centre cross-sectional study
Chris Shamatutu, Imran Sumar, IM PGY1, PGY2
Sponsor: Robert Enns, Sarvee Moosavi

2:46p Prevalence of Undiagnosed Primary Sclerosing Cholangitis in Patients with Inflammatory Bowel Disease Related Colorectal Cancer
Jordyn Thompson, IM PGY1
Sponsor: Baljinder Sahl, Daljeet Chahal

2:58p Impact of the COVID-19 Pandemic on the Health Care and Outcomes of Hepatology Patients: A mixed methods study
Shirley Jiang, IM PGY1
Sponsor: Hin Hin Ko

3:10p Break

Session 5

3:20p **Immunoglobulin G Levels and One-year Mortality in Chronic Obstructive Pulmonary Disease**
Nawaf Alotaibi, IM PGY2
Sponsor: Don Sin

3:32p **Gastric Retention in Capsule Studies - Is an endoscopy always required?**
Sepehr Nassiri, IM PGY2
Sponsor: Robert Enns

3:44p **An Updated Assessment of Online Information on Idiopathic Pulmonary Fibrosis**
Japnam Grewal, IM PGY1
Sponsor: Christopher Ryerson

3:56p **Perceptions of Resident Feedback Among Medical Students**
Shannon Wong, John Luo, IM PGY4, PGY3
Sponsor: Rose Hatala

4:08p **Mathematical Modelling of Respiratory Syncytial Virus (RSV) in Low- and Middle-income Countries: A systematic review**
Alex Mezei, IM PGY2
Sponsor: Allison Portnoy

4:35p Closing Remarks

VIRTUAL PRESENTATIONS

STREAM 1

ULNAR NERVE HYPERMOBILITY AT THE ELBOW: IS THERE AN ASSOCIATION WITH ULNAR NEUROPATHY AT THE ELBOW

Geoff Frost

Objective

To systematically review the association between ulnar nerve hypermobility at the elbow and ulnar neuropathy.

Methods

We searched the CINAHL, Embase, and Medline databases to July 4, 2020 for studies that evaluated the prevalence of ulnar nerve hypermobility in those with and without ulnar neuropathy. Two reviewers independently extracted data for analysis. Risk of bias and applicability were assessed with the QUADAS-2 tool.

Results

20 of 654 studies identified met inclusion criteria. After pooling data, there was no significant difference in the prevalence of ulnar nerve hypermobility between those with and without ulnar neuropathy.

Conclusions

The clinical finding of ulnar nerve hypermobility is unhelpful when assessing for ulnar neuropathy at the elbow, as the presence of ulnar nerve hypermobility does not make the diagnosis of ulnar neuropathy at the elbow more likely.

SAFETY AND EFFICACY OF NITAZOXAMIDE-BASED REGIMEN FOR THE ERADICATION OF H.PYLORI: A SYSTEMATIC REVIEW AND META-ANALYSIS

Daud Akhtar

Background

Helicobacter pylori (HP) is the most common cause of gastritis worldwide. Clarithromycin-based triple therapy or bismuth-based quadruple therapy is usually considered the first-line treatment, however with around 30% failure rate for both regimens. Drug resistance of clarithromycin and metronidazole is a growing concern in some parts of the world. Therefore, there is a need for effective eradication regimen for HP. Nitazoxanide, a bactericidal thiazolide antibiotic, has been shown to be effective in HP infection. We conducted a systematic review and meta-analysis to evaluate the efficacy of nitazoxanide-based regimen for the eradication of HP.

Methods

We have searched PubMed, Embase, Ovid Medline and Cochrane library database from inception to December 9, 2020 to identify studies that utilized nitazoxanide in the treatment regimen for HP eradication. Our primary outcome was pooled eradication rate of HP.

Results

Thirteen studies including 1,028 patients met our inclusion criteria and were analyzed in a meta-analysis. HP eradication was successful in 867 patients with a pooled eradication rate of 86% (95% confidence interval (CI): 79-90%) with 84% heterogeneity. A subgroup analysis that included 230 patients who failed other prior eradication regimens revealed a pooled eradication rate of 85% (95% CI: 69-94%) without heterogeneity. In a subgroup analysis, highest eradication rates were achieved with levofloxacin, doxycycline, nitazoxanide and proton pump inhibitor with a pooled eradication rate of 92% (88-95%).

Conclusion

Nitazoxanide-based regimen is safe and effective in the eradication of HP infection. It is also successful as a salvage therapy in patients who have failed prior treatments.

PREDICTED POST-TRANSPLANT SURVIVAL & DETERMINANTS OF TRANSPLANT WAITLISTING IN AUSTRALIAN DIALYSIS PATIENTS

Lachlan McMichael

Background

Less than 10% of Australian dialysis patients are waitlisted for renal transplantation. We examined the predicted 5-year post-transplant survival of prevalent Australian dialysis patients and predictors of waitlisting in those with >=80% predicted survival.

Methods

Using data from the Australia and New Zealand Dialysis and Transplant (ANZDATA) Registry and National Organ Matching System, we included Australian patients who had been on dialysis for >=12 months at 31/12/2019 between the age of 18-75. We used a Cox model developed in an earlier ANZDATA cohort to estimate 5-year survival post-transplant from an average deceased donor. In the subset of patients with predicted survival >=80%, we examined predictors of waitlisting using multivariate logistic regression.

Results

Of the 7,986 patients who met inclusion criteria, 633 (8%) were excluded due to missing data. 767 (10%) of the remaining 7,353 patients were wait-listed. 4,564 (62%) of patients had a predicted post-transplant survival of >=80%, of whom 696 (16%) were wait-listed. Predictors of being listed included younger age, Asian ethnicity and prior transplantation. Predictors of not being listed included Indigenous status, obesity, all recorded comorbidities, previous cancer, and receiving dialysis in Western Australia or Queensland.

Conclusion

The majority of dialysis patients in Australia with predicted >=80% 5-year post-transplant survival are not waitlisted. Most, but not all, predictors of waitlisting are also predictors of post-transplant survival. Further study is needed to determine the reasons for non-waitlisting.

BARRIERS TO LIVING DONOR KIDNEY TRANSPLANT AS PERCEIVED BY PAST AND POTENTIAL DONORS

Julia Zazoulina

Background

For patients with end stage renal disease, living donor kidney transplant is the treatment of choice due to improved patient outcomes, longer graft survival, and reduced expenses compared with other forms of renal replacement therapy. However, organ shortage remains a challenge and living donation rates have stagnated in recent years, particularly in men.

Objectives

To understand the barriers and motivating factors for past and potential living renal transplant donors and inform policy and practice changes that support donors in the future.

Methods

Past and potential living donors at the BC Renal Transplant program in the preceding two years were surveyed. Barriers and motivating factors were split into 5 categories: Family pressures and domestic responsibilities, finances, the recovery process, complications, and the transplant evaluation process. Participants ranked statements in each category on a Likert scale. Results were collated and reported as average scores or percentage of responses for different categories/questions.

Results

N=138. The majority of respondents were working-age women. This was representative of the usual population of donors. Women earned less, and had less secure job situations than men. Average barrier/motivator scores were similar between genders, and financial burden, childcare, and job security were significant issues. Both genders ranked financial motivators strongly including reimbursement for lost wages, and paid time off. Childcare arrangements, Fast-track evaluation, and counseling services were also ranked highly as potential motivators. Women were more concerned about childcare and job security during recovery.

Conclusions

Participants found motivators to be more powerful than barriers. Further improvements in decreasing financial burden would be a strong motivator for many potential donors, including reimbursement of lost income, paid time off, or tax credits. Childcare arrangements, a Fast-Track option, and readily accessible counseling services would be utilized by many potential donors of both genders.

PRIMARY CARE PHYSICIAN VOLUME AND QUALITY OF CARE FOR OLDER ADULTS WITH DEMENTIA: A RETROSPECTIVE COHORT STUDY

Natasha Lane, MD, PhD, Vicki Ling, MSc, Richard Glazier, MD, MPH, Thérèse Stukel, PhD

Objectives

Some jurisdictions restrict primary care physicians' daily patient volume to safeguard quality of care for complex patients. Our objective was to determine whether people with dementia receive lower-quality care if their primary care physician sees many patients daily.

Methods

Population-based retrospective cohort study using health administrative data from 100,256 community-living adults with dementia aged 66 years or older, and the 8,368 primary care physicians who cared for them in Ontario, Canada. Multivariable Poisson GEE regression models tested whether physicians' daily patient volume was associated with the adjusted likelihood of people with dementia receiving vaccinations, prescriptions for cholinesterase inhibitors, benzodiazepines, and antipsychotics from their primary care physician.

Results

People with dementia whose primary care physicians saw ≥30 patients daily were 32% (95% CI: 23% to 41%, p<0.0001) and 25% (95% CI: 17% to 33%, p<0.0001) more likely to be prescribed benzodiazepines and antipsychotic medications, respectively, than patients of primary care physicians who saw <20 patients daily. Patients were 3% (95% CI: 0.4% to 6%, p=0.02) less likely to receive influenza vaccination and 8% (95% CI: 4% to 13%, p=0.0001) more likely to be prescribed cholinesterase inhibitors if their primary care physician saw ≥30 versus <20 patients daily.

Conclusion

People with dementia were more likely to receive both potentially harmful and potentially beneficial medications, and slightly less likely to be vaccinated by high-volume primary care physicians.

THE ROLE OF MEDICAL ASSISTANCE IN DYING IN PATIENTS WITH DEMENTIA: ASSESSING THE ATTITUDES OF CLINICIANS IN VANCOUVER, BRITISH COLUMBIA THROUGH ANALYSIS OF QUANTITATIVE AND QUALITATIVE SURVEY DATA

Cuthbertson LR, Nakanishi A, Chase J.

Background

Medical Assistance in Dying (MAiD) became legal in Canada in June 2016. Current legislation requires individuals whose natural death is not reasonably foreseeable to have the capacity to confirm their consent immediately prior to the procedure. As such, many Canadians living with dementia are excluded from accessing MAiD.

Objectives

To explore the knowledge and attitudes held by clinicians who care for older adults with dementia towards MAiD in dementia.

Methods

Greater Vancouver dementia care clinicians, including physicians, residents and nurse practitioners, completed an online survey using the UBC Qualtrics platform. The survey included a combination of quantitative and qualitative data collection with demographic information, graded Likert scale questions, multiple choice questions, open text responses and four fictional clinical vignettes. Quantitative data was analyzed using simple percentage analysis. Narrative responses were individually coded by two authors and thematic analysis was applied to identify and interpret themes. The project received University of British Columbia Behavioural Research Ethics Board approval.

Results

80 survey respondents were included in the data analysis. Of the respondents, 70 (87.5%) were practising physicians or nurse practitioners and 10 (12.5%) were trainees. 64% of respondents supported legislation allowing advance requests for MAiD from patients with dementia. 96% of respondents articulated barriers and concerns with the provision of MAiD by advance directive. Themes identified from participant responses to the four fictional clinical vignettes included patient autonomy, interests of the future self with dementia, intolerable suffering, and potential for abuse or secondary gain.

Conclusions

This study highlights that attitudes among clinicians regarding the role of MAiD in patients with dementia are diverse. The majority of respondents supported legislation allowing advance requests for MAiD in dementia, while also recognizing concerns with its application and the need for safeguards.

VANCOUVER NOTES: A COLLABORATIVE TRAINEE-LED APPROACH TO EDUCATIONAL RESOURCE DEVELOPMENT

Brandon Tang[1], Meiying Zhuang[2], James Tessaro[3]

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[3]James Tessaro, UBC Department of Medicine, Vancouver, BC, jtessaro@interchange.ubc.ca

Background

Comprehensive history taking has been shown to comprise almost 80% of clinical diagnosis. However, when medical learners begin training in internal medicine, it is often unclear what historical features, physical findings, and investigations are most pertinent to diverse patient presentations; this process-based skill is often only tacitly acquired during a given rotation. Vancouver Notes is a novel medical textbook which addresses this issue, by providing learners with consultation templates for common internal medicine presentations, equipping medical students and residents with the tools to succeed from day one.

Objectives

Describe a trainee-led, crowdsourcing approach to developing a novel educational resource consisting of consult templates for internal medicine subspecialties.

Methods

Vancouver Notes will contain consultation templates for 16 subspecialties or disciplines closely related to internal medicine. We recruited expert teams at the University of British Columbia (UBC) comprised of core internal medicine residents, subspecialty fellows, and at least one staff physician to create each chapter. By leveraging the resident body for content creation, not only do authors exercise the Collaborator and Scholar CanMEDS competencies, they also help fill a gap in educational resources. We also propose a prospective, pilot cohort study of 10 internal medicine residents to test the impact of this resource on trainees' self-confidence in conducting consultations and their quality of documentation.

Conclusion

Vancouver Notes addresses an important gap in internal medicine training and uses a novel crowdsourcing, trainee-led production strategy to develop an educational resource. This approach to resource development leverages the expertise of diverse medical learners, is highly efficient, and encourages collaboration and mentorship across different career stages. Finally, this model is consistent with a broader trend towards Free Open Access Medical Education (FOAM), is generalizable, and can be applied in other fields and programs for resource creation.

Keywords: Trainee-led resource development, consultation templates, internal medicine

IMPROVING THE DETECTION OF HOMOZYGOUS FAMILIAL HYPERCHOLESTEROLEMIA IN BRITISH COLUMBIA

Ahsen Chaudhry, Kristin Vesely, Mark Trinder, Liam R. Brunham

Background

Homozygous Familial Hypercholesterolemia (HoFH) is a rare genetic disorder characterized by extremely elevated plasma low density lipoprotein cholesterol (LDL-C) and accelerated atherosclerotic cardiovascular disease (ASCVD). The prevalence of HoFH is likely underestimated. Accurate identification of patients with HoFH is essential, as these patients may be eligible for specialized treatments.

Objective

To identify and characterize patients with homozygous or compound heterozygous FH among a cohort of patients with clinically diagnosed heterozygous FH (HeFH) in BC.

Methods

We studied patients from the BC Familial Hypercholesterolemia Registry. Patients were eligible if they had a clinical diagnosis of HeFH based on a Dutch Lipid Clinic Network score of ≥6 points and excluded if they had a secondary cause of hypercholesterolemia. We performed targeted next-generation sequencing of the LDLR, APOB, PCSK9 and LDLRAP1 genes. Variants were considered pathogenic for FH if they had a ClinVar annotation of 'pathogenic' or 'likely pathogenic', or for novel LDLR variants that were bioinformatically predicted to be loss-of-function. We compared lipid levels, treatment, and rates of ASCVD events (unstable angina, myocardial infarction and coronary revascularization).

Results

Among 705 patients with clinically diagnosed HeFH, we identified a single pathogenic variant in 294 (41%) and >1 pathogenic variant in 17 patients (2.4%), of whom 3 were true homozygotes and 14 were compound heterozygous for LDLR variants. The mean baseline LDL-C of individuals with >1 pathogenic variant (8.15 ± 2.3 mmol/L) was significantly higher than those with a single variant (6.93 ± 1.8 mmol/L, p = 0.03). The prevalence of premature ASCVD was numerically greater in those with >1 pathogenic variant (29.4% vs 18.0 %, p = 0.2).

Conclusions

In a cohort of patients with clinically diagnosed HeFH, genetic diagnosis revealed that 2.4% had homozygous or compound heterozygous FH. These patients tended to have a more severe phenotype. Genetic testing of patients with clinical FH may identify patients with HoFH that had eluded clinical diagnosis, who may then potentially benefit from treatment intensification with HoFH-specific therapies.

DURATION OF NEUROCOGNITIVE IMPAIRMENT WITH MEDICAL CANNABIS USE: A SCOPING REVIEW

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While the recreational use of cannabis has well-established dose-dependent effects on neurocognitive and psychomotor functioning, there is little consensus on the degree and duration of impairment typically seen with medical marijuana use. Compared to recreational cannabis users, medical cannabis patients have distinct characteristics that may modify the presence and extent of impairment. The goal of this review was to determine the duration of acute neurocognitive impairment associated with medical cannabis use, and to identify differences between medical cannabis patients and recreational users. These findings are used to gain insight on how medical professionals can best advise medical cannabis patients with regards to automobile driving or safety-sensitive tasks at work. A systematic electronic search for English language randomized controlled trials (RCTs), clinical trials and systematic reviews between 2000 and 2019 was conducted through Ovid MEDLINE and EMBASE electronic databases. Articles were limited to medical cannabis patients using cannabis for chronic non-cancer pain or spasticity. After screening titles and abstracts, 37 relevant studies were subjected to full-text review. Overall, seven controlled trials met the inclusion/exclusion criteria and were included in the qualitative synthesis: six RCTs and one observational clinical trial. Neurocognitive testing varied significantly between all studies, including the specific tests administered and the timing of assessments post-cannabis consumption. In general, cognitive performance declined mostly in a THC dose-dependent manner, with steady resolution of impairment in the hours following THC administration. Doses of THC were lower than those typically reported in recreational cannabis studies. In all the studies, there was no difference between any of the THC groups and placebo on any neurocognitive measure after 4 h of recovery. Variability in the dose-dependent relationship raises the consideration that there are other important factors contributing to the duration of neurocognitive impairment besides the dose of THC ingested. These modifiable and non-modifiable factors are individually discussed.

HOW DOES PATIENT INCLUSION IN THE MEDICAL LEARNING ENVIRONMENT AFFECT MEDICAL EDUCATION AND PATIENT CARE?

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Background: Inclusion of patients in the medical educational environment can increase professional behaviour, mitigate demeaning language, increase humanistic care, and demonstrate role modelling opportunities – all components of a positive learning environment (Branch et al., 2001; Weissman et al., 2006). However, the patient, who is the focus of our care, has often been systematically excluded from discourse in the learning environment.

Objective: In this study, we explored the ways in which patient inclusion affected dynamics of the educational and clinical environment.

Methods: This study took place in the Outpatient Internal Medicine Clinic at Vancouver General Hospital in British Columbia. Previously, trainees (residents and medical students) often reviewed their cases with staff physicians outside the patient room. In this study, all case review occurred in the room with the patient present. The preliminary sample included 9 staff physicians, 12 trainees, 9 patients and 1 family member. One-on-one semi-structured interviews were then used to understand the experiences of the learner, the faculty, and most importantly, the patient.

Results: Descriptive thematic analysis revealed three themes: 1. Traditional teaching opportunities on medical knowledge were perceived to be limited; 2. Other teaching opportunities, especially on clinical skills and professionalism, were more apparent; 3. Patients felt more comfortable, respected, and informed about their care.

Conclusions: This study showed that although inclusion of the patient in the medical learning environment may reduce traditional teaching opportunities, it can also enhance medical education by introducing other teaching opportunities and reinforcing positive professional values that importantly contribute to patient centeredness.

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THE NEED FOR TELEMEDICINE INTEGRATION INTO ADULT CARDIOLOGY TRAINING CURRICULUM IN CANADA

Aws Almufleh

COVID-19 brought telemedicine (TM) to the forefront of clinical cardiology. In an effort to guide the development of TM training curriculum, we aimed to examine the extent of trainees' involvement in and comfort with TM practices in Canada using a web-based self-administered survey. Eighty-six trainees from 12 cardiology training programs completed the survey (65% response rate). Results showed that pre-COVID-19, 45% of trainees had TM exposure, compared to 78% after COVID-19 ($p<0.001$). However, only 51% of trainees reported being comfortable or very comfortable with the use of TM. Of the trainees who were involved in TM, only 6% had full supervision during virtual visits, while 19% had partial supervision and 75% had minimal or no supervision. Importantly, the majority of the trainees (78%) expressed the need for TM-specific training and 74% were willing to have their virtual visits recorded for the purpose of evaluation and feedback. Furthermore, 55% felt strongly/very strongly about incorporating TM into their future practice. The main perceived barriers to TM use were concerns about patients' engagement, fear of weakening patient-physician relationship and unfamiliarity with TM technology. In conclusion, while the degree of TM involvement post-COVID-19 was high, the trainees' comfort level with TM practice remains suboptimal. Therefore, a cardiology TM curriculum is needed to ensure trainees are equipped to embrace TM in cardiovascular clinical care.

COMPARISON OF TARGETED ABLATION INDEX WITH UNIPOLAR ELECTROGRAM MODIFICATION DURING ATRIAL FIBRILLATION ABLATION: A PILOT STUDY

Mohammad Paymard

Background: Atrial Fibrillation (AF) is associated with an increased risk of mortality, morbidity and poor life quality. Pulmonary vein isolation (PVI) with radiofrequency catheter ablation (RFA) has become the standard of care for patients with drug-refractory AF. Ablation index (AI) is a quality marker that incorporates contact force, ablation time, and power to optimize RFA to create tans-mural lesions. RFA unipolar electrogram (UEGM) modification predicts trans-mural lesion creation, but the relationship between AI and UEGM in AF-RFA is undefined.

Objectives:

1. To study the duration of RFA required to achieve local UEGM modification during PVI-RFA.
2. To study the AI characteristics required for UEGM modification during PVI-RFA

Methods: This retrospective study analyzed nine patients who underwent PVI- RFA at St Paul's Hospital using the CARTO mapping system in 2021. We studied the local electrophysiological properties and ablation parameters of 15 designated areas of interest in the target areas of PVI substrate.

Results: Out of 9 cases, five (55%) were men, and the mean age was 65.3 years. The majority (78%) had paroxysmal AF. AI-guided RFA achieved UEGM modification for every ablation lesion in all patients. The time to achieve the UEGM modification for each target was significantly (at least 15 seconds) shorter than what was delivered to achieve the recommended AI. RFA PVI was successful acutely in all the procedures. There were no acute procedure-related complications.

Conclusion:

- The time to achieve UEGM modification, representing a real-time surrogate of transmural lesion creation, is significantly shorter than reaching the conventional PVI RFA AI in current practice.
- These observations need further confirmation in a more extensive study as they have the potential to make future PVI RFA procedure duration shorter and safer, with fewer risk complications due to collateral thermal injury.

TRENDING CARDIAC BIOMARKERS DURING PREGNANCY IN WOMEN WITH CARDIOVASCULAR DISEASE

Alice (Soohyun) Chang

Background: Cardiac biomarkers such as High-sensitivity (hs) cardiac troponin (cTn) assays and NT-pro BNP (N-terminal-pro hormone BNP) are cornerstones for diagnosis, risk stratification, and therapeutic decision making in cardiovascular disease. Currently, the clinical utility of cardiac biomarker testing during pregnancy in women with pre-existing cardiac disease is unclear.

Objective: We assessed the levels and temporal trends of hs-cTn and NT-pro BNP throughout pregnancy in women with pre-existing cardiac disease and examined the association between levels of the cardiac biomarkers and pregnancy outcomes.

Methods: Pregnant women with pre-existing cardiac disease were prospectively recruited through an ongoing pregnancy outcomes study (H11-030280). Clinical data were collected at initial evaluation in pregnancy and outcomes were assessed to 6 months postpartum. Bloodwork samples for hs-cTn and NT-pro BNP were obtained during second (week 25-28) and third (week 37-40) trimesters, immediately postpartum (<12 hours of delivery), and postpartum (6-9 weeks post-delivery). Mixed effects linear regression analysis was used to compare the hs-cTn and NT-pro BNP levels between time periods and subgroups. Log transformation was applied and comparison between time periods and groups was expressed as percentage change.

Results: A total of 201 pregnant women were included: 107 cases with congenital heart disease, and 94 cases with acquired heart disease. The mean NT-pro BNP were 121.9, 99.9, 300.1, and 138.9 pg/mL for first, second, third trimesters, and post-partum, respectively. The NT-pro BNP was significantly increased during labor and delivery with subsequent return to baseline in the post-partum period. We observed a statistically significant difference in the NT-pro BNP between subgroups with structurally normal vs. abnormal cardiac disease, preserved vs. decreased systemic ventricular function, and WHO class 1,2 vs. WHO class 3,4. Most women had normal ht-cTn levels (<15 ng/L) throughout pregnancy. There were no differences observed in the trend of ht-cTn among the subgroups. The optimal cut-off of NT-pro BNP to predict adverse cardiac event was 125 pg/mL (sensitivity 0.80; specificity 0.58).

Conclusion: We describe the level and trend of cardiac biomarkers during pregnancy in women with pre-existing cardiac disease. Our findings suggest that NT-pro BNP levels transiently increase during labor and delivery and are higher among certain subgroups. Routine monitoring of NT pro BNP may aid with risk-stratification and diagnosis of cardiac decompensation in these patients.

INCIDENCE AND PREDICTORS OF ADVERSE EVENTS AMONG INITIALLY STABLE ST-ELEVATION MYOCARDIAL INFARCTION PATIENTS FOLLOWING PRIMARY PERCUTANEOUS CORONARY INTERVENTION

Jaihoon Amon, Christopher B. Fordyce

Background

Cardiac intensive care units (CICUs) were originally created for the early recognition and treatment of ventricular arrhythmias during myocardial infarction in an era before primary percutaneous coronary intervention (pPCI). Many stable STEMI patients are still routinely triaged to CICUs post uncomplicated PCI independent of need for critical care therapies. The overall aim of this study was to determine the incidence and predictors of developing in-hospital adverse events in an initially stable STEMI cohort.

Methods

2101 consecutive patients receiving successful pPCI were documented in the Vancouver Coastal Health Authority (VCHA) STEMI database between April 2012 to November 2019. Patients were stratified into those with and without subsequent adverse events, their baseline clinical characteristics, reperfusion times, and in-hospital outcomes were compared. Univariable and multivariable logistic regression models were used to determine predictors of adverse events.

Results

After excluding those patients presenting with cardiac arrest, cardiogenic shock, or heart failure, the final analysis cohort included 1770 stable STEMI patients who received successful pPCI. Among these patients, 94 (5.3%) developed at least one adverse event: cardiogenic shock 55 (3.1%), in-hospital cardiac arrest 42 (2.4%), death 28 (1.6%), stroke 21 (1.2%) and re-infarction 5 (0.3%). Univariable predictors of adverse events were age, female sex, prior stroke, chronic kidney disease (CKD) and atrial fibrillation. There was no significant difference in reperfusion times between those with and without adverse events. A multivariable analysis determined that moderate to severe CKD (creatine clearance < 44 ml/min; 13% of cohort) was independently associated with adverse events (OR 2.24; 95% CI, 1.12-4.48).

Conclusion

In the modern era, only 1 in 20 initially stable STEMI patients receiving successful pPCI developed an in-hospital adverse event. Moderate to severe CKD, but not reperfusion time, independently predicted the risk of future adverse events. These results support the use of contemporary risk-based triage model to enhance CICU utilization among stable STEMI patients.

CARDIAC PHENOTYPING OF SARS-COV-2 IN BC: A PROSPECTIVE ECHO STUDY WITH STRAIN IMAGING

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Background

There are limited data on the residual echocardiographic findings including strain analysis of patients who have recovered from acute COVID-19 infection.

Objective

One aim of our CIHR-funded study is to prospectively phenotype post-COVID patients using conventional echocardiography including strain imaging

Methods

All patients discharged from hospital following acute COVID-19 infection are systematically followed in the Post-COVID-19 Recovery Clinic at Vancouver General Hospital and St. Paul's Hospital. At about 4-12 weeks post diagnosis, patients undergo comprehensive echocardiographic assessment with conventional echocardiography including strain analysis. Left ventricular ejection fraction (LVEF) was assessed by 3D, 2D Biplane Simpson's, or visual estimate. Left ventricular global longitudinal strain (GLS), was measured using a vendor-independent 2D speckle-tracking software (TomTec).

Results

A total of 127 patients (53% female, mean age 58 years) were included in our analyses. At baseline, cardiac conditions were present in 58% of the patients (15% coronary artery disease, 4% heart failure, 44% hypertension, 10% atrial fibrillation), while the remainder were free of cardiac conditions. COVID-19 serious complications were present in 79% of the patients (76% pneumonia, 37% ICU admission, 21% intubation, 1% myocarditis). Normal LVEF was seen in 96% of cohort defined in this study as EF≥54%, and 97% had normal RV systolic function. A high proportion (53%) had abnormal LV GLS defined as <18%. Average LV GLS in septal and inferior segments were lower compared to the rest. In patients without pre-existing cardiac conditions, LVEF was abnormal in only 1.9% but LV GLS was abnormal in 46%.

Conclusions

Most post-COVID patients had normal LVEF at 4-12 weeks post positive test, but over half had abnormal LV GLS. There appeared to be a high predilection for septal, and to a lesser extent, inferior wall involvement, giving an appearance of a "C" sign on the bullseye strain map.

CLINICAL CHARACTERISTICS AND OUTCOMES OF COVID-19 PATIENTS WITH MYOCARDIAL INJURY: ONE-YEAR EXPERIENCE IN VANCOUVER, CANADA

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Background

The coronavirus 2019 (COVID-19) pandemic has caused unparalleled public health crisis worldwide. Myocardial injury in acutely ill hospitalized COVID-19 patients was associated with higher mortality and worse clinical outcomes. However, Canadian data on COVID-19 and myocardial injury is not available, and this is paramount to inform quality of care and direct efficient resource allocation.

Methods

We conducted a retrospective study of patients with COVID-19 with myocardial injury admitted to two quaternary hospitals in British Columbia; Vancouver General Hospital between March 2020 – February, 2021 and St. Paul's Hospital between April – December, 2020. Myocardial injury was defined as troponin elevation greater than 99% upper limit of normal (normal troponin-I < 0.05 ng/L, troponin-T < 9 ng/L in female, < 14 ng/L in male) on admission or during hospitalization. Baseline demographics, laboratory results, and in-hospital outcomes were collected. The study was approved by our institutional research board.

Results

We included 494 COVID-19 patients in the study. The mean age was 63.4 years, and 58.9% were men. The prevalence of myocardial injury was 37.2%. Sixty-five patients (13.2%) died during hospitalization, of which 49 (9.9%) had myocardial injury. Patients with myocardial injury were more likely to require mechanical ventilation (31.1% vs. 12.1%, p<0.001) and inotropic support (2.7% vs. 0.0%, p <0.01). They had higher mortality (26.8% vs. 5.2%, p<0.001), shock (11.5% vs. 1.0%, p<0.00), cardiac arrest (15.3% vs. 2.9%, p<0.001), heart failure (7.1% vs. 0.3%, p<0.001), stroke (2.7% vs. 0.3%, p=0.019), and significantly longer length of hospitalization (23.7 vs. 13.6 days, p<0.001) than patients without myocardial injury. Four myocardial injury patients were diagnosed with ST-elevation or non-ST elevation MI.

Conclusions

Myocardial injury was frequent amongst hospitalized COVID-19 patients in British Columbia, and was associated with worse clinical outcomes and increased length of hospital stay.

MANAGEMENT STRATEGIES AND CLINICAL OUTCOMES IN BREAST CANCER PATIENTS WHO DEVELOP LEFT VENTRICULAR DYSFUNCTION DURING TRASTUZUMAB THERAPY

Ren Jie Robert Yao, Jordan Gibson, Christine Simmons and Margot K. Davis

Background

Trastuzumab reduces risk of breast cancer recurrence but carries risk of cardiotoxicity that may be reversible upon treatment cessation and institution of left ventricular (LV) enhancement therapies (LVETx). We assessed management patterns of trastuzumab-induced cardiotoxicity (TIC) in a contemporary real-world setting.

Methods

We reviewed charts of all breast cancer patients who received adjuvant trastuzumab in British Columbia between January 2010 and December 2013, spanning the opening of a cardio-oncology clinic. LV dysfunction (LVD) was classified as minimal (LVEF nadir 45–49%), mild (40–44%) or moderate-severe (< 40%). Charts were reviewed for baseline characteristics, management strategies, and outcomes. Multivariable analysis was performed to identify patient characteristics associated with trastuzumab completion and cardiology referral.

Results

Of 967 patients receiving trastuzumab, 171 (17.7%) developed LVD, including 114 patients (11.8%) with LVEF declines of ≥10 to < 50%. Proportions of patients receiving cardiology referrals and LVETx increased and wait times to consultation decreased after a dedicated cardio-oncology clinic opened. LVETx was used more frequently in patients with moderate-severe LVD compared to minimal or mild LVD. Factors associated with completion of trastuzumab included mastectomy (OR 5.1, 95% CI 1.1–23.0) and proximity to quaternary care centre (OR 7.7, 95% CI 2.2–26.2). Moderate-severe LVD was associated with a lower probability of completing trastuzumab (OR 0.07 vs. minimal LVD, 95% CI 0.01–0.74). Factors associated with cardiology referral included heart failure symptoms (OR 8.0, 95% CI 1.5–42.9), proximity to quaternary care centre (OR 6.8, 95% CI 1.3–34.2), later year of cancer diagnosis (OR 2.4 per year, 95% CI 1.4–4.3), node-positive disease (OR 0.18, 95% CI 0.06–0.56), mastectomy (OR 0.05, 95% CI 0.01–0.52), and minimal LVD (OR 0.14, 95% CI 0.05–0.46). LVEF recovered to > 50% in 90.7% of patients.

Conclusion

Management strategies in patients with TIC are associated with cancer characteristics and severity of cardiotoxicity. Access to dedicated cardio-oncology clinics may facilitate optimal care of this complex patient population.

CLINICAL OUTCOMES OF ST-ELEVATION MYOCARDIAL INFARCTION PATIENTS PRESENTING TO NON-PCI CENTERS TREATED WITH FIBRINOLYSIS COMPARED TO PRIMARY PCI

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Introduction: Fibrinolysis therapy is a recommended reperfusion option for patients with ST-elevation myocardial infarction (STEMI) who present to a non-PCI-capable hospital (NPCI-H) and cannot be transferred for primary PCI (PPCI) in a timely fashion. The Vancouver Coastal Health Authority (VCHA) has prespecified criteria to define which STEMI patients presenting to a NPCI-H should receive fibrinolysis or be transferred for PPCI. We describe the relationship between timely versus delayed reperfusion and clinical outcomes for STEMI patients presenting to a NPCI-H treated with either fibrinolysis or transferred for PPCI.

Methods: We retrospectively analyzed STEMI patients >18 years of age who presented to a VCHA NPCI-H between 2007 and 2019 and received either on-site fibrinolysis or were transferred for PPCI. Timely fibrinolysis was defined as first medical contact (FMC) to needle time <30 minutes; timely PPCI was defined as FMC to device time <120 minutes. The primary outcome was the composite of in-hospital mortality, heart failure, cardiogenic shock, and major bleeding, with comparisons between the following groups: timely versus delayed fibrinolysis, timely versus delayed PPCI, timely fibrinolysis versus timely PPCI, and timely fibrinolysis versus delayed PPCI. Secondary outcomes included individual components of the primary outcome, in addition to in-hospital reinfarction. Logistic regression analysis was used to adjust for clinically important baseline variables. Amongst the fibrinolysis group, univariant and multivariant analysis was used to identify important patient characteristics for the primary outcome. Patients who presented with cardiogenic shock (n=35), pre-hospital cardiac arrest (n=18), unknown reperfusion time (n=5), and those who did not receive reperfusion therapy were excluded from the study.

Results: We identified 1045 eligible patients (243 on-site fibrinolysis, 802 PPCI). Timely reperfusion was achieved in 24.7% of fibrinolysis patients and 46.4% of PPCI patients. Primary and secondary outcomes occurred less frequently amongst patients who received timely reperfusion compared to delayed reperfusion with either strategy but were only statistically significant in the PPCI group (11.6% vs 22.1%, P<0.001). Amongst all comers, major bleeding (11.9% vs 7.6%, P=0.037) and in-hospital reinfarction (2.1% vs 0.5%, P=0.022) occurred more frequently in on-site fibrinolysis versus PPCI. In an adjusted logistic regression analysis, delayed PPCI was associated with an increased risk of the primary outcome in comparison to timely PPCI (OR 1.67, 95% CI 1.10-2.56, P=0.017). Additionally, the odds ratio was numerically higher but not significant for delayed vs timely fibrinolysis, timely fibrinolysis versus timely PPCI, and timely fibrinolysis versus delayed PPCI. Amongst the fibrinolysis group, advanced age, increased body mass index, increased systolic blood pressure, anterior infarct, and history of cerebrovascular accidents or peripheral vascular disease were associated with greater frequency of the primary outcome.

Conclusions: Delayed reperfusion with either fibrinolysis or PPCI is associated with poor clinical outcomes irrespective of reperfusion strategy. Despite this, a significant proportion of STEMI patients who present to NPCI-H do not receive timely reperfusion with either strategy. As such, additional interventions are warranted to improve the timeliness of both pharmacological and mechanical reperfusion for non-PCI-capable hospitals.

PREVALENCE OF LV DYSFUNCTION IN PATIENTS WITH SURGICAL CORONARY ANATOMY

Shekoofeh Saboktakin

Background: Echocardiography is routinely performed to assess left ventricular function in the context of the acute coronary syndrome. Detection of regional wall motion abnormality is helpful in assessing the presence of acute coronary syndrome and evaluating the extent of infarct.

Objective: We aimed to assess the prevalence of regional wall motion abnormalities (RWMA) in patients undergoing coronary artery bypass grafting (CABG). We also analyzed the prevalence based on the indication of coronary artery bypass grafting.

Methods: We studied a total of 247 patients undergoing CABG at the Vancouver General Hospital from April 2017 to January 2019 who had transthoracic echocardiograms performed for assessment of regional wall motion abnormalities. Using the cross-matched angiogram data, we determined the indication for CABG (STEMI, NSTEMI, unstable angina, heart failure, or valve disease), major risk factors (hypertension, CKD, diabetes, smoking history, and family history of premature coronary artery disease), and vascular distribution of the coronary artery disease. We then proceeded to calculate the sensitivity and specificity of detecting regional wall motion abnormalities in patients undergoing CABG for the diagnosis of acute coronary syndrome.

Results: Out of 212 patients with available angiograms requiring revascularization, the median, minimum, and maximum ejection fractions (EF) were 54%, 24%, and 75%, respectively. There were no regional wall motion abnormalities in 50% of patients. Global LV dysfunction was found in 8% of the study population. Regional wall motion abnormalities were present in 42% of the patient. We calculated the sensitivity and specificity of RWMA for different etiologies of the acute coronary syndrome. Sensitivity and specificity were 76%, and 96% for STEMI; 52% and 82% for NSTEMI; and 28% and 84% for unstable angina.

INCREASED CLASSICAL MONOCYTE SUBSETS IN SOUTH ASIANS COMPARED TO WHITE CAUCASIANS AT RISK FOR CORONARY ATHEROSCLEROSIS

Farshad Hosseini

Background

South Asians (SAs) have an increased prevalence of coronary artery disease (CAD) and myocardial infarction compared with White Caucasians (WCs). The mechanism for this increased risk is poorly understood.

Obejctive

With classical CD14++CD16- monocytes acting as independent predictors of CAD, we aimed to determine if differences exist in monocyte subsets between SAs and WCs at risk for CAD.

Methods

119 patients (59 SA, 60 WC) of at least intermediate CAD risk by the INTERHEART score were prospectively enrolled. A single blood sample was collected for monocyte analysis. Flow cytometry using dual colour fluorescence (CD14, CD16) within the monocyte gate was used to identify monocyte subsets (classical, intermediate, and non-classical). Eta coefficient and Eta squared values were calculated to analyze the relationship between ethnicity and proportion of monocyte subsets.

Results and Conclusions

The SA group consisted of 64% males, while the WC group consisted of 55% males. Both groups had similar body mass index, rates of hypertension, dyslipidemia and family history of premature CAD. Compared to WCs, SAs had higher prevalence of diabetes (36% vs. 13%, p = 0.005). SAs had a higher proportion (85.3 +/- 10.7% vs. 81.4 +/- 11.0%, p = 0.009) and total level (449.0 +/- 180.4 vs. 388 +/- 127.4, p = 0.010) of classical CD14++CD16- monocytes compared to WCs. There was no difference between the two groups in the proportion of intermediate CD14++CD16+ and non-classical CD14+CD16++ monocytes. Ethnicity had a moderate association with the proportion of classical CD14++CD16- monocytes (Eta coefficient = 0.525) with a large effect size (Eta squared = 27.5%). The association of ethnicity with intermediate CD14++CD16+ and non-classical CD14+CD16++ monocytes was either weak or negligible with minimal to no effect size.

Our findings of significantly higher proportion and level of classical CD14++CD16- monocytes in SAs compared to WCs provide a novel insight into the potential mechanism of increased CAD susceptibility amongst SAs relative to WCs.

ADJUSTMENT OF RATE CONTROL MEDICATIONS PRIOR TO ELECTIVE CARDIOVERSION

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Background

Rate control medications are essential in the management of persistent atrial fibrillation (AF). There are no contemporary guidelines for adjusting these medications prior to elective direct-current cardioversion (DCCV).

Obejctive

To derive and validate a preprocedural medication adjustment protocol that optimizes peri-DCCV rate control and minimizes post-conversion bradycardia and its potential complications (pauses, need for pacing, CPR).

Methods

Consecutive patients with persistent AF awaiting elective DCCV from 2015 to 2019 at two multidisciplinary AF clinics were screened for inclusion into derivation, validation, and control cohorts. In the derivation cohort, each patient taking an AV nodal blocker had medications adjusted based on their ECG heart rate (HR) 2 days before DCCV. The magnitude of dose adjustment was compared with peri-DCCV HR. The adjustment strategy that achieved the highest percentage of optimal peri-DCCV rate control was tested prospectively as a protocol in the validation cohort and compared to a standard-of-care control group. Continuous variables were compared using the Wilcoxon rank-sum test and Analysis of Variance where applicable, while categorical variables were compared using the Pearson's Chi-Squared test.

Results

From the derivation cohort (n=71), the most effective strategy based on HR 2 days before DCCV was to i) CONTINUE AV nodal block when HR ≥100 bpm, ii) reduce dose by ONE increment when 80-99 bpm, iii) reduce dose by TWO increments when 60-79 bpm, and iv) HOLD when <60 bpm. In the prospective validation cohort (n=106), this protocol improved peri-DCCV rate control (82% vs 62%, P <0.001) and reduced post-conversion bradycardia (8% vs 21%, P=0.01) compared to current standard of care (n=107). There were no conversion pauses ≥5 seconds, need for pacing, or CPR post-DCCV.

Conclusion

This simple preprocedural medication adjustment protocol provides an effective strategy of optimizing peri-DCCV rate control in patients with AF undergoing elective DCCV.

UNNECESSARY IN-HOSPITAL LABORATORY TEST ORDERING IN VANCOUVER COASTAL HEALTH AND PROVIDENCE HEALTH CARE

Mitchell Vu

Background: Physicians heavily rely on diagnostic testing to decide on clinical courses of action. Unnecessary test ordering (UTO) has been associated with higher health care costs and patient harm.

Objective: To quantify the rates of UTO for 5 common lab tests in Vancouver Coastal Health and Providence Health Care hospitals.

Methods: This retrospective study included hospital in-patients and emergency room patients who had HbA1c, TSH, ferritin, lipid profiles or HIV serology ordered during a 4-year interval between April 1st, 2017 and March 31st, 2021. A test was defined as UTO if it occurred within a specified duration from the previous order in the same patient. These intervals were chosen a priori and based on guidelines: HbA1c (3 months), TSH (4 weeks), HDL/lipid profile (12 months), ferritin (3 months) and HIV serology (6 months).

Results: A total of 565,470 of the tests were ordered during the 4-year study period. The overall rates of UTO ranged from 16.3% (TSH) to 26.1% (ferritin). The cost of these unnecessary orders is estimated to be $524,998 per year. Of all the orders, 2.9% occurred within 1 calendar day of the previous test. Temporal events during the study were associated with shifts in the rates of UTO. Introduction of a computer order entry system at St. Paul's Hospital decreased their UTO by up to 7.4%. Rates of UTO for ferritin increased by 14.8% during a 3-month interval at the beginning of the COVID-19 pandemic (March 1 to June 30, 2020) when compared to an identical period the year prior (34.0% vs 19.2%, respectively).

Conclusion: A large proportion of in-patient laboratory testing is unnecessary and costly. The results of this study prompt physicians to evaluate the rates of unnecessary testing in their own practice.

ULTRASOUND VERSUS TEMPORAL ARTERY BIOPSY IN THE DIAGNOSIS OF GIANT CELL ARTERITIS

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Objectives: Historically, the diagnosis of giant cell arteritis (GCA) has been made on clinical grounds and confirmed with temporal artery biopsy (TAB). There has been a shift in recent years, and the 2018 EULAR guidelines recommends ultrasound (US) and magnetic resonance imaging as first-line investigations for suspected cranial GCA. In North America, US for GCA has been slow to catch on, in part due to an absence of Canadian data. This is the first Canadian study to compare the diagnostic accuracy of US and TAB.

Methods: Patients aged 50 and older with a clinical suspicion of GCA and at least one of the following were included: c-reactive protein (CRP) over 5 mg/L, new-onset headache, jaw claudication, fever, pain and/or stiffness in the hips and/or shoulders, temporal artery tenderness, or recent visual impairment. Patients were excluded if they had a previous diagnosis of GCA, were taking over 10 mg of glucocorticoids for more than 4 weeks prior to US, had TAB performed prior to US or were unable to provide informed consent. Participants were prospectively enrolled from a single centre in Vancouver, British Columbia. Data including age, sex, co-morbidities, signs and symptoms suggestive of GCA, glucocorticoid use, disease modifying anti-rheumatic drug use, inflammatory markers, CTA and MRI was collected. US images were captured using a Canon Aplio i800 with a 33 MHz probe to assess the cranial arteries (temporal with frontal and parietal branches, facial, occipital) and a 11 MHz vascular probe for the large vessels (carotid, vertebral, subclavian, axillary). Images were collected by an unblinded ultrasonographer (MB) and reviewed by a blinded, expert ultrasonographer (APD). Ultrasound and temporal artery biopsy were compared to a gold standard of clinical diagnosis at 6 months.

Results: We present preliminary data from our study. 87 patients have been recruited. 56 (64%) were female. Average age was 74 (range 55-96). The most common presenting symptoms were headache (70%) and ischemic symptoms (e.g., jaw claudication, amaurosis fugax) (52%). Median CRP was 41 mg/L (range 0.3-284). Participants received an average of 8 days of glucocorticoids prior to US. US was positive for vasculitic changes in 60 (70%), of which, 43 had a clinical diagnosis of GCA and 17 did not. TAB was positive in 30 (34%), of which, 29 had a clinical diagnosis of GCA and one did not. The sensitivity and specificity of US was 88% (95% CI 79-97) and 54% (95% CI 38-70) respectively. The sensitivity and specificity of TAB was 59% (95% CI 45-73) and 97% (95% CI 92-100) respectively.

Conclusion: In our preliminary analysis, US had a higher sensitivity (88% vs 59%) and lower specificity (54% vs 97%) than TAB. These results provide further support for the use of US for the diagnosis of GCA.

RHEUMATOLOGY HEALTH CARE PROVIDERS' VIEWS AND PRACTICES ON OBESITY AND SMOKING CESSATION MANAGEMENT IN RHEUMATOID ARTHRITIS

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Objective

To assess rheumatology health care providers' (HCPs) knowledge, beliefs, self-efficacy, practices, and perceived barriers pertaining to weight management and smoking cessation counselling in patients with rheumatoid arthritis (RA).

Methods

We administered an online survey to collect self-reported data on rheumatology HCPs' knowledge, beliefs, self-efficacy, perceived barriers, and practices related to weight management and smoking cessation counselling. Participants were recruited through invitation emails (with anonymous survey links) sent by three Canadian rheumatology organizations.

Results

Fifty-nine rheumatology HCPs (15 nurses, 44 physicians) completed the survey (response rate: 11%). Over 85% correctly identified associations between obesity, or smoking, and more severe or active RA, as well as poorer response to treatment. All but one participant agreed that it was part of their responsibility to discuss these issues with patients, but 78% (46/59) felt not or slightly confident in their ability to help patients quit smoking or achieve clinically significant weight loss. The majority did not routinely assist patients in accessing appropriate resources or providers (only 42% did for obesity, 36% for smoking), send referrals (2-44%, depending on referral), or offer relevant educational materials (15% for obesity, 20% for smoking). Common barriers included competing demands and lack of time, training, access to expertise, and knowledge of available programs.

Conclusion

Most rheumatology HCPs understood the implications of cigarette smoking and obesity in RA and accepted responsibility in addressing these issues. However, they lacked the time, training, confidence, and knowledge of local resources to do so effectively. There is a need to bridge this gap.

INDICATIONS AND DIAGNOSTIC OUTCOME OF ANTI-NEUTROPHIL CYTOPLASMIC ANTIBODY TESTING IN HOSPITAL MEDICINE: A CANADIAN PERSPECTIVE

Yanzhu (Gary) Xu

Introduction/Objective

Anti-neutrophil cytoplasmic antibodies (ANCA) serology can aid in the diagnosis and classification of ANCA-associated vasculitides (AAV). However, it is often ordered in patients without clinical manifestations of vasculitis. In this retrospective chart review, we aim to better understand the clinical practices on ANCA testing.

Methods

We retrospectively reviewed patients' charts for the indications and diagnostic outcomes of all ANCA tests ordered at two Canadian Hospitals (A community hospital and an academic tertiary hospital) between January and December 2016 were included in the study. Descriptive statistics are used.

Results

A total of 302 ANCA tests were included. The majority (n=198, 65.6%) were ordered without an indication for testing. For those patients with at least 1 clinical manifestation of AAV (n=104), 25% were ANCA positive and 18.3% resulted in a diagnosis of AAV. In comparison, among those without a clinical manifestation of AAV (n=198), only 1.5% were ANCA positive and none were diagnosed with AAV. All patient diagnosed with AAV had at least 1 indication for ANCA testing. The three most common clinical presentations in patients with a final diagnosis of AAV were: glomerulonephritis (81.8%), pulmonary hemorrhage (45.5%) and multiple lung nodules (31.8%).

Conclusion

To our knowledge, this is the first study that evaluates patients with both positive and negative ANCA test results in an inpatient setting. We demonstrated a low rate of ANCA positivity and AAV diagnosis in patients without clinical manifestations of AAV. Overall, there is a high rate of ANCA testing without an indication our academic institution. This over-testing may be curbed by strategies such as a gating policy, cultures changes and clinician education.

ASSOCIATION OF KNEE EFFUSION ON MRI WITH THE DEVELOPMENT AND PROGRESSION OF FLEXION CONTRACTURES

Yifan Zhang, Eric C. Sayre, Ali Guermazi, Savvas Nicolaou, Jolanda Cibere

Purpose

Knee osteoarthritis (OA) is associated with impairments in joint function, such as flexion contractures (FCs). Although FCs are common in the OA population, few studies explore the underlying mechanism behind their development.

Objective

To evaluate the association of knee effusions on MRI and physical exam with the prevalence, incidence, and progression of FCs in subjects with knee OA.

Methods

A population-based cohort with knee pain (n=163) was recruited into a three-year longitudinal study. Effusions were evaluated using physical exam and MRI. FCs were measured using a goniometer. In our primary analysis, we compared MRI effusions with FCs ≥1°. Our secondary analysis compared MRI effusions with FCs ≥3°. Our tertiary analysis compared physical exam effusions with FCs ≥3°. Cross-sectional and longitudinal analyses were performed using logistic regression, adjusted for age, sex, BMI, and, in longitudinal analyses, change in effusion status.

Results

In our primary analysis, MRI effusions were associated with the prevalence of FCs (odds ratio (OR) 5.58; 95% confidence interval (95% CI) 1.31-23.66) but not its incidence (OR 1.90; 95% CI 0.03-120.31) or progression (OR 2.59; 95% CI 0.76-8.82). In our secondary analysis, MRI effusions were associated with the prevalence (OR 3.84; 95% CI 1.43-10.32) and incidence (OR 7.08; 95% CI 1.24-40.32) of FCs, but not its progression (OR 1.26; 95% CI 0.20-7.88). Our tertiary analysis showed statistically significant associations in prevalence (OR 2.47; 95% CI 1.08-5.66) and incidence (OR 18.66; 95% CI 2.89-120.25) but not progression of FCs (OR 1.60; 95% CI 0.26-9.92).

Conclusion

Knee effusions on MRI and physical exam were associated with the prevalence and incidence of FCs, although for incidence, this was only significant for FCs ≥3°. There was no significant association of effusions with FC progression. Similar results were observed with MRI and physical exam effusions as the predictor, demonstrating clinical applicability.

VIRTUAL PRESENTATIONS

STREAM 2

CIRCULATING TUMOR DNA FRACTION (CTDNA%) INDEPENDENTLY PREDICTS FOR CLINICAL OUTCOMES IN PATIENTS (PTS) WITH METASTATIC CASTRATION RESISTANT PROSTATE CANCER (MCRPC)

Corinne Maurice-Dror, Nicolette Fonseca, Camron Herberts, William Fan, Alexander W Wyatt, Kim N Chi

Background: CtDNA% (the tumour-derived proportion of cell-free DNA (cfDNA)) is abundant in >60% of mCRPC pts and associates with adverse clinical prognostic factors. However, prognostic associations have not been comprehensively tested across clinical contexts. We evaluated the utility of ctDNA% as an independent prognostic biomarker in patients with mCRPC prior to first-line (1L) therapy.

Methods: 410 treatment-naïve mCRPC pts had blood samples drawn prior to 1L therapy and followed prospectively for outcomes. Plasma cfDNA was subjected to deep targeted sequencing and ctDNA% was calculated using validated methods (Annala, Cancer Discov, 2018). Overall survival (OS), PSA progression free survival (PSA PFS) and PSA declines ≥50% from baseline (PSA50 response rate (RR)) were stratified by ctDNA% and compared using Kaplan-Meier and Cox proportional hazards analysis.

Results: Median age was 73 yrs (range 45-98), the majority of pts had ECOG PS 0-1 (78%) and 9.5% had liver metastases at baseline. The most common 1L therapy employed was androgen receptor pathway inhibitors (90%). Median follow-up was 21 mo (range 1-75) and median ctDNA% was 4.9% (range: 0-89%). Stratifying patients into high (ctDNA>30%) and Low (ctDNA≤2%) groups showed stronger association with OS and PSA PFS than grouping by median (Table 1). In a univariate comparison to pts with low ctDNA (≤2%), pts with high ctDNA% (>30%) had significantly shorter median PSA PFS, median OS and a lower PSA50 RR (Table 1). In a multivariable adjustment for clinical prognostic factors and cfDNA concentration, high ctDNA% remained strongly associated with OS (HR= 3.3, 95%CI: 2.1-5.3, p<0.001) and PSA PFS (HR: 3.7, 95%CI: 2.4-5.9, p<0.001). Although ctDNA% and total cfDNA concentration were correlated (R2=0.55), association with OS was stronger for ctDNA% than cfDNA concentration (stratified at median; HR: 2.9 (2.3-3.7), p<0.001 vs HR: 2.1 (1.7-2.6), p<0.001).

Conclusion: In a large cohort of treatment-naïve mCRPC pts, ctDNA% prior to 1L treatment provided strong prognostic information independent of known clinical factors. These data further demonstrate the multipronged clinical utility of ctDNA-based profiling for actionable genomic alterations.

Table 1: Outcomes

	ctDNA ≤2% (n =169)	ctDNA >30% (n = 89)	ctDNA ≤ median (n = 208)	ctDNA > median (n = 202)
Median OS (months)	39.8	9.9	37.6	15.9
HR (95% CI)	4.8 (3.5-6.5) p<0.001		2.9 (2.3-3.7) p<0.001	
Median PSA PFS (months)	13.0	2.9	12.8	5.6
HR (95% CI)	4.4 (3.2-6.2) p<0.001		2.5 (2.0-3.1) p<0.001	
PSA50 RR	77%	51%	76%	62%
X^2	p<0.001		p=0.004	

ACUTE LEUKEMIA OF AMBIGUOUS LINEAGE: A SINGLE CENTRE RETROSPECTIVE REVIEW OF DISEASE CHARACTERISTICS, TREATMENT STRATEGIES, OUTCOMES AND NOVEL THERAPEUTIC

Kevin Brown

Background: Acute leukemia of ambiguous lineage (ALAL) is a leukemia that has phenotypic features of both lymphoid and myeloid lineages with an incidence of 1-6% and a poor prognosis. Incidence, diagnostic criteria and treatment strategies for ALAL have evolved over time.

Objective: To retrospectively determine the incidence, characteristics, treatment and outcomes of ALAL and to identify immunophenotypic markers that are therapeutic targets with modern immunotherapy in ALAL in British Columbia.

Methods: Using the British Columbia Cancer Agency Leukemia Database, patients diagnosed with ALAL between 2000 and 2020 were identified. Information including demographics, date of diagnosis, pathology results, treatment and survival data from the database were quantified and reviewed by two clinical hematologists. If the diagnosis met the criteria for a diagnosis other than ALAL [based on World Health Organization (WHO) 2016 diagnostic classification], the patient was excluded from the analysis. The subtype of each ALAL case was determined using WHO 2016 diagnostic classification. A survival analysis was performed using a Kaplan-Meier analysis for all cases; and a separate survival analysis was performed comparing patients receiving allogeneic hematopoietic cell transplant (HCT) and those that did not.

Results: 63 patients with ALAL were initially identified. 13 patients met the criteria for another diagnosis and were eliminated from the analysis. The incidence of ALAL was 1.5%. MPAL with t(9;22) was the most common subtype of ALAL in the cohort. 29.7%, 25.5% and 17.0% of cases received AML-type induction, ALL-type induction or combination-type induction, respectively. 51.1% of patients received HCT. The median overall survival was 30.2 months (12.4-48.0 months, CI 95%) with a median follow up time of 22.1 months. Three-year overall survival was 42.6%. Three-year overall survival was 59.9% and 24.8% in the HCT and non-HCT group, respectively (p=0.003). 70.2% of ALAL cases had a target for modern immunotherapeutic agents.

PLASMA EXOSOME MICRORNA-155 EXPRESSION IN PATIENTS WITH METASTATIC RENAL CELL CARCINOMA TREATED WITH IMMUNE CHECKPOINT INHIBITORS: POTENTIAL BIOMARKER OF RESPONSE TO SYSTEMIC THERAPY

Maryam Soleimani

Background

There are now multiple first line treatment options in the management of metastatic renal cell carcinoma (mRCC). In the face of this evolving landscape of treatment, a reliable predictive biomarker of response to immune checkpoint-based therapy (ICBT) remains a critical unmet need.

Objective

We sought to evaluate the biomarker potential of plasma exosome microRNAs (miRNAs) implicated in RCC and in augmentation of the tumour microenvironment (TME) for such a role.

Methods

Eleven miRNAs that are over-expressed in RCC and/or immune-associated were evaluated in 40 patients with mRCC (prior to initiating ICBT) and 30 healthy volunteers. Exosomes were extracted from 500 uL of plasma and were used for miRNAs extraction. MiRNAs expression was evaluated by RT-PCR. Cycle threshold values were normalized to miR-30-3b, and the relative quantity of the expression (RQ) was compared to healthy volunteers and calculated using the $2^{-\Delta\Delta Ct}$ method. Mann-Whitney U test was used to evaluate the expression of miRNAs between mRCC pts and healthy volunteers according to best response to first line ICBT between responders (n=27) v non-responders (n=13). The cut-off value of significant expression was established by Youden's index.

Results

A significantly higher expression of miRNA-1233 (median 1.85 v 0.81 p=0.008) and miRNA-155 [miR-155] (3.69 v 0.21 p=0.006) were found in patients compared to healthy volunteers. Amongst patients, miR-155 was expressed at a significantly lower level in responders than in non-responders (median 0.61 v 35.29, p=0.042). Disease control rate amongst patients with low expression of miR-155 ($RQ \leq 2.5$) was 84.2%, and 52.4% amongst those with high expression ($RQ \geq 2.5$) (p=0.032).

Conclusion

Lower expression of miR-155 was associated with better response to ICBT. Functionally, miR-155 is involved in modulation of the TME and diversification of antibody repertoire through regulation of activation induced cytidine deaminase, providing biological rationale for the results seen. Evaluation of antibody repertoire from these cases is currently ongoing.

OUTCOMES AFTER IINITIAL REFUSAL OF CURATIVE TREATMENT IN PATIENTS WITH HODGKIN LYMPHOMA IN BRITISH COLUMBIA

Manik Chahal

Background

Classical Hodgkin lymphoma (cHL) is considered a highly curable cancer. With standard combination chemotherapy regimens, long-term survival exceeds 95% for limited-stage and 85% for advanced-stage patients. However, some patients delay or decline conventional treatment for cHL.

Objective

To retrospectively assess the impact of initial treatment refusal on outcomes of patients with cHL in British Columbia (BC).

Methods

Using the BC Cancer Lymphoid Cancer Database, we identified all patients aged 18-70 diagnosed between 1st Jan 1999- 31st Dec 2020 that had documented treatment refusal at initial presentation ('refusers' defined as not receiving or delaying treatment > 16 weeks). We identified a control cohort (min. 3 controls/ refuser) treated within 8 weeks of diagnosis, matched for age, stage, diagnosis date within 3 years, and blinded for outcome. All patients had centrally reviewed biopsies and were treated with ABVD or ABVD-like regimens +/- radiotherapy if appropriate. Patient and disease characteristics at baseline and at time of treatment were analyzed with Chi-squared test and one-way ANOVA test. The Kaplan-Meier method was used to assess progression-free survival (PFS) and overall survival (OS), and statistical significance between groups was determined using the log-rank test.

Results

We identified a cohort of 15 refusers and 47 matched controls. The control cohort was well-matched, with no significant differences in baseline characteristics. The most common reason for initial treatment refusal was to pursue alternative therapy (73%). 13/15 refusers eventually accepted treatment. At time of treatment, the proportion of refusers with advanced-stage disease increased from 20% to 62% ($p = 0.03$), and 62% of patients developed higher risk disease ($p = 0.02$). Estimated 5-year PFS was 65% vs 84%. With extended follow up, 13% of refusers (1 late death at 8 years) vs 4% of controls died of cHL specifically. This study highlights the impact of treatment refusal in this highly curable malignancy, and may help to provide guidance to counselling physicians and patients.

USING BLOOD WISELY IN ONCOLOGY PATIENTS: AN INSTITUTIONAL ANALYSIS OF CHOOSING WISELY CANADA TRANSFUSION PRACTICES RECOMMENDATIONS

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Background

Numerous guidelines and studies support the efficacy and safety of single-unit transfusions and restrictive pre-transfusion hemoglobin (Hg) thresholds (≤ 70-80 g/L) for stable, non-bleeding hospitalized patients, including those with malignancies receiving myelosuppressive systemic therapy. Using Blood Wisely is a national Choosing Wisely Canada (CWC) campaign that challenges hospitals to benchmark themselves on evidence-informed transfusion practices, with the aim to decrease inappropriate red blood cell (RBC) transfusions in Canada. We assessed adherence to CWC transfusion benchmarks in oncology patients at BC Cancer Vancouver Centre.

Methods

BC Cancer Vancouver Centre RBC transfusion records were obtained for the period of October 2019-September 2020. The percentage of single-unit transfusions and transfusions for Hg ≤ 80 g/L were measured, to assess adherence to CWC targets of ≥ 65% and ≥ 80%, respectively, for these metrics. Univariate analyses were used to compare patient and treatment variables with transfusion outcomes.

Results

During the one-year period of the audit, 120 inpatient and 586 outpatient RBC transfusions occurred. For inpatient transfusions, 40.8% (n=49) were single-unit and 79.2% (n=95) were for Hg ≤ 80 g/L. For outpatient transfusions, 11.8% (n=69) were single-unit and 65.7% (n=304) were for Hg ≤ 80 g/L. Outpatients and patients with solid malignancies were more likely to receive multiple-unit transfusions, compared to inpatients (88.2% vs 59.2%, p<0.001) and patients with haematological malignancies (87.9% vs 67.9%, p<0.001), respectively. Patients with haematological malignancies were more likely to be transfused for Hg ≤ 80 g/L (77.5% vs 65.3% in solid malignancies, p=0.004), while patients on active treatment were more likely to be transfused for Hg > 80g/L (33.8% vs 16.4% off treatment, p=0.003). Multiple RBC units were more likely to transfused when the interval from pre-transfusion bloodwork to receipt of transfusion was > 3 days (p=0.029).

Conclusion

Transfusion practices at BC Cancer Vancouver are not meeting benchmarks set by the Using Blood Wisely campaign. Factors significantly associated with inappropriate RBC transfusions included outpatient status, solid malignancy, active treatment, and prolonged pre-transfusion bloodwork interval. Quality improvement interventions are planned to improve adherence to CWC transfusion practices recommendations.

OUTCOME OF LIMITED STAGE NODULAR LYMPHOCYTE PREDOMINANT HODGKIN LYMPHOMA AND THE IMPACT OF A PET-ADAPTED APPROACH

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Background

Limited stage nodular lymphocyte predominant Hodgkin lymphoma (NLPHL) is a highly curable malignancy with an excellent prognosis. Given disease rarity, prospective studies are sparse and treatment approaches vary.

Objective

To evaluate the outcome of patients with limited stage NLPHL in British Columbia (BC) and the impact of a PET-adapted treatment approach.

Methods

Patients >16 years diagnosed with limited stage NLPHL (non-bulky (<10 cm), stage IA, IB (since 2001), or IIA if radio-encompassable) from 1995 to 2019 were identified in the BC Cancer Lymphoid Cancer Database. Treatment approaches followed era-specific guidelines: RT era (1995-2005): 2 cycles of ABVD chemotherapy followed by radiotherapy (RT), or RT alone; PET era (2005-present): ABVD alone (4 cycles) if interim PET (PET2) was negative, or treatment is changed to RT if PET2 was positive. Survival endpoints were estimated using the Kaplan-Meier method and compared with the log-rank test.

Results

In total, 99 patients were identified: median age 38 years; 73% male; 43% stage II. In the RT era (n=36), 30 patients were treated with ABVD (or ABVD-like) chemotherapy +/- RT and 6 patients received RT alone. In the PET era (n=63), 54 patients received chemotherapy (ABVD(like) n=52, R-CHOP n=2), 4 had RT alone, and 5 were observed or declined therapy. With a median follow-up of 10.5 years for all patients, 5-year progression free survival (PFS) and overall survival (OS) were 93% and 97%, respectively, with no difference by treatment era (PFS p=0.13; OS p=0.35). Among 49 patients managed with a PET-adapted approach, the 5-year PFS was 92% for PET2-negative (n=42) and 80% for PET2-positive (n=7) cases (p=0.70).

Conclusion

The outcome of patients with limited stage NLPHL is excellent with both 5-year PFS and OS exceeding 90%. This represents the largest experience of a PET-adapted approach in NLPHL and supports that ABVD alone is a viable option in select patients with a PET2-negative scan, with consideration of acute and long-term toxicities.

OUTCOME AND IMPACT OF IMMUNE-RELATED ADVERSE EVENTS IN PATIENTS WITH ADVANCED MELANOMA TREATED WITH CHECKPOINT INHIBITORS

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Background

The outcome of patients (pts) with locally advanced (LA)/metastatic melanoma (MM) treated with immune checkpoint inhibitors (ICI), as well as risk factors for and impact of immune related adverse events (irAEs), were evaluated.

Methods

Pts >18 years with LA/MM who received >1 cycle of a ICI at BC Cancer from 2012-2019 were identified using the BC Cancer Registry and Pharmacy databases. IrAEs were graded using the CTCAEv5. A landmark analysis of pts progression-free at 20 weeks (wks) was performed.

Results

451 pts were identified: cutaneous (n=329, 73% [BRAF+ 42%), mucosal (n=30, 7%), ocular (n=41, 9%), and unknown (n=51, 11% [BRAF+ 33%]) subtypes with a median follow-up of 30 months (m); 2-year (y) overall survival (OS) was 47%, 31%, 29%, and 60%, respectively (p<0.001). Combination ipilimumab/nivolumab (ipi/nivo), PD1 inhibitor alone (PD1), and ipilimumab alone (ipi) were given to 96 (21%), 275 (61%) and 80 (18%) pts, respectively. Overall, 2-y OS was superior in ipi/nivo vs PD1 (63% vs 49%, p=0.01), and when stratified by cutaneous/unknown (62% vs 53%, p=0.05), and mucosal (73% vs 21%, p=0.025); however, this was seen only in males (2-y OS 69% vs 47%, p=0.001; females, p=0.9).

In total, 62% of pts developed ≥1 irAE: endocrine (21%), GI (20%) and skin (34%), including vitiligo (12%) which was associated with excellent outcome (2-y OS 84% vs 41%, p<0.001). Grade (gr) ≥3 irAEs by treatment were 46% vs 11% vs 15% in ipi/nivo, PD1, and ipi, respectively (p<0.001). Overall, irAE frequency and grade were similar by age and ethnicity. In a landmark 20-wk analysis, OS was similar by irAE development (p=0.91).

Gr >2 irAE was associated with normal LDH (82% vs 19%, p=0.01) and sex (male 69% vs female 31%, p=0.019) in ipi/nivo; no risk factors were identified in PD1. However, pre-treatment with steroids ≤2m reduced irAE risk but also OS (p<0.0001) (including M1d, 2-y OS 57% vs 26%, p=0.016), an impact not observed in ipi/nivo pts (p=0.927).

Conclusion

A higher frequency of gr ≥2 irAEs was noted in males and with a normal LDH. Steroids before ICI were associated with reduced toxicity and efficacy of PD1 inhibitor therapy.

AGE-BASED DIFFERENCES IN THE MANAGEMENT OF PATIENTS WITH ADVANCED MELANOMA: A POPULATION-BASED COHORT STUDY

Eric Sonke, Doran Ksienski

Background

Checkpoint inhibitors and immunotherapy have changed the landscape of cancer treatment. A class of checkpoint inhibitors known as programmed cell-death 1 antibodies (PD-1 Ab) have been shown to improve overall survival (OS) for patients with advanced melanoma in clinical trials. However, detailed safety data in patients 75 years of age or older is lacking, which may cause delays in initiating PD-1 Ab treatment in this age group.

Objective

The objective of this retrospective population-based cohort study was to investigate a potential association between age and time to treatment initiation (TTI) of PD-1 Ab, and whether or not this influences OS.

Methods

Patients with advanced melanoma receiving front line PD-1 Ab at British Columbia Cancer outside of clinical trials between November 2015 and October 2019 were identified retrospectively. The association of age (≥75 years) with TTI was calculated using multivariable (MV) logistic regression. MV Cox proportional hazard regression models were also used to determine baseline factors associated with OS.

Results

302 patients were identified, of whom 126 (41.7%) were ≥75 years. Median TTI for the whole cohort was 51.7 days. Patient's ≥75 years (vs. <75) were more likely to have TTI >51.7 days, though the association was weak (odds ratio 1.57, 95% CI 0.96-2.56, p=0.070.) Median OS was 22.5 months. Age ≥75 years (vs. <75) was associated with shorter OS (hazard ratio 1.35, 95% CI 1.11-1.65, p=0.003).

Conclusion

Patient's ≥75 years were more likely to experience longer TTI of PD-1 Ab than those <75 years. This may contribute to shorter OS in this age group and supports early treatment initiation in older patients with advanced melanoma.

IMPROVING TRANSFUSION REACTION REPORTING AT VANCOUVER GENERAL HOSPITAL - A QUALITY IMPROVEMENT INITIATIVE

Alexa Clark, Corrine Czapla, Annie Fong, Krista Marcon

Background

Transfusion reactions occur in up to 3% of transfusions, depending on the type of blood product administered. The British Columbia Provincial Blood Coordinating Office (BC PBCO) guidelines state that transfusion reaction investigations must be completed prior to subsequent blood product administration. At Vancouver General Hospital, the adherence to this policy is low due to the lengthy turnaround time (TAT) for reaction reports, with up to 79% of patients issued another product prior to report finalization.

Objective

To identify areas of improvement within the laboratory process of transfusion reaction investigation in order to increase the proportion of completed reaction investigations prior to subsequent transfusion, in keeping with the patient safety policy.

Methods

A QI project was completed to identify areas of improvement. Value stream mapping identified non-value added steps in the process, including unnecessary waiting and processing before and after the pathologist completed the reaction form. To address these delays, technologists scanned transfusion reaction forms to a newly-created shared pathologist email inbox, alerting the pathologist of pending reaction form. Additionally, pathologists were given access to the laboratory information system to digitally complete the transfusion reaction report, eliminating the need for technologist transcription. A standard work instruction sheet was created to ensure proper training and standardization. To track progress, surrogate lead measures were followed, including the percentage of transfusion reaction reports emailed to pathologists (target 100%), and the percentage of allergic reaction comments released within 24 hours, (target 80%).

Results

10 weeks after implementation, 97.8% of transfusion reaction forms were emailed to the shared inbox. The percentage of allergic reaction comments released within 24 hours increased from 21% to 47%. Overall, the median TAT reduced from 68.7 to 40.6 hours, with 37.8% of transfusion reaction investigations completed within 24 hours, and 60% within 48 hours (an increase from 13.7% and 36.0%, respectively).

DYSMENORRHEA EXPERIENCES AND OVULATORY CHARACTERISTICS: A ONE-YEAR OBSERVATIONAL COHORT STUDY IN HEALTHY, SPONTANEOUSLY MENSTRUATING, INITIALLY OVULATORY WOMEN

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This is a prospective community cohort observational study of cramps in 53 healthy premenopausal women from the community ages 21-41 years with clinically normal menstrual cycles. Women completed daily Menstrual Cycle Diary© records of cramp intensity over one year. Ovulation and luteal phase lengths were assessed by validated Quantitative Basal Temperature© (QBT) analysis. All 53 women reported at least one cramp episode (median intensity 1.5 [range 1.0-3.5 of 0-4], and duration 2.2 [range 1.0-10.2] days). Cramp intensity was greater in cycles having subclinical ovulatory disturbances (SOD; median 1.4 [range 0.0-2.8]) than in normally ovulatory cycles (median 1.2; [range 0.0-2.3]) (p=0.023) within the 49 women who experienced all ovulatory, anovulatory, and SOD cycles. There was no difference in Cramp Scores within nineteen women who experienced both ovulatory and anovulatory cycles (p=0.222). This provides evidence against the assumption that cramps only occur in ovulatory cycles.

EPIDEMIOLOGY, RISK FACTORS, AND TREATMENT CONSIDERATIONS FOR PYOGENIC LIVER ABSCESS (PLA) IN THE CALGARY HEALTH ZONE (CHZ) REVISITED: A POPULATION-BASED STUDY

Jennifer A. Losie, John C. Lam, Daniel B. Gregson, Michael D. Parkins

Background: PLA is a significant cause of morbidity and mortality. However, its epidemiology and outcomes have not been recently evaluated in the CHZ.

Objective: To compare epidemiology, risk factors, and treatment durations for PLA from 2015-2017 versus 1999-2003.

Methods: In this population-based study, we evaluated epidemiology, risk factors, and treatment of patients with PLA in the CHZ. CHZ residents aged ≥20 years diagnosed with PLA in 2015-2017 were included. Charts were reviewed for demographics and outcomes. Findings were compared to a previous assessment of PLA in the CHZ from 1999-2003.

Results: In total, 136 patients with PLA were identified, representing an incidence rate of 3.6 cases per 100,000 population. Compared to 1999-2003, incidence of PLA was increased (2.3 per 100,000; p<0.01) but mortality was similar (1999-2003: 0.22 per 100,000 vs. 2015-2017: 0.26 per 100,000; p=0.6).

The most common identified organisms were Streptococcus anginosus group (40%), Klebsiella species (25%), Escherichia coli (18%), and obligate anaerobes (16%). Pathogen prevalence was similar to the prior cohort. Compared to 1999-2003, antibiotic resistant organisms were more frequent (1% vs 8%, p=0.04) and liver aspirations were less frequent (p=0.02).

The median duration of intravenous antibiotic therapy was longer compared to previous (2015-2017: 23 days (IQR 9-38) vs. 1999-2003: 17 days (IQR 10-29); p=0.001). Similarly, the total duration of antibiotic therapy was longer (2015-2017: 42 days (IQR 25-65) vs. 1999-2003: 31 days (IQR 18-45); p<0.001).

Thirty-day mortality from admission was 7% and was not significantly changed over time.

Conclusion: Incidence of PLA in the CHZ is rising with more antimicrobial resistance. Encouraging liver aspirations to obtain a microbiologic diagnosis is crucial. Considering shorter antibiotic durations in light of stable mortality is an area of further exploration.

AMH ACROSS THE REPRODUCTIVE LIFESPAN IN WLWH ENROLLED IN THE CARMA COHORT

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Background: HIV is associated with diminished fertility, earlier menopause, shorter leukocyte telomere length (LTL), a marker of cellular aging, and lower anti-Mullerian hormone (AMH), a reliable marker of ovarian reserve. We sought to examine the associations among LTL, AMH and HIV to understand factors associated with ovarian aging in women living with HIV (WLWH) in cross sectional and longitudinal analyses.

Methods: We included 256 WLWH and 206 HIV-negative women 12-50 years of age enrolled in the CARMA cohort with >1 study visit(s) >1 year apart. Relative LTL and AMH were measured by multiplex qPCR and ELISA, respectively. Participants were separated into two groups for analyses in reproductive (<35 years) vs. perimenopausal life phases (>35 years). In cross sectional analyses AMH was natural log-transformed to approximate a normal distribution. Using multivariable mixed-effects models we assessed for factors associated with AMH and ΔAMH/year.

Results: WLWH had shorter LTL (7.2 vs. 7.5 p=0.0002) and lower AMH levels (1.5ng/mL vs. 2.3ng/mL p=0.032) compared to HIV-negative controls of similar age (33.5y vs. 32.3y, p=0.62). In cross sectional analyses, HIV was associated with a 20% lower AMH (p=0.05) in women <35 years. In women >35 years, longer LTL was associated with 143% higher AMH (p=0.046) and opioid use was associated with 77% lower AMH (p=0.027). In longitudinal analyses, HIV was associated with 109% increase in ΔAMH/year (p<0.0001) and current smoking was associated with 108% decrease in ΔAMH/year (p=0.005) in women <35. In women >35 only initial AMH value was associated with ΔAMH/year (p<0.0001).

Conclusion: We identified that factors associated with AMH change across the reproductive lifespan. Our data demonstrate lower AMH levels in WLWH <35 years compared to controls, suggesting that HIV may have an initial detrimental effect on ovarian reserve. In women >35, shorter LTL was associated with lower AMH, suggesting an association between cellular and ovarian aging.

VIRAL SUPPRESSION WITH ANTIRETROVIRAL THERAPY INITIATED IN HOSPITAL COMPARED TO IN THE OUTPATIENT SETTING

Wayne Leung

Background: In BC, antiretroviral therapy (ART) initiation is overwhelmingly done on an outpatient basis. Inpatient admission may be an appropriate setting to engage vulnerable people living with HIV (PLWH) who may have limited pre-existing outpatient care.

Objective: To evaluate virologic outcomes of in-hospital compared to outpatient ART starts.

Methods: A retrospective study of adult PLWH enrolled in the Drug Treatment Program of the BC Centre for Excellence in HIV/AIDS who initiated ART between 2003 and 2019 was conducted. A logistic model for factors associated with inpatient ART start was performed. Proportions of participants with viral suppression (defined as two consecutive viral loads of <50 copies per mL) at the end of one, two, and three years after treatment initiation or re-initiation after treatment interruption (defined as 90 days off ART) were compared.

Results: 5434 participants initiated ART between 2003 and 2019. 5052 (93%) were initiated as outpatients, and 272 (5%) as inpatients. 1726 were re-initiations including 1540 (89%) as outpatients, and 110 (6%) as inpatients. AIDS defining illness (aOR 4.43, CI: 3.39-5.78) and injection drug use (aOR 2.05, CI: 1.56-2.69) were significantly associated with in-hospital starts. The proportion of participants suppressed at one year was lower when ART was started as inpatients, for both initiations (79% vs. 93%, P < 0.001) and re-initiations (69% vs. 84%, P = 0.002). The proportions were similar when compared between ART initiations as inpatients and as outpatients at two (94% vs. 94%, P = 0.956) or three (96% vs. 96%, P = 0.924) years; proportions were also similar in re-initations at two (96% vs. 89%, P = 0.270) or three years (93% vs. 93%, P = 0.990).

Conclusion: Long-term rates of virologic suppression in ART starts and restarts in the hospital and outpatient setting are comparable. The hospital is a viable setting to start ART.

COMPARISON OF LIVER-RELATED OUTCOMES AND ALL-CAUSE MORTALITY IN PSC-IBD VERSUS PSC ALONE

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Background: Inflammatory bowel disease associated with primary sclerosing cholangitis (PSC-IBD) has been characterized by an increased risk of colorectal cancer. However, evidence for its role in liver-related outcomes is conflicted. The objective of this study is to assess whether PSC-IBD patients had higher rates of liver transplantation, hepatobiliary (HB) cancers, and all-cause mortality compared to those with primary sclerosing cholangitis (PSC) alone, and to examine factors that are associated with worse liver-related outcomes.

Methods: A retrospective analysis of patients with PSC-IBD and PSC at two large Canadian tertiary centres was completed. Baseline characteristics at initial assessment including demographics, clinical, laboratory, and imaging characteristics, along with liver-related outcomes and mortality, were collected. A composite outcome of liver transplants, HB cancers, and all-cause mortality was compared.

Results: 165 patients were included in this study. 95 patients were male (PSC-IBD 68, 61.3%; PSC 27, 50.0%; P=0.170). The mean age of PSC diagnosis was 37.1 (range 10 to 79) and 43.6 (range 9 to 73) years in the PSC-IBD and PSC groups, respectively (P=0.0234). Liver transplants, HB cancers, and all-cause mortality occurred more frequently in the PSC-IBD group compared to the PSC group (43.2 versus 25.9%; OR 2.18, 95% CI 1.44 to 2.91). Liver transplantations occurred more often in the PSC-IBD group (22.5 versus 13.0%; OR 1.95, 95% CI 1.04 to 2.86). The PSC-IBD group trended towards higher individual outcomes of HB cancers and all-cause mortality. Mean time to composite outcome was 9.15 (SD 9.58) and 8.51 (SD 10.6) years in the PSC-IBD and PSC groups, respectively (P=0.582). Death in the PSC group tended to occur closer to the time of PSC diagnosis (PSC-IBD 10.9 years, SD 12.8; PSC 4.50 years, SD 2.93; P=0.0494). In the PSC-IBD group, high rates of the composite outcome were seen in patients who were diagnosed with PSC after the age of 40 (P=0.003), diagnosed with PSC after IBD diagnosis (P=0.031), and in those who had higher bilirubin (P=0.005) and lower platelets (P=0.004) at their first visit.

Conclusion: PSC-IBD appears to be associated with increased rates of liver transplantation, HB cancers, and all-cause mortality compared to PSC alone. Being diagnosed with PSC after age 40 or after IBD diagnosis, having higher bilirubin and lower platelet counts at the initial visit in PSC-IBD patients may be associated with worse liver-related outcomes and all-cause mortality.

UNDERWATER COLONOSCOPY: A NEW ERA IN OBVIATING THE NEED FOR COLORECTAL SURGERY EVEN FOR COMPLEX LESIONS

Ciaran Galts

Background

Sessile colorectal lesions which do not elevate with submucosal injection — "non-lifting" lesions — are considered poor candidates for standard endoscopic mucosal resection (EMR) due to concerns of possible invasive cancer and increased procedural risk. However, a non-lifting sign is an unreliable predictor of malignancy, relegating many benign lesions to surgical resection. Underwater EMR (UEMR), which obviates submucosal injection, is effective for sessile colorectal polyps but has not been evaluated specifically for non-lifting lesions. The aim of this study was to assess the efficacy of UEMR for "non-lifting" large sessile colorectal lesions.

Methods

We reviewed our database from 2016 to 2019 for patients referred for large (≥ 20 mm) non-lifting colorectal lesions without overt signs of invasive cancer, who subsequently underwent UEMR.

Results

32 cases were successfully treated with single session UEMR. 18 (56%) were de novo lesions whereas the remainder had undergone previous attempt(s) at conventional EMR. The mean lesion size was 37 ± 17 mm. 4 cases (13%) were resected en bloc; the remainder piecemeal. Final pathology was T1 adenocarcinoma, N=3 (9%); tubulovillous adenoma, N=15 (47%); tubular adenoma, N=8 (25%); sessile serrated, N=6 (19%); high-grade dysplasia, N=2 (6%). One patient with cancer underwent surgical resection (T1N0); the remainder had endoscopic follow-up over 8 ±3 months with benign recurrent/residual lesions in 8%, all amenable to UEMR. There were no procedural complications.

Conclusion

In this series of large sessile non-lifting colorectal lesions, UEMR was effective for both de novo and previously treated lesions, obviating surgery in the majority of cases.

SIGNIFICANCE OF INFLAMMATORY BOWEL DISEASE DIAGNOSIS FROM BRITISH COLUMBIA COLON SCREENING PROGRAM

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Background: Inflammatory bowel disease (IBD) is a chronic inflammatory condition that includes both Ulcerative colitis (UC) and Crohn's disease (CD). The incidence is highest in adolescents or younger adults, but IBD can occur at any age. There has been evidence of incidental IBD diagnosis in older patients during screening colonoscopy, a procedure performed in otherwise asymptomatic individuals with positive fecal immunochemical test (FIT) for colorectal cancer screening. However, not much is known about significance of subclinical disease and its progression in the elderly population.

Aim and Hypothesis: To determine the incidence of subclinical IBD in older patients during screening colonoscopy and the clinical trajectory of asymptomatic patients with new IBD diagnosis. We hypothesize that given subclinical disease, treatment rates would remain low, especially with use of biologics or surgical intervention.

Methods: British Columbia Colon Screening Program (BCCSP) database was screened for cases between Nov 13, 2013 and Dec 21, 2017 at 9 sites within the province. Cases were detected based on endoscopic or histologic presence of colitis. Those who were previously diagnosed or treated for UC or CD were excluded from the study. Patient charts were reviewed to review the endoscopy and histology reports, and document management and follow-up for patients.

Results: The incidence of subclinical IBD diagnosis in CSP is 0.5%, with 204 cases identified from 9 hospitals within British Columbia. The average age at diagnosis was 59.7 years, and 79.4% of patients were Caucasian, 12.2% East Asian, and 11.7% South-east Asians. 58 patients were diagnosed with UC, 103 with Crohn's disease, and 43 with indeterminate colitis. 63.7% of patients received treatment, with 17.2% of patients requiring biologic therapy and 2.5% of patients requiring surgery.

Conclusion: The diagnosis of subclinical IBD during screening colonoscopy was comparable to those documented in literature. However, higher incidence of CD compared to UC is atypical of what has previously been reported. Despite having little or no symptoms, almost a fifth of the patients required biologics and/or surgery, hence, emphasizing the role of treatment to prevent disease progression in this unique population.

IMPACT OF TELEHEALTH ON MEDICATION ADHERENCE IN GASTROENTEROLOGY CHRONIC DISEASE MANAGEMENT

Hyun Jae Kim[1], Marcel Tomaszewski[2], Billy Zhao[3], Eric Lam[2], Robert A. Enns[2], Brian Bressler[2], Sarvenaz Moosavi[2]

Background: With the COVID-19 pandemic, the demand and availability of telehealth in outpatient care has increased. Although use of telehealth has been studied and validated for various medical specialties, relatively few studies have looked at its role in gastroenterology despite burden of chronic diseases such as inflammatory bowel disease (IBD).

Objective: To assess effectiveness of telehealth in gastroenterology by comparing prescription fill rate for patients seen via telehealth or in-person for various gastrointestinal conditions.

Methods: Retrospective chart analysis of patients seen in outpatient gastroenterology clinic was performed to identify patients who were given prescription to fill either through telehealth or in-person appointment. By using provincial pharmacy database, we determined the prescription fill rate.

Results: A total of 288 patients were identified who were provided prescriptions during visit with their gastroenterologists. 128 patients were seen through in-person visit during pre-pandemic period. 160 patients were seen through telehealth appointment during COVID pandemic.

The mean age of patients was 44 years and 46 years in telehealth and in-person group respectively. There were no significant demographic differences between two groups. Majority of patients were seen for IBD management (71.9% in telehealth, 72.7% in in-person cohort). Biologic therapy was the most commonly prescribed medication (48.8% in telehealth, 54.7% in in-person cohort).

Prescription fill rate for patients seen through telehealth and in-person visit were 96.9% and 89.1% (P = 0.008, OR 3.81 [1.33-10.87]) respectively. When we compared prescription fill rate while excluding biologic therapies, the prescription fill rate was 93.6% in telehealth cohort and 81.4% in in-person cohort (P = 0.024, OR 3.33 [1.12-9.88]).

Conclusion: Prescription fill rate for patients seen through telehealth was higher compared to patients seen through in-patient visit in this study. Study suggests telehealth is a viable and effective alternative for outpatient gastroenterology care.

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EVALUATING THE ACCEPTABILITY AND EFFICACY OF CYTOSPONGE FOR BARRETT'S ESOPHAGUS AND EOSINOPHILIC ESOPHAGITIS: A SINGLE CENTRE CROSS-SECTIONAL STUDY

Chris Shamatutu, Imran Sumar

Background

Barrett's esophagus (BE) and Eosinophilic esophagitis (EoE) both require screening endoscopies to assess for progression of disease as both conditions can lead to serious complications. BE is a premalignant condition for which early diagnosis provides a significant mortality benefit. EoE can lead to esophageal strictures, food bolus obstructions, or rare cases of esophageal rupture. The Cytosponge may serve as a minimally invasive tool to improve early diagnosis and monitoring of these conditions.

Objective

To assess the patient acceptance of Cytosponge as compared with endoscopy by measuring scales of acceptability.

Methods

A prospective group of patients with either BE of EoE referred to St. Paul's Hospital for screening endoscopies were enrolled into the study. Demographic and baseline disease status was identified by reviewing prior endoscopy reports on Accuro. Patients were then brought in for screening and underwent the Cytosponge procedure prior to the endoscopy. Patient acceptability was assessed using the Visual Analogue Scale (VAS), Spielberger State Trait Anxiety Inventory and Impact of Events Scale. In addition, Cytosponge samples were collected for analysis.

Results

In progress. 10-20 procedures have taken place thus far and will be presented at research day.

PREVALENCE OF UNDIAGNOSED PRIMARY SCLEROSING CHOLANGITIS IN PATIENTS WITH INFLAMMATORY BOWEL DISEASE RELATED COLORECTAL CANCER

Jordyn Thompson

Background

PSC-IBD represents a distinct IBD phenotype with 3-fold increased risk of CRC when compared to IBD alone, and the increasing incidence of early-onset colorectal cancer suggests risk factor assessment of high risk populations is lacking.

Objective

To determine the the prevalence of undiagnosed PSC in a subpopulation of patients with IBD associated CRC.

Methods

A cohort of IBD patients 18 to 50 years old referred to the BC Cancer Agency from 1990-2016 with confirmed CRC were retrospectively analyzed to determine the prevalence of PSC in IBD related CRC. A supplemental chart review was conducted, analyzing biochemical data (ALP) and imaging (US, CT, MRCP) for features in keeping with possible PSC. Patients were classified as probable PSC on the basis of distinct bile duct changes on MRCP highly suggestive of PSC (bile duct beading).

Results

Among 88 CRC patients with pre-existing IBD (CD and UC), 6 had imaging features suggestive of probable PSC on MRCP (6.81%), 11 had non-PSC specific imaging abnormalities (12.5%), and 24 had abnormal ALP biochemistry (27.27%). Of the patients with imaging findings consistent with PSC, all 6 were previously diagnosed with UC (100%), and 3 of these patients had abnormal ALP values (50%). This is greater than the previously reported prevalence rates of PSC in IBD patients (4.04% for UC). With 50% of these probable cases of PSC being asymptomatic with no preceding biochemical abnormalities, it is suggested that biochemical screening for PSC may be insufficient in appropriately classifying those at further increased risk for CRC and allocating them to appropriate surveillance schedules.

IMPACT OF THE COVID-19 PANDEMIC ON THE HEALTH CARE AND OUTCOMES OF HEPATOLOGY PATIENTS: A MIXED METHODS STUDY

Shirley X. Jiang, Katerina Schwab, Rob Enns, Hin Hin Ko

Background

The COVID-19 pandemic has a secondary impact on health by disrupting systems and changing patient behaviours. Patients with chronic liver disease (CLD) are disproportionately affected as they require constant, high level care.

Objective

To understand how the COVID-19 pandemic has impacted care, outcomes, and preferences towards telemedicine in CLD outpatients.

Methods

CLD patients of an urban gastroenterology clinic who attended a telemedicine appointment between 03/17/2020-9/17/2020, completed an online survey on care delays, health behaviours, and experience with telemedicine. Chart review was conducted in 400 randomly-selected patients: 200 charts from during the pandemic were compared to 200 charts the previous year. Data were extracted for clinicodemographic variables, laboratory investigations, and clinical outcomes.

Results

Of 399 patients invited to participate, 135 (34%) completed the online survey. Fifty (39%) patients reported 83 care delays due to the COVID-19 pandemic, with the majority (71%) of delays persisting beyond 2 months. Ninety-five (75%) patients were satisfied with telemedicine appointments. There was a longer delay between lab work and appointments in patients seen during the pandemic compared to 2019 (p=0.01). During the COVID pandemic, there were more cases of cirrhosis decompensation (n=26, 13% vs. n=22, 11%) and hospitalization (n=12, 6% vs n=5, 3%). More cases of hepatocellular carcinoma were identified during the pandemic (n=4, 2% vs none).

Conclusion

The COVID-19 pandemic has led to significant care delays forCLD outpatients, with most delays on the scale of months. Clinical outcomes trended towards higher rates of cirrhosis decompensation and hospitalization. These patient-reported experiences and clinical observations can direct optimization of CLD care as effects from the pandemic evolve.

IMMUNOGLOBULIN G LEVELS AND ONE-YEAR MORTALITY IN CHRONIC OBSTRUCTIVE PULMONARY DISEASE

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Rationale: Our objective was to determine the association between immunoglobin G (IgG) levels and 1-year mortality in patients with chronic obstructive pulmonary disease (COPD).

Methods: IgG levels were measured by mass spectrometry in serum samples of 621 COPD patients enrolled in the Rapid Transition Program (ClinicalTrials.gov: NCT02050022). This cohort included a group of patients (n=489) who were admitted to St. Paul's Hospital or Vancouver General Hospital (Vancouver, Canada) for COPD exacerbation, as well as a group of stable patients who attended an ambulatory COPD clinic (n=132). Subjects were followed for one year after enrollment, during which their vital status was ascertained through hospital records. As the normative range of serum IgG is 7 g/L to 16 g/L, we subdivided the cohort based on this threshold into: 1) normal; 2) low; and 3) high serum IgG groups. Kaplan Meier (KM) survival analysis was used to determine the relationship between serum IgG levels and the risk of 1-year mortality. Cox regression modeling adjusting for age, sex, ethnicity, and smoking status was performed to obtain adjusted hazard ratios (aHRs).

Results: Patients had a mean age of 66.9 ±11.6 years and a mean post-bronchodilator FEV1 of 52.6 ±23% predicted, 64.7% were males, and 55.7% were current smokers. The 1-year mortality rate was 17.7%. The mean time to death was 296 days (95%CI: 267-326) in the low group, 332 days (95%CI: 324-341) in the normal group, and 310 days (95%CI: 288-332) in the high IgG group. Compared to the normal IgG group, those with hypogammaglobulinemia (i.e., low group) experienced more than a 2-fold increase in the risk of 1-year mortality (aHR= 2.3, 95%CI: 1.4 - 3.8, P= 0.001). The high serum IgG group also had an increased risk of mortality compared to the normal group (aHR= 1.8, 95%CI: 1.1 - 3, P= 0.01).

Conclusion: Independent of age, sex, ethnicity, and smoking status, hypogammaglobulinemia elevated the risk of death by two-fold, while hypergammaglobulinemia increased the risk by 1.8-fold in COPD patients. Our results raise the intriguing possibility; immunoglobulin replacement therapy may be effective in improving short-term mortality in select COPD patients.

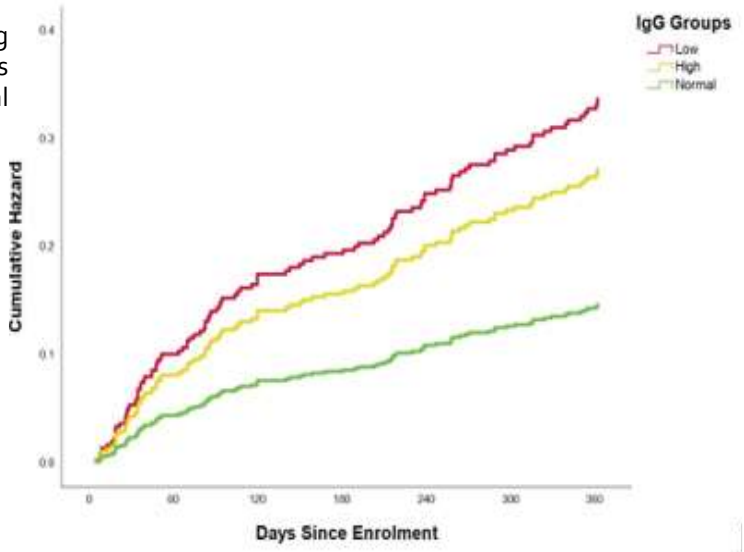

Figure 1: Hazard plot illustrating survival according to IgG ranges (<7 g/L low, between 7-16 normal range, >16 high range group).

GASTRIC RETENTION IN CAPSULE STUDIES – IS AN ENDOSCOPY ALWAYS REQUIRED?

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Background: Capsule endoscopy (CE) is a non-invasive procedure for evaluating small bowel (SB) disorders but is limited by the completion rate. Gastric retention (GR), whereby the capsule remains in the stomach for the duration of the recording, can contribute to incomplete examinations given CE's finite battery life. Although this may be mitigated by using real-time imaging and/or endoscopic placement of capsule into the SB, such strategies require additional resource allocation. While other risk factors associated with incomplete examinations are well known, GR is not often discussed in the literature.

Aim: To describe the management and outcomes of patients with GR. We hypothesize that most patients with previous gastric retention of the capsule, without known obstruction, will pass the capsule normally through the stomach with a second attempt without requiring endoscopic placement into the duodenum.

Methods: Case series of patients with GR at a tertiary care centre in Vancouver, Canada. Prior to CE, all patients had undergone appropriate investigations to exclude obstructive pathology. All patients ingested 2L of polyethylene glycol-based bowel preparation the evening prior to the procedure and were fasting after midnight. Ingestion of the capsule occurred at 0700h. In patients who required repeat CE due to previous GR, capsule progress was assessed via real-time imaging at 1-2 hours. If the capsule had not entered the SB by three hours, an attempt at endoscopic advancement of the capsule into the duodenum was made and/or endoscopic placement of capsule was arranged for a later date.

Results: GR was found in 34 (1.7%) of 2043 patients between 09/2010 - 09/2020. The mean age of patients with GR was 54 ± 21 years and 18 (53%) were female. The most common indication for CE in this group was obscure gastrointestinal bleeding (n = 20, 59%). The mean Charlson Comorbidity Index was 2.7 ± 3.3. Twenty patients (59%) had a history of abdominal/pelvic surgery. Twenty-nine patients had follow-up information available. Twenty-one patients (62%) underwent repeat CE, 15 (71%) of which passed into the SB without endoscopic assistance. Of those requiring endoscopic assistance (n = 6), three had successful endoscopic placement, one required dilation of pyloric stenosis prior to successful placement, one failed endoscopic placement due to stenotic gastroplasty orifice during which the capsule was retrieved from the stomach, and another required upper endoscopy for further evaluation. One patient with GR eventually developed obstruction due to stricturing Crohn's disease requiring surgical intervention.

Conclusion: Repeat CE appears to be safe in patients with previous GR. The majority of repeat CE pass into the SB spontaneously in this case series.

AN UPDATED ASSESSMENT OF ONLINE INFORMATION ON IDIOPATHIC PULMONARY FIBROSIS

Japnam Grewal

Background

The Internet is a frequent source of health information for patients, but the accuracy and reliability of online health information is often inadequate. Previous research based on data from 2015 showed that low quality online health information is particularly prevalent in idiopathic pulmonary fibrosis (IPF).

Objective

The objective of this study was to determine whether the content and quality of Internet resources on IPF has improved since 2015.

Methods

The top 200 search results for the search "idiopathic pulmonary fibrosis" on Google®, Yahoo®, and Bing® were screened for eligibility. Eligible websites were assessed independently by two authors for content and quality, based on common features reported in recent clinical practice guidelines for IPF. The DISCERN questionnaire was used as previously described to quantify the quality and reliability of written information provided on each website.

Results

Overall, the amount, reliability, and quality of online IPF-related content available to patients increased in 2019. Treatment-specific content improved since 2015, with increased mention of indicated therapies and decreased mention of harmful and/or experimental therapies. However, 143 of the top 200 search results on Google®, the most utilized search engine, were research manuscripts that are not directed at patients. Only 44 websites identified in 2015 remained in the top 200 search results in 2019, with the quality of these websites unchanged.

Conclusion

While the content and quality of Internet resources on IPF has increased, there are less patient-focused resources in the top search results due to search algorithm updates. This emphasizes the need for healthcare professionals and organizations to remain informed on evolving search algorithms so their online resources reach the patients they intend to educate.

PERCEPTIONS OF RESIDENT FEEDBACK AMONG MEDICAL STUDENTS

Shannon Wong, John Luo, Rose Hatala

Background: Feedback has been widely recognized as a valuable component of medical education, and studies across multiple disciplines have demonstrated that effective feedback has a powerful influence on student achievement and development1. The majority of studies investigating effective feedback have focused on faculty and learner dyads. However, in clinical education, residents play a pivotal role in the provision of feedback to medical students, as they often spend more face-to-face time with students than faculty2. Despite this, no studies have explored resident-student feedback encounters. Our primary interest was to illuminate a rich description of the ways medical students experience resident feedback as a starting point into this underexplored area of research.

Methods: We used a qualitative research design for this pilot study informed by phenomenology. The experience of receiving resident-delivered feedback is subjective and the methodology was matched to appropriately capture the diverse thoughts, feelings, and attitudes of different learners. We conducted 24 semi-structured one-on-one interviews with fourth year UBC medical students, to allow for in-depth discussion of how medical students perceive feedback led by residents. Interviews were transcribed and anonymized, and then read independently by each co-author. We collaboratively developed initial codes using an open coding approach. These codes were applied to all the transcripts. We then organized the codes into preliminary themes and examined the codes and themes in detail to elucidate the experiences and perspectives described by participants.

Results: We found that students value and seek out resident feedback opportunities. Student reception to resident feedback is strongly influenced by their interpersonal relationships. Feedback is well received when given with support, and may be more important than whether the feedback was constructive or positive. Residents are also close in proximity of training to students, and are perceived as providing more honest, low-stakes feedback. As a result, students perceived resident feedback as focused on their growth and teaching the practical aspects of medicine, in contrast to feedback from faculty which was often perceived as having an assessment focus. Effective resident-led feedback can positively influence student development and shape their learning experiences at a formative time period in their professional development.

Conclusion: Our study provides some novel insights into how and why students value feedback from residents. Explicit strategies on how to build supportive student-resident relationships and how to maintain separation between feedback experiences and formal evaluation may be helpful for residents-as-teachers in order to engage in meaningful feedback conversations with students.

1.Hattie and Timperley. 2007. The power of feedback. Review of Educ. Research. 77(1): 81-112.
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MATHEMATICAL MODELLING OF RESPIRATORY SYNCYTIAL VIRUS (RSV) IN LOW- AND MIDDLE-INCOME COUNTRIES: A SYSTEMATIC REVIEW

Alex Mezei

Background

Due to high burden of respiratory syncytial virus (RSV) in low- and middle-income countries (LMIC), international funding organizations have prioritized the development of RSV vaccines. Mathematical models of RSV will play an important role in assessing the relative value of these interventions. Our objectives were to provide an overview of the existing RSV modelling literature in LMIC and summarize available results on population-level effectiveness and cost-effectiveness.

Methods

We searched MEDLINE from 2000 to 2020 for English language publications that employed a mathematical model of RSV calibrated to LMIC. Qualitative data were extracted on study and model characteristics. Quantitative data were collected on key model input assumptions and base case effectiveness and cost-effectiveness estimates for various immunization strategies.

Findings

Of the 283 articles reviewed, 15 met inclusion criteria. Ten studies used modelling techniques to explore RSV transmission and/or natural history, while eight studies evaluated RSV vaccines and/or monoclonal antibodies, three of which included cost-effectiveness analyses. Six studies employed deterministic compartmental models, five studies employed individual transmission models, and four studies used different types of cohort models. Nearly every model was calibrated to at least one middle-income country, while four were calibrated to low-income countries.

Interpretation

The mathematical modelling literature in LMIC has demonstrated the potential effectiveness of RSV vaccines and monoclonal antibodies. This review has demonstrated the importance of accounting for seasonality, social contact rates, immunity from prior infection and maternal antibody transfer. Future models should consider incorporating individual-level risk factors, subtype-specific effects, long-term sequelae of RSV infections, and out-of-hospital mortality.

Keywords

Cost-effectiveness; Low- and middle-income countries; Mathematical modelling; Respiratory syncytial virus; Systematic review; Vaccine.

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