SUMMER SERIES 2020

Advances in Contrast-Enhanced Magnetic Resonance Imaging

Tuesday, July 28, 2020
Wednesday, July 29, 2020
Thursday, July 30, 2020

ALL SESSIONS: 14:00-15:00 EDT

Canadian Association of Radiologists
L'Association canadienne des radiologistes

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The CAR is pleased to present its inaugural virtual summer series: **Advances in Contrast-Enhanced Magnetic Resonance Imaging**. Join your colleagues and peers on [RAD Academy](#), the CAR's e-Institute for CPD, and learn about new developments in magnetic resonance imaging (MRI) as well as the clinical implementation of modern MR imaging protocols, hosted by Dr. Marco Essig.

Consisting of three, one-hour interactive webinars, the series will feature didactic lectures focused on advances in contrast-enhanced magnetic resonance imaging. Designed for practicing radiologists, sessions are structured to provide an overview on current developments in contrast-enhanced MR imaging with a focus on safety and efficacy of MR contrast media and implementation of modern imaging protocols in central nervous system (CNS) and breast imaging.
NEEDS ASSESSMENT
These sessions will address technological, clinical, and practical innovations in radiology, as well as the perceived need for additional learning opportunities related to contrast-enhanced MR imaging and contrast agents.

TARGET AUDIENCE
Designed for all general and subspecialty radiologists as well as radiology residents and fellows whose work involves performing or interpreting images, determining appropriateness, and using advanced equipment and tools to help guide therapeutic decision-making and help improve clinical outcomes. Also suitable for new radiologists or those who have less experience in MR imaging protocols and reporting.

Participants will learn about new developments in MRI and the clinical implementation of modern MR imaging protocols. This includes the presentation of technical developments in MRI, the integration of those developments into the protocols, and the clinical impact in CNS and breast imaging. The lectures are structured to enable and provide participants with a practical and clinical driven approach of integration and offer a Canadian perspective with respect to the healthcare system and available resources.
LEARNING OBJECTIVES
Following active participation in this three-session series, participants will be able to:
• Recognize differences of MR contrast media with respect to safety and efficacy
• Identify new trends in MR imaging protocols
• Consider the impact of artificial intelligence (AI) and machine learning on MR imaging protocols and results reporting
Session information July 28

14:00–15:00 EDT

Introduction to Gadolinium-Based Contrast Agents

Part I

Introduction into the Use of Gadolinium-Based Contrast Agents with a Panel Discussion About Safety and Efficacy of Contrast Media in General Including CIN

Dr. Marco Essig

This session will provide insight into how Gadolinium-based contrast media work from a chemical as well as physical point of view. Participants will discover how the use of contrast media can impact the diagnostic performance of an MRI study with respect to sensitivity and efficacy in all body areas of MR imaging.

There will also be a focus on the use of contrast media in renal impaired patients, discuss safety issues with MR and CT contrast media as well as the recent guidelines for Contrast Induced Nephropathy.

Finally, this session will converge on differences in contrast media with respect to diagnostic performance and safety. This includes general MR imaging as well as contrast-enhanced MR angiography and so-called functional imaging techniques, including perfusion and dynamic contrast-enhanced study acquisitions.

Part II

Update on Nephrogenic Systemic Fibrosis (NSF) and Gadolinium-Based Contrast Agents (GBCAs): Where Do We Stand in 2020?

Dr. Nicola Schieda

This presentation will update and review the latest evidence regarding the risk of NSF when using GBCAs in clinical practice, describe current Canadian Association of Radiologists (CAR), American College of Radiology (ACR) and European Society of Urogenital Radiology (ESUR) Guidelines and specifically discuss the need for outpatient screening of renal function and patient informed consent.

LEARNING OBJECTIVES

Following active participation in this session, participants will be able to:

- Identify the different kinds of Gd-based contrast agents
- Compare the safety profiles of Gd-based contrast media
- Interpret the impact of relaxivity and Gd concentration on image quality and diagnostic performance
14:00–14:30 EDT
Optimization of MR Neuroimaging Protocols

Dr. Marco Essig

This session will outline the use of MR imaging in different neurological diseases and how to optimize and tailor MR imaging protocols based on the provided clinical question/clinical information. Subsequently, the session will guide participants through the development of neuroimaging protocols including how to optimize those protocols with respect to the order of sequences, timing of the individual sequences, and the use of contrast media in general. Specific focus will be given on brain tumor imaging, imaging of neurodegenerative diseases, infectious diseases as well as central nervous system (CNS) vascular diseases.

LEARNING OBJECTIVES
Following active participation in this session, participants will be able to:
• Describe modern neuroimaging protocols and concepts in functional imaging
• Identify new methods to look beyond morphology and the impact of pathophysiologic information for patient management
• Consider the use of AI assisted tools for assessing physiologic and pathophysiologic information from advanced functional MR imaging techniques

14:30–15:00 EDT
Use of Advanced Neuroimaging – Perfusion and Other Functional Imaging Techniques

Dr. Paula Alcaide Leon

This session will describe the different advanced MR perfusion techniques, including dynamic contrast-enhanced MR, dynamic susceptibility contrast-enhanced MR and arterial spin labeling. The use of these techniques in real clinical scenarios will be discussed, to show their value in clinical practice.

LEARNING OBJECTIVES
Following active participation in this session, participants will be able to:
• Describe the basic physical principles of various MR perfusion types and the differences between them
• Identify the cases where MR perfusion techniques provide real diagnostic value
• Interpret the outputs of MR perfusion techniques, assess the quality of the functional maps, and detect artifacts
14:00–14:30 EDT
Advances in Breast MRI and New Developments in Contrast-Enhanced Breast Imaging
Dr. Jean Seely
This session will highlight advances in contrast-enhanced breast MRI imaging, including abbreviated protocols. The benefits of supplemental screening with breast MRI will be shown using clinical examples. Practical tips on how to implement abbreviated breast MRI protocols for optimized breast imaging that meet CAR guidelines will be provided to allow increased deficiency and improved capacity for breast MRI screening.

LEARNING OBJECTIVES
Following active participation in this session, participants will be able to:
• Identify recent advances in breast MRI including abbreviated protocols
• Incorporate new techniques to improve access to breast MRI in clinical practice

14:30–15:00 EDT
The Impact of Supplemental Screening with Contrast-Enhanced MRI (For Women with Dense Breasts)
Dr. Carla H. van Gils
This session will provide participants with an update on studies on supplemental screening with MRI, as well as discuss the latest results of the DENSE trial, including unpublished results on the second screening round, and their potential impact.

LEARNING OBJECTIVES
Following active participation in this session, participants will be able to:
• Summarize results of recent trials on supplemental screening with contrast-enhanced MRI
• Interpret the value of the different screening endpoints used in supplemental screening studies
Speakers

Marco Essig, MD, PhD, FRCPC
Professor and Chair, Department of Radiology
Medical Director of Diagnostic Imaging, WRHA

Dr. Essig is Professor and Chair of the Radiology Department at the University of Manitoba, and Medical Director of the Diagnostic Imaging Program with the Winnipeg Regional Health Authority. He received his medical degree and his doctorate in neurological sciences from the University of Heidelberg. After completing his residency training in radiology at the German Cancer Research Centre, Dr. Essig pursued a fellowship in Neuroradiology at the University of Iowa Hospitals and Clinics, and a second in Interventional Radiology at Brigham and Women’s Hospital at Harvard’s Medical School. Dr. Essig earned a Board Certification in Diagnostic Radiology and Neuroradiology and was appointed a full professor at the University of Heidelberg in 2006.

Dr. Essig’s research focuses on the integration of functional imaging techniques into neuroimaging protocols in order to enable individualized and improved patient management with a special focus on brain cancer. The selection of tissue that reflects the true severity of the cancer can better inform patient care and therapy selection.

A prolific researcher, Dr. Essig has authored more than 200 peer-reviewed articles and 20 book chapters. He sits on the editorial boards for European Radiology, Investigative Radiology, Insights into Imaging, Polish Journal of Radiology, and Der Radiologe and is a deputy editor for Neuroimaging at the Journal of Magnetic Resonance Imaging. In addition, Dr. Essig has served on the European Society of Radiology (ESR)’s Scientific Advisory Board and is a founding member of the ESR’s imaging biomarkers subcommittee. He is a member of the Radiological Society of North America (RSNA) and presently serves on their neuroimaging subcommittee.

Nicola Schieda, MD, FRCPC
Director, Clinical Research Program and Associate Professor, The Ottawa Hospital

Dr. Schieda is an abdominal radiologist at The Ottawa Hospital and an Associate Professor in Radiology at the University of Ottawa. Dr. Schieda is the Director of Abdominal and Pelvic MRI and Prostate Imaging at The Ottawa Hospital and is actively involved in clinical research. His research focuses mainly on the CT and MR imaging of Genitourinary malignancies, especially Kidney and Prostate Cancer; however, he is also interested in studying Gadolinium-Based Contrast Agents (GBCAs). He chaired the Canadian Association of Radiologists (CAR) Guidelines on Nephrogenic Systemic Fibrosis and Gadolinium Deposition (currently Retention). This work has been widely read and cited. His research on GBCAs has been published in Investigative Radiology and Radiology and has been featured on various media platforms including the RSNA news on the CBC. He is the Section Editor for Genitourinary Imaging at The American Journal of Roentenology and is an Associate Scientific Editor in MRI for European Radiology and JMRI. He is a panel member of the American College of Radiology Appropriateness Criteria for Urological Imaging, is a member of the Society of Abdominal Radiology Disease Focused Panel on Renal Cell Carcinoma and was recently appointed as the Chair of the American College of Radiology Genitourinary Continuing Professional Improvement Program.
Speakers

Paula Alcaide Leon, MD
Department of Medical Imaging, St. Michael's Hospital

Dr. Paula Alcaide Leon obtained her medical degree in 2005 at the University of Sevilla, Spain. Her diagnostic radiology training was also completed at the University of Sevilla from 2006 to 2010. She worked as a staff neuroradiologist in Barcelona in different institutions from 2010 to 2013 and completed a neuroradiology clinical and research fellowship at the University of Toronto from 2013 to 2016. From 2016 to 2019, she worked as a research specialist at the University of California San Francisco focusing on brain tumor imaging research. In 2020, Dr. Alcaide Leon was appointed to a full-time Clinician-Investigator position in the Department of Medical Imaging, University of Toronto, and a Staff Radiologist position in the Joint Department of Medical Imaging at Toronto Western Hospital. Dr. Alcaide Leon has dedicated her academic efforts to ensure clinical translation of advanced MR techniques with the overriding aim of improving patient care and patient outcomes. Dr Alcaide Leon has authored 19 peer-reviewed publications, six of them as first author and has an h-index (Scopus) of eight.

Carla H. van Gils, PhD
Professor Clinical Epidemiology of Cancer, Julius Center for Health Sciences and Primary Care, Cancer Epidemiology, University Medical Center Utrecht

Carla van Gils, PhD is a clinical epidemiologist and head of the Cancer Research Program of the Julius Center for Health Sciences and Primary Care, University Medical Center Utrecht, the Netherlands. One of her research topics is on mammographic density and breast cancer screening and breast cancer risk. Her interests are in ways of measuring mammographic density, determinants of mammographic density and the nature of the relationship between breast density and breast cancer risk. She uses breast density in risk prediction modeling in the population based screening program and among BRCA1/2 mutation carriers. In addition, she is evaluating ways of improving early breast cancer detection in women with dense breasts. She is the principal investigator of the DENSE trial (Dense tissue and Early breast Neoplasm Screening) trial, a large multicentre randomized controlled trial (>40,000 women) investigating the additional value of MRI for women with extremely dense breasts in a population based breast cancer screening program. She is also a member of international consortia on mammographic density and a member of the Breast Cancer Working Group of the European Prospective Investigation into Cancer and Nutrition (EPIC), where she collaborates with researchers from ten European countries to study mammographic density, genes, hormones, nutrition, and lifestyle in relation to breast cancer risk. She has co-authored over 200 papers in peer-reviewed international journals.

Jean Seely, MDCM, FRCPC
Section Head, Breast Imaging and Professor, The Ottawa Hospital

Dr. Jean Seely is Head of the Breast Imaging Section at The Ottawa Hospital, Professor of Medicine in the Department of Radiology at the University of Ottawa, and a Fellow of the Society of Breast Imaging. She co-chairs the Canadian Association of Radiologists’ Breast Imaging Guidelines group and sits on the Editorial Board of the Canadian Association of Radiology Journal and Journal of the Society of Breast Imaging. She is President and Chair of the Canadian Society of Breast Imaging.
REGISTRATION
Register today for the CAR’s virtual summer series sessions on RAD Academy. Please note you must add each session to your course calendar in RAD Academy.
Not a member of RAD Academy? Contact info@car.ca and we would be happy to get you signed up.

SESSION EVALUATION
We value your feedback!
By completing evaluations for overall and individual sessions, you will have a direct impact on the quality of programming and ensure that the CAR continues to meet the educational needs of the radiology community. Session evaluations can be accessed in RAD Academy by registered online delegates following each session.

PLANNING COMMITTEE AND FACULTY DISCLOSURES
Potential conflicts of interest with respect to the research to be presented:
Dr. Carla van Gils is a consultant to Bayer.
Dr. Marco Essig is on the advisory board of Siemens NeuroLign.
Financial support received for research and speaking engagements:
Dr. Marco Essig has received speaking honoraria funded by Bayer.
Dr. Jean Seely is principal investigator of the CCTG - TMIST trials Ottawa site, funded by the National Cancer Institute.
Dr. Carla van Gils is principal investigator of the DENSE trial, which is funded by Bayer, ZonMW (Dutch government), the Dutch Cancer Society (charity), and Pink Ribbon / A Sister’s Hope. Volpara Solutions provided Volpara software for measuring breast density for DENSE trial.
No other speakers had relevant relationships or financial support to disclose.

ACCREDITATION AND DESIGNATION STATEMENT
This event is an Accredited Group Learning Activity (Section 1) as defined by the Maintenance of Certification program of the Royal College of Physicians and Surgeons of Canada and approved by the Canadian Association of Radiologists for a maximum of 3.5 hours.
This program was made possible through an unrestricted education grant from our corporate partner, Bayer, and was planned to achieve scientific integrity, objectivity, and balance.