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basil hetzel institute for translational health research

31 YEARS TQEH RESEARCH EXPO

The Queen Elizabeth Hospital Research Expo 2022

Thursday 20 and Friday 21 October
Program & Abstracts

Basil Hetzel Institute, TQEH
Ground Floor Seminar Rooms
37a Woodville Road, Woodville South

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31st TQEH Research Expo

Thursday 20 & Friday 21 October 2022

Basil Hetzel Institute, Ground Floor Seminar Rooms, 37a Woodville Rd

Thursday:	**Mini-Oral Presentations**
2:00pm	Mini-Oral Presentations
3:00pm	Clinical Research Trainees

Friday:	**Presentations & Plenary Lecture**
8:15am	Honours Students
9:15 am	Junior Laboratory Research
10:15am	Morning Tea & Trade Displays
10:45am	Senior Laboratory Research
12:00pm	**Plenary Lecture:**
	Professor Caroline McMillen
	Chief Scientist for South Australia
1:00pm	Lunch & Trade Displays
2:00pm	Junior Clinical Research
3:00pm	Senior Clinical Research
4:00pm	3MT® & Award Presentations

31 YEARS TQEH RESEARCH EXPO

Zoom links & more information will be available at https://bit.ly/2ZvTrfs

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TQEH Research Expo 2022

CONTENTS

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TQEH Research Expo 2022

Welcome to the 31st TQEH Research Expo. The organising committee is delighted to be able to present a program showcasing the valuable research being conducted at the Basil Hetzel Institute of Translational Health Research (BHI), The Queen Elizabeth Hospital (TQEH) by research trainees working in the precinct. TQEH Research Expo is a major event in our research calendar and plays an important role in the professional development of our emerging researchers. As of writing, we will be holding the event as a face-to-face meeting in the BHI seminar rooms, but all sessions will also be available through Zoom links.

Please make the time to support the presenters at all the sessions – your time and your questions are so important for the success of this event.

This year, the Committee received 31 Abstracts. 6 students will take part in the mini-oral presentation session being held on the afternoon of Thursday 20 October and 20 students will give their oral presentations on Friday 21 October. This year we are pleased to introduce a new session for clinicians in training who are not currently enrolled in a Higher Degree and this session will also be held on the afternoon of Thursday 20 October.

On Friday we are joined by Professor Caroline McMillen AO, SA Chief Scientist, who will be delivering the Plenary Lecture. We look forward to welcoming Professor McMillen to TQEH and thank her for finding the time speak to us.

While the judges' scores are tallied and the prize winners determined, this year's BHI, TQEH 3MT® participants will present their 3-minute thesis presentation – a chance to give the talk to a live audience. These talks will be followed by the Award Presentations, with generous prizes on offer courtesy of our sponsors. The support of the health and medical research community and our corporate sponsors is greatly appreciated.

Many people have contributed to the success of the 31st TQEH Research Expo in 2022 and we would like to thank all those involved. In particular, we thank:

- Our Major Sponsor, The Hospital Research Foundation Group
- Other University, Hospital and Corporate Sponsors who have sponsored prizes and the catering
- Our Plenary Speaker, Professor Caroline McMillen

- <u>Chairs of the sessions</u>

Clementine Labrosciano
Kevin Fenix
Tim Price
Joy Rathjen
Cher-Rin Chong
Andrew Zannettino
Guy Maddern
Catherine Hill
John Beltrame

- Abstract judges and judges for Mini-Oral and Oral presentations

Sarah Vreugde	Sue Lester
Eric Gowans	Neil McMillan
Clementine Labrosciano	Makutiro Masavuli
Gabrielle Cehic	Bill Liapis
Tania Crotti	Nicole Wittwer
Clare Cooksley	Kati Richter
Branka Grubor-Bauk	Rosanna Tavella
Saifei Liu	Benedetta Sallustio
Gabby Cehic	Tim Price
Joanne Dollard	Jenny Myers
Markus Trochsler	Joy Rathjen
Jozef Gecz	Yuliy Chirkov
Martin Bruening	Rob Fitridge
Chris Zeitz	Richard Young
Wendy Ingman	Eric Smith
Paul Drew	Peter Zalewski

- Members of the Research Expo Organising Committee for the work they have put in throughout the year in planning the 31st TQEH Research Expo.

Rebecca Anderson	Zelalem Mekonnen
Yuliy Chirkov	Benedetta Sallustio
Clementine Labrosciano	Eric Smith
Imogen Ball	Rosanna Tavella
Sue Lester	Joy Rathjen

We hope that you enjoy our 31st TQEH Research Expo and find it a valuable and worthwhile activity. If you have any comments on this year's program or any ideas for the future, do not hesitate to speak to one of the members of the Organising Committee. The Committee will be happy to incorporate any feedback received when planning for TQEH Research Expo 2023.

Good luck to all our presenters!

Dr Prue Cowled

Interim Chair,
TQEH Reseach Expo Organising Committee

31st TQEH Research Expo Plenary Lecture
12pm Friday 21 October

Session chair: Professor Guy Maddern

Professor Caroline McMillen AO FAHMS
Chief Scientist for South Australia

Professor Caroline McMillen commenced in the role as Chief Scientist for South Australia in October 2018 after serving as Vice-Chancellor of the University of Newcastle for 7 years.

She was appointed an Officer of the Order of Australia in 2020, awarded an Honorary Doctorate by the University of Adelaide in 2019 and was elected as a Fellow of the Australian Academy of Health and Medical Sciences and a Bragg Member of the Royal Institution, Australia in 2015. Professor McMillen was also honoured at the end of her term as Vice-Chancellor to be presented with the Key to the City of Newcastle by the Lord Mayor in recognition of her leadership contribution to Newcastle and the region.

She holds a BA (Honours) and Doctor of Philosophy from the University of Oxford, and completed her medical training graduating with an MB, B Chir from the University of Cambridge.

She serves on a range of Boards and Advisory Groups including as the member of the Royal Institution of Australia Council, the Australian Science Media Centre Advisory Board, the Australia Japan Foundation Board and she is currently the Australian representative for the Minister of Foreign Affairs on the Council of the University of the South Pacific. She is also a Director on the Boards of Home in Place and DMTC Ltd.

Throughout her career Professor McMillen has been committed to building collaborations between universities, government, industry and communities that drive innovation and have a positive impact on the economic, environmental, social and cultural health of Australia.

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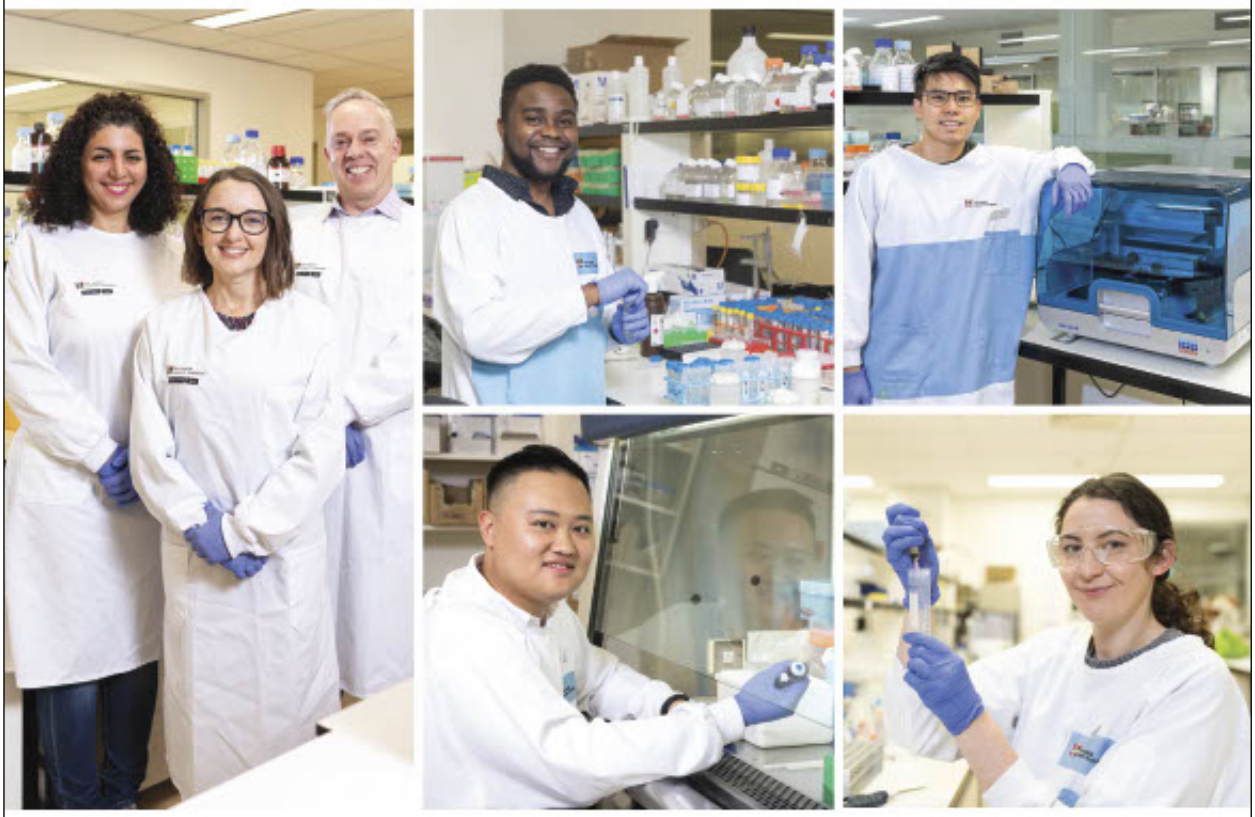

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Thursday 20 October

2.00 - 2.35pm: Mini-Oral Presentations
Sponsored by Southern Cross Science
Chairs: Dr Clementine Labrosciano and Dr Kevin Fenix

Abstract 8
2.00pm: Matheesha Herath, Jessica Reid, Emma Bradshaw, Yingyang Ting, Guy Maddern
Doctor, are you listening? Do patient focused interventions improve communication in the surgical clinic? A systematic review and meta-analysis.

Abstract 25
2.06pm: Kate Spuler, Yuliy Chirkov, Hasan Imam, Thanh Nguyen, John McNeil, John Horowitz
Impaired platelet prostacyclin signalling: contribution to pathophysiology of "normal" ageing and of coronary artery spasm.

Abstract 30
1.12pm: Kenny Yeo, George Bouras, Eric Smith, Rowan Valentine, Sarah Vreugde, Kevin Fenix
A meta-analysis of the tumour tissue microbiome in head and neck cancer.

Abstract 19
2.18pm: Getandale Negera, Irene Stafford, Emily Kovacev, Yuliy Chirkov, John Horowitz, Cher-Rin Chong
Can we induce endothelial dysfunction in a rat model of T2D?

Abstract 6
2.24pm: Nikolaos Filippatos, Clive Prestige, Andreas Evdokiou, John Licari, Romana Panagopoulos
Liposomal-based delivery of phosphoantigens as sensitizers for adoptive γδ-T cell anticancer immunotherapy.

Abstract 22
2.30pm: Sima Kianpour Rad, Amanda Townsend, Wendy Ingman, Eric Smith
The impact of the tumour microbiome on immune cell infiltration and response to therapy in triple negative breast cancer.

2.35pm: Afternoon Tea

Thursday 20 October

3.00 - 4.00pm: Senior Clinical Research (CALHN Clinical Trainees)

Sponsored by The Hospital Research Foundation Group

Chair: Prof Tim Price

Abstract 18
3.00pm: Collette Massy-Westropp, Harsha Wechalekar, Nicola Massy-Westropp
Establishing normative pinch strength values: a cross-sectional, observational study.

Abstract 21
3.15pm: Samantha L Plush, Lani M Broad, Robert V Bryant, SeonHo Shin, Saravana Kumar, Alice S Day
Most referrals for functional gastrointestinal disorders are inadequate: findings from a clinical audit of a tertiary gastroenterology service waitlist.

Abstract 23
3.30pm: Riceman M, Sun C, Pierides J, Catford J, Nelson R, Ashokan A
Back pain in an Australian farmer - an unusual presentation of Cryptococcosis.

Abstract 28
3.45pm: Matthew J Tunbridge, Griffith B Perkins, Tania Salehi, Julian Singer, Tracey Ying, Bree Shi, Branka Grubor-Bauk, Beatrice Sim, Simon Barry, Pravin Hissaria, Steven J Chadban, P Toby Coates
A prospective randomised, controlled trial switching sirolimus for mycophenolate to enhance immunological responses to third dose covid-19 vaccination in kidney transplant recipients with poor baseline humoral immunity.

Friday 21 October
Oral Presentations & Plenary Lecture

8.15 - 9.15am: Honours & Summer Students
Sponsored by The Hospital Research Foundation Group
Chair: Dr Joy Rathjen

Abstract 4
8.15am: Madison Davis, Janet Coller, Benedetta Sallustio
Effect of haematocrit and FKBP12 expression in erythrocytes on plasma and whole blood tacrolimus concentrations early after kidney transplantation.

Abstract 5
8.30am: Jesse Ey, Matheesha Herath, Ying Ting, Jessica Reid, Emma Bradshaw, Guy Maddern
The surgeon said what? A simple tool to improve patient engagement in surgical consultations.

Abstract 27
8.45am: Ellie Treloar, Ying Ting, Jessica Reid, Guy Maddern
Ward round woes: errors, misunderstandings, inaccuracies, and potential improvements.

Abstract 29
9.00am: Fangmeinuo Wu, Kenny Yeo, Runhao Li, Kevin Fenix, Eric Smith
Repurposing the anti-anginal drug perhexiline for the treatment of head and neck squamous cell carcinoma.

9.15 - 10.15am: Junior Laboratory Research
Sponsored by the University of South Australia
Chair: Dr Cher-Rin Chong

Abstract 1
9.15am: Zahraa Al-Delfi, Makutiro Masavuli, Zelalem Mekonnen, Arthur Yeow, Stuart Turville, Rowena Bull, Eric Gowans, Branka Grubor-Bauk
Development of a novel COVID-19 DNA vaccine.

Abstract 10
9.30am: Hanieh Heydarlou, Eric Smith, Wendy Ingman
The role of toll-like receptors in mammographic density and breast cancer risk.

Friday 21 October

Abstract 17
9.45am: Runhao Li, Kenny Yeo, Man Ying Li, Bimala Dhakal, Sima Kianpour Rad, Fangmeinuo Wu, Ryan Santos, Saifei Liu , Zelalem Mekonnen, Branka Grubor-Bauk, Timothy Price, Kevin Fenix, Eric Smith
Over-expression of SFRP5: a novel treatment strategy for colorectal cancer liver metastases.

Abstract 24
10.00am: Ryan Santos, Zelalem Mekonnen, Makutiro Masavuli, Arthur Yeow, Dawn Whelan, Zahraa Al-Delfi, Eric Gowans, Branka Grubor-Bauk
A novel T-cell based zika virus DNA vaccine.

10.15 - 10.45am: Morning Tea and Trade Displays

10.45 - 11.45am: Senior Laboratory Research
Sponsored by the University of Adelaide
Chair: Prof Andrew Zannettino

Abstract 11
10.45am: Ghais Houtak, Roshan Nepal, George Bouras, Alkis Psaltis, Peter-John Wormald, Sarah Vreugde
Eosinophilic airway inflammation elicited by Staphylococcus aureus strains: role in chronic rhinosinusitis.

Abstract 12
11.00am: Laurine Kaul, Andrew Zannettino, Regine Suess, Katharina Richter
An antibacterial gel against Staphylococci biofilms to prevent surgical site infections.

Abstract 16
11.15am: Man Ying Li, Bimala Dhakal, Josephine Wright, Susan Woods, Guy Maddern, Paul Drew, Eric Smith, Kevvin Fenix
Cytokine-induced killer cell therapy: a potential treatment for metastatic cancer

Abstract 20
11.30am: Roshan Nepal, Ghais Houtak, George Bouras, Sholeh Feizi, Gohar Shaghayegh, Clare Cooksley, Alkis Psaltis, Peter-John Wormald, Sarah Vreugde
Lysogenization of patient derived S. Aureus by HLB-converting bacteriophage (SA3INT) increases virulence

Friday 21 October

12 – 1pm Friday 21 October

31ST TQEH Research Expo Plenary Lecture

Professor Caroline McMillen AO FAHMS

Chief Scientist for South Australia

Chair: Professor Guy Maddern

1 – 2pm Lunch and Trade Displays

2.00 - 3.00pm: Junior Clinical Research

Sponsored by The Hospital Research Foundation Group

Chair: Prof Catherine Hill

Abstract 2
2.00pm: Avisak Bhattacharjee, David Walsh, Leigh Hodson, Pallave Dasari, Sarah White, Deborah Turnbull, Wendy Ingman
Assessing womens' knowledge about breast density.

Abstract 7
2.15pm: Olivia Girolamo, Rosanna Tavella, Chris Zeitz, John Beltrame
The pathophysiological role of endothelial dysfunction in coronary artery spasm.

Abstract 9
2.30pm: Joseph Hewitt, Joshua Tinnion, Katarina Foley, Antonio Barbaro, Ishraq Murshed, Christopher Dobbins, Markus Trochsler
We are failing to assess risk in emergency laparotomy: preliminary results of an audit.

Abstract 14
2.45pm: Joshua Kovoor, Stephen Bacchi, Aashray Gupta; Brandon Stretton, Nidhi Aujayeb, Amy Lu, Kayla Nathin, Lydia Lam, Melinda Jiang, Shane Lee, Minh-Son To, Christopher Ovenden, Joseph Hewitt, Rudy Goh, Jessica Reid, Christopher Dobbins, Markus Trochsler, Peter Hewett, Benjamin Reddi, Guy Maddern
Resuscitation orders in general surgery: an analysis of 12,846 patients.

Friday 21 October

3.00 - 4.00pm: Senior Clinical Research
Sponsored by AusHealth Research
Chair: Prof John Beltrame AM

Abstract 3
3.00pm: Madeleine Bryant, Rebecca Munt, Rachel Black, Catherine Hill
Joining forces to understand what matters most: qualitative insights into the patient experience of outpatient rheumatology care in South Australia.

Abstract 13
3.15pm: Adeel Khoja, Prabha Andraweera, Rosanna Tavella, Tiffany Gill, Margaret Arstall
Assessing the influence of pregnancy and its complications on cardiovascular disease risk.

Abstract 15
3.30pm: Sarena La, John Beltrame, Rosanna Tavella
ANOCA: an under-recognised and under-treated disorder. Insights from the cadosa registry.

Abstract 26
3.45pm: Ying Yang Ting, Jessica Reid, Ellie Treloar, Wei Lee, Jeeng Tee, Wen Cong, Dangyi Peng, Suzanne Edwards, Jesse Ey, Nicholas Edwardes, Nelson Granchi, Guy Maddern
Improving surgical excellence: can coaching surgeons improve patient engagement?

4.00pm: 3MT® Presentations

Chair: Professor Guy Maddern

Followed by Awards
Presented by
Hon Chris Picton Minister for Health and Wellbeing

ABSTRACT 1

DEVELOPMENT OF A NOVEL COVID-19 DNA VACCINE

Al-Delfi Z*, Masavuli MG*, Mekonnen ZA*, Yeow AEL*, Turville SG**, Bull RA***, Gowans EJ*, Grubor-Bauk B*

*Viral Immunology Group, Adelaide Medical School, The University of Adelaide and Basil Hetzel Institute for Translational Health Research, Adelaide, SA; **The Kirby Institute, The University of New South Wales, Sydney, New South Wales; ***School of Medical Sciences, Faculty of Medicine, UNSW Australia, Sydney, NSW.

Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) is the causative agent of coronavirus disease 2019 (COVID19) that has affected millions of people worldwide and caused a global pandemic. We developed four SARS-CoV-2 DNA vaccine candidates encoding the Spike subunit S1 or the Receptor Binding Domain (RBD) as antigens. Previous studies have shown that S1 and RBD of the SARS-CoV-2 Spike protein are main targets for neutralising antibodies and T cell responses. To enhance vaccine immunogenicity, a leader sequence (tPA) was introduced upstream of the S1 and RBD genes to ensure antigen secretion, while oligomerization domains IMX313P or Foldon were introduced downstream. Antigen expression was validated in vitro by immunofluorescence assay and Western immunoblot. Immunogenicity of each vaccine candidate was evaluated in mice. Vaccine-induced Spike- and RBD-specific antibody responses were analysed by ELISA, while the magnitude and polyfunctionality of S1- and RBD-specific T cell responses were comprehensively analysed by IFN-γ ELISpot and intracellular cytokine staining FACS assays. RBD-Foldon vaccine demonstrated superior immunogenicity (antibodies and T cells) when compared to the other three vaccines. Importantly, live virus neutralisation assay demonstrated that sera from mice vaccinated with the RBD-Foldon DNA vaccine effectively neutralised SARS-CoV-2 ancestral stain as well as Alpha, Beta, Gamma, and Delta variants of concern (VoCs). The emergence of Omicron VoC and its ongoing global prevalence, resulted in decreased efficacy of currently approved COVID19 vaccines, as they all encode the ancestral Spike protein as the antigen. We therefore updated the RBD-Foldon vaccine to encode the Omicron RBD to provide better protection. Omicron RBD-Foldon vaccine has now advanced to Phase 1 human clinical trial (COSVAC) to evaluate safety and immunogenicity in individuals who have previously been vaccinated.

LAY DESCRIPTION

Several COVID19 vaccines have been approved for use in humans, but the effectiveness of these vaccines has decreased due to the emergence of virus variants such as Omicron. Our study aims to develop vaccines that can be easily updated against current and future variants. Our COVID19 vaccine contains one viral protein called RBD, which is the main target of neutralising antibodies. Neutralising antibodies are crucial as they prevent viral infection. In this study we show that RBD joined to a small protein known as Foldon, which presents the RBD in a repetitive manner, induces strong immunity capable of neutralising different COVID19 variants.

ABSTRACT 2

ASSESSING WOMENS' KNOWLEDGE ABOUT BREAST DENSITY

Bhattacharjee A[1,2], Walsh D[1], Hodson LJ[1,2], Dasari P[1,2], White SJ[3], Turnbull D[4], Ingman WV[1,2].
[1]Discipline of Surgical Specialties, Adelaide Medical School, The Queen Elizabeth Hospital, The University of Adelaide, Adelaide, SA, Australia; [2]Robinson Research Institute, The University of Adelaide, Adelaide, SA, Australia; [3]Centre for Social Impact, The University of New South Wales, Sydney, NSW, Australia; [4]School of Psychology, The University of Adelaide, Adelaide, SA, Australia.

Background: There is an intense interest about breast density due to its association with increased breast cancer risk and its capacity to mask tumour on mammogram. However, it is unclear to what extent this interest has reached the Australian community, or what Australian women know about breast density.
Aim: The purpose of this study is to assess womens' existing knowledge about breast density and their interest in knowing their own breast density status.
Methods: This cross-sectional study is being conducted among women attending The Queen Elizabeth Hospital Breast/Endocrine Clinic outpatient department for a screening mammogram. Women attending for a diagnostic mammogram are excluded from the study. We aim to recruit 200 participants. While waiting for their mammogram, patients are given a questionnaire to assess their knowledge of breast density and whether they want to know their breast density. The questionnaire was adapted from the Breast Screen Western Australia breast density survey
Results: Participant recruitment is ongoing. To date, a consecutive sample of 120 women have been invited to participate and 81 have responded (68% response rate). Among the responding cohort, 42% had not heard the term, 'breast density' before. Of those who had heard of breast density, 67% knew it could mask breast cancer and 28% knew it could increase risk of breast cancer. Twenty six percent thought breast density could be determined by touch or feel. Interestingly, 61% reported that they wanted to know their own breast density.
Conclusion: This ongoing study suggests that many women are unaware of breast density. This participant cohort will be further studied to investigate how breast density notification affects anxiety status, and how best to communicate density information. This research will help shape future breast density communication strategies to improve womens' breast health.

LAY DESCRIPTION

Breast density is white and bright area of breast on x-ray. It is a strong independent risk factor of breast cancer. Besides, whiter density hides white cancer. Currently, women undergoing screening, are not receiving their breast density information. It makes them more vulnerable. Here, we assessed their current knowledge about density. Interestingly, we got some scary scenario as 42% of them are not familiar with 'breast density'. Besides, 83% of them do not know that why it matters. Interestingly, 61% of them like to know about their own breast density. To make them more breast aware, notifying them their breast density is vital.

ABSTRACT 3

JOINING FORCES TO UNDERSTAND WHAT MATTERS MOST: QUALITATIVE INSIGHTS INTO THE PATIENT EXPERIENCE OF OUTPATIENT RHEUMATOLOGY CARE IN SOUTH AUSTRALIA

Bryant MJ[1,2,3], Munt R[2,4], Black RJ[1,2,3], Hill CL[1,2,3]
[1]Rheumatology Unit, The Queen Elizabeth Hospital, Adelaide, Australia; [2]Central Adelaide Local Health Network, Adelaide, Australia; [3]School of Medicine, Faculty of Health Sciences, University of Adelaide, Adelaide, Australia; [4]Adelaide Nursing School, Faculty of Health Sciences, University of Adelaide, Adelaide, Australia.

People with rheumatic diseases are frequent and long-term attenders of healthcare services. Their experiences and opinions of care are important and can be used to improve the care they access. The aim of this study was to explore real-world experiences and priorities of patients attending outpatient Rheumatology care, and those of healthcare professionals involved in care provision.
Methods: Five semi-structured focus groups were conducted with 32 participants: three groups undertaken with patients (n=16) currently accessing outpatient Rheumatology care in South Australian public hospitals, and two focus groups undertaken with health professionals (n=16) (Rheumatologists, Rheumatology trainees, physiotherapists, specialty nurse, pharmacist). Participants were invited to discuss perspectives on their care priorities when attending outpatient services, including real experiences of clinic attendance, opinions on patient-centred care, and aspirations for improving outpatient care in the future. Responses were explored using thematic analysis and analysed both collectively and by group.
Results: Seven key themes were identified: smooth flow of technical processes, care coordination, information transfer, commitment to achieving high quality clinical outcomes, involvement of multi-disciplinary professionals and family members, individualised care, and patient empowerment. While themes were generally shared across patient and professional cohorts, different prioritisation of concerns was evident between groups. Frequently cited themes for patients pertained to the processes and technical aspects of care (such as waiting times, appointment flexibility, continuity of care), while professional participants focused on themes relating to non-technical aspects of service provision such as information sharing, individualisation of care, patient advocacy and empowerment.
Conclusions: This study highlights key priorities for Australian rheumatology patients and professionals, informing a collective understanding of what constitutes a positive experience of outpatient care. Further research is required to better understand what matters most to our patients, including more routine collection of patient experience data using validated assessment tools in regular outpatient care.

LAY DESCRIPTION

The Rheumatology research group at the Basil Hetzel Institute and Queen Elizabeth Hospital has worked directly with patients to discuss their current experience of attending clinics, addressing both positive aspects and shortcomings. We also engaged Rheumatology clinicians to gauge opinion on what constitutes excellent care delivery. We found that patients' experience was affected by issues such as waiting times and lack of care continuity, and that while clinicians are prioritising important issues such as information sharing and patient advocacy, often this is not clearly evident to patients, and change is needed to improve this.

ABSTRACT 4

EFFECT OF HAEMATOCRIT AND FKBP12 EXPRESSION IN ERYTHROCYTES ON PLASMA AND WHOLE BLOOD TACROLIMUS CONCENTRATIONS EARLY AFTER KIDNEY TRANSPLANTATION

Davis M*#, Coller J*, Sallustio B*#
*School of Biomedicine, The University of Adelaide. #Clinical pharmacology research Group, the Basil Hetzel Institute for Translational Research.

Introduction: Tacrolimus (TAC) is an immunosuppressant that prevents rejection following kidney transplantation by binding to FKBP12, leading to inhibition of calcineurin and lymphocyte proliferation. Due to TAC's variable pharmacokinetics and narrow therapeutic index, whole blood therapeutic drug monitoring (TDM) individualises doses but some recipients still experience rejection. TAC binds extensively to red blood cell (RBC) FKBP12 but only the small amount of TAC distributed in T-cells can cause immunosuppression. Post-transplant, haematocrit is highly variable and little is known about RBC FKBP12 expression and inter- and intra-individual variations.
Aims: This study will investigate how recipient's haematocrit and FKBP12 expression affect the relationship between whole blood and plasma TAC concentrations in the first month post-transplant.
Methods: Samples were collected from 7 transplant recipients who had haematocrits of 0.20-0.38 and clinical records on previous TDM obtained. Plasma TAC concentrations will be measured by HPLC-MS; therefore, an established plasma assay was partially validated. Plasma assays were linear with a mean R=1 over 100-5000ng/L TAC concentrations. A mean bias and CV of 2.935% and 6.96% at the highest (5000ng/L) and lowest (100ng/L) calibrators proved reproducibility. Intra- and Inter-assay validation for QCs found bias of 0.745% and 9.65% with Cvs of 3.43% and 5.315%. RBC FKBP12 expression will be measured using western blot which is to be validated.
Results: Following RBC and plasma analyses, statistical tests including two-way anovas and multivariate regression will determine the effects of haematocrit and RBC FKBP12 expression on the relationship between plasma and whole blood TAC concentrations.
Conclusion: We expect recipients with high haematocrit and high FKBP12 expression to have significantly lower plasma TAC concentrations than those with low FKBP12 expression and haematocrit. This would put them at higher risk of rejection and insight obtained can improve TDM interpretations of whole blood TAC.

LAY DESCRIPTION

After kidney transplant tacrolimus (TAC) is used to stop rejection. Doses are processed by people differently and it has a small range where it works but is not toxic, so levels of the drug are monitored but rejection can still happen. the drug binds to FKBP12 in immune cells but this is also red blood cells which are the majority, so a lot of TAC is measured that is not stopping rejection. Red blood cell levels are different in people and changes after transplant. It is unknown if levels of FKBP12 differ after transplant or vary in people. Understanding this and how it relates to levels of red blood cells and TAC could improve monitoring.

ABSTRACT 5

THE SURGEON SAID WHAT? A SIMPLE TOOL TO IMPROVE PATIENT ENGAGEMENT IN SURGICAL CONSULTATIONS.

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Introduction: Surgical consultations involve a large amount of complex information. Patients often feel overwhelmed and unable to ask the questions needed to ensure they understand information provided. It is imperative that patients are provided the necessary information to make informed decisions in alignment with their goals of care. A Question prompt list (QPL) is a document with a list of questions that the patient may wish to ask their surgeon.
Hypothesis/Aims: To investigate the effect of a QPL on patient engagement, recall of information, and anxiety in patients seeing a surgeon. We hypothesise that QPL provision will increase patient engagement and recall without negatively impacting the consultation.
Methods: This is a single centre, randomised control trial approved by the CALHN Human Research Ethics Committee and is authorised by the CALHN Research Services for conduct at The Queen Elizabeth Hospital. Participants were allocated to receive QPL or usual care (no QPL). Surgical consultations were recorded for analysis of patient engagement and consultation dynamics. Participants completed a structured phone questionnaire 7 days after their consultation to assess recall and anxiety.
Results: 58 patients were randomised (QPL=30, control= 28). Mean age was 59.2 years and 62% were male (n=32). The QPL group recalled 8.7% more information than the usual care group (P=0.05). The QPL group were more likely to recall treatment discussions correctly (P=0.037) and asked 24% more questions (P=0.003). There were no statistically significant associations between QPL provision and patient anxiety or consultation dynamics.
Conclusion: QPL provision is associated with increased patient engagement and greater recall of information. QPLs do not negatively impact patient anxiety or consultation dynamics. This inexpensive intervention can empower patients to better engage with their surgeon and make informed decisions in line with their goals of care.

LAY DESCRIPTION

Seeing a surgeon can be overwhelming, especially when you are presented with a large amount of complex information. This can make it difficult to think of what questions you could ask and often results in a poor understanding of the information being discussed. This study investigates the effect of a question prompting list (QPL) on patient engagement and recall of information within surgical consultations at The Queen Elizabeth Hospital. Patients were allocated into two groups, QPL or usual care (no QPL). Patients who were given a QPL asked more questions and recalled more information than those who weren't.

ABSTRACT 6

LIPOSOMAL-BASED DELIVERY OF PHOSPHOANTIGENS AS SENSITIZERS FOR ADOPTIVE γδ-T CELL ANTICANCER IMMUNOTHERAPY

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γδ-T cells kill cancer cells selectively by recognising phosphoantigen (PAgs) molecules that accumulate abnormally inside cancer cells as a result of inhibition of the mevalonate pathway. They have been used clinically over the years but with limited success due to the lack of selective trafficking of γδ-T cells to tumor cells when infused systemically and more importantly, γδ-T cells do not recognise cancer cells as a result of low PAgs levels within cancer cells themselves. We hypothesise is that if we directly increase the intracellular PAgs accumulation in the cancer cells then they will be sensitised to γδ-T cell-mediated death. To achieve this, we developed a new and innovative approach of encapsulating potent PAgs themselves into liposomal-based carriers ensuring much improved penetration and intracellular accumulation. We synthesised liposomes containing the most potent to-date naturally derived, (E)-4-hydroxy-3-methyl-2-butenyl pyrophosphate (HMBPP) phosphoantigen termed L-HMBPP. We aim to evaluate L-HMBPP's safety and efficiency both in vitro and in vivo by using using animal models of breast cancer. In vitro, we demonstrated that neither free HMBPP nor L-HMBPP are toxic even at high concentrations. Furthermore, we found that in the presence of activated γδ T cells free HMBPP is ineffective whereas L-HMBPP causes γδ T cell-mediated cell death in a dose response manner. In vivo, we evaluated L-HMBPP safety and anticancer efficacy using animal models of breast cancer immunotherapy. Following intratumoral administration, we demonstrated that L-HMBPP is not only safe, but it also reduced tumor burden following intratumoral administration of γδ-T cells. Our world-first approach of delivering chemical sensitizers packaged in lipid carriers for transportation and accumulation into cancer cells for γδ-T cell recognition and activation represents the next frontier for adoptive immunotherapeutic innovations in cancer treatment.

LAY DESCRIPTION

We have developed a new drug that allows our own body's immune system to kill cancer cells without the need to use toxic chemotherapy drugs that have long lasting damaging effects and lead to poor quality of life. This new drug allows us to "tag" a cancer cell making it visible to γδ-T cell (a special fighter cell that circulates in our blood), to then kill it.

ABSTRACT 7

THE PATHOPHYSIOLOGICAL ROLE OF ENDOTHELIAL DYSFUNCTION IN CORONARY ARTERY SPASM

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Introduction: The diagnosis of vasospastic angina is often based upon high-dose (20-100µg) acetylcholine (ACh) inducing coronary artery spasm (CAS – ie a 90% constriction of a large coronary artery). Since low-dose ACh (<2µg) is used to assess endothelial function integrity, it is assumed that CAS primarily arises from coronary endothelial dysfunction.
Aims: This study aims to assess the frequency of endothelial dysfunction in patients with vasospastic angina.
Methods: In 30 patients with suspected vasospastic angina, provocative spasm testing was undertaken with high-dose ACh to confirm the diagnosis. These patients also underwent endothelium-dependent assessment with low-dose ACh and endothelium-independent assessment with 100µg intracoronary nitroglycerine. Endothelial dysfunction was defined as >10% epicardial artery vasoconstriction from baseline with low-dose ACh, with intact endothelium-independent vasodilation.
Results: Amongst the 30 patients, 26 (86%) had inducible spasm. Cardiovascular risk factors (a cause of endothelial dysfunction) were relatively similar between those with/without inducible spasm; (i) smoking n=16 (62%) & n=0, P=0.05; (ii) hypertension n=17 (65%) & n=2 (50%), P>0.05; (iii) diabetes n=5 (20%) & n=2 (50%), P>0.05; (iv) dyslipidaemia n=17 (65%) & n=3 (75%), P>0.05. In 42% of patients with inducible spasm, endothelial function was intact, suggesting that alternate mechanisms must be central to the inducible spasm.
Conclusion: The mechanisms responsible for inducible-CAS may involve coronary endothelial dysfunction in some patients but it is unlikely to be a major mechanism considering that many patients had intact endothelial function. Other mechanisms need to be investigated.

LAY DESCRIPTION

Chest pain occurs because of reduced blood flow to the heart. In some cases, this is because of cholesterol plaques blocking the blood vessel. But in many patients with “normal” arteries it is due to spasm, where the blood vessel occasionally squeezes which acts as a blockage. These patients are hard to diagnose and treat as we don’t fully understand what causes the artery to become abnormal. My research aims to identify the cause of this condition to help develop better treatments for patients with chest pain.

ABSTRACT 8

DOCTOR, ARE YOU LISTENING? DO PATIENT FOCUSED INTERVENTIONS IMPROVE COMMUNICATION IN THE SURGICAL CLINIC? A SYSTEMATIC REVIEW AND META-ANALYSIS

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Introduction: Good surgical practice involves much more than just operative prowess. Holistic care of the patient involves good communication, empathy and other non-technical skills. Development of a strong therapeutic relationship between surgeon and patient is vital to achieving this. There are various tools, trainings, and interventions aimed at increasing the Surgeon's performance but these have the drawback of heavy costs and time commitments. In contrast, patient focussed interventions are often simple and cheap. This is an evolving field, and little is known about the impact these interventions have on clinical encounters.
Aim: The objective of this systematic review is to determine how patient focussed interventions impact communication in the Surgical Outpatient Consultation. This systematic review was prospectively registered with PROSPERO ID Number CRD42022311112 and reported in accordance with PRISMA guidelines.
Methods: Two reviewers independently searched MEDLINE (incl. PubMed), EMBASE, EMCARE, CINAHL, and the Cochrane Library for the period starting 01 Feb 1990 to 01 Feb 2022. Grey literature was also examined as were references of identified articles and conference proceedings. Filtration and screening was performed in accordance with PRISMA guidelines with the use of Covidence Web Based Systematic Review Management Platform. Conflicts were resolved by discussion. (Terms not mentioned due to character limit). Risk of Bias was assessed using the ROB 2 tool. Meta-analyses were conducted by an independent statistician using Stata Statistical Software.
Results: After screening 38 papers were included in the final analysis. These involved 6392 patients consisting of 32 randomised controlled trials (RCT), 1 crossover RCT, 3 nonrandomised experimental studies, and 3 cohort studies. All articles were published between 1999 and 2022. 4 types of intervention were identified: Patient Decision Aids, Educational Materials, Question Prompt Lists and Patient Reported Outcome Measures. There was significant heterogeneity in reporting results but 4 main markers for assessing quality of communication were identified: Patient knowledge; decisional conflict; satisfaction; and anxiety. 4 meta-analyses were performed in these areas identifying statistically significant results that patient focussed interventions increased patient knowledge and reduced decisional conflict. Non statistically significant results demonstrated that these interventions increased satisfaction and reduced anxiety. 4 papers had low bias, 7 some concerns and the remainder had high risk of bias.
Conclusion: Patient focussed interventions demonstrate promising results for increasing patient engagement and improving communication. Further multicentre randomised controlled trials should be conducted to evaluate this evolving field.

LAY DESCRIPTION

Visiting a surgeon can be a very confrontational and stress provoking event for many patients. It can leave people confused and unable to remember what their doctor tells them. There are some simple tools that can be provided to a patient to help them manage this. These tools can also help a surgeon and patient to communicate effectively to achieve the best outcome for everyone. We conducted a review of the literature to identify what these tools are, and the impact this has on the surgical consultation.

ABSTRACT 9

WE ARE FAILING TO ASSESS RISK IN EMERGENCY LAPAROTOMY: PRELIMINARY RESULTS OF AN AUDIT

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Introduction: Emergency laparotomy (EL) is a common procedure, performed on an extremely heterogenous patient population with a wide variety of underlying pathologies. Estimates of 30-day mortality after emergency laparotomy range as high as 15-20%. Multiple risk assessment tools that quantify a patient,Äôs risk of mortality after EL are available, but their use is far from ubiquitous. This is despite Australian and international data demonstrating an association between documentation of a risk assessment and decrease mortality rates.
Hypothesis/Aims: We aimed to characterise risk assessment rates prior to EL in South Australian public hospitals and identify factors associated with documentation or otherwise of a risk assessment.
Methods: All patients undergoing EL at seven hospitals (RAH, TQEH, Port Augusta, Whyalla, Port Lincoln, Mount Gambier, Berri) were included in the audit. Risk assessment documentation, patient demographic details, comorbidities, complications, mortality rates, details of the operations undertaken and patient's admissions to hospital were extracted from paper and electronic medical records.
Results: At the time of writing results are available from four of seven participating hospitals (TQEH, Port Augusta, Whyalla, Mount Gambier). A total of 169 emergency laparotomies were carried out in these hospitals in 2021. 14 out of 169 (8%) patients had a preoperative risk assessment documented. Overall 30-day mortality was 15 out of 169 (9%). 30-day mortality in patients who were risk assessed was 1 out of 14 (7%) whereas 30-day mortality in patients who were not risk assessed was 14 out of 155 (9%). There was no statistically significant difference in 30-day mortality between those with and without a risk assessment ($p = 0.812$).
Conclusions: Risk assessment for EL is neglected despite previous evidence demonstrating association between risk assessment performance and lower mortality.

LAY DESCRIPTION

Every year thousands of Australians will undergo an emergency laparotomy (EL), which carries a high risk of death. It is possible to predict which patients are at very high risk but this is not done often despite us knowing it improves outcomes. We aimed to characterise how many patients in South Australia have a risk assessment before an EL. Results from four out of seven participating hospitals are currently available. 169 patients had an EL in 2021. Only 14 of the 169 had a risk assessment. 15 of the 169 had died at 30 days after their operation. This shows that assessing risk for EL is neglected by surgeons.

ABSTRACT 10

THE ROLE OF TOLL-LIKE RECEPTORS IN MAMMOGRAPHIC DENSITY AND BREAST CANCER RISK

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Introduction: High mammographic density is an important risk factor for breast cancer. It is suggested that the immune system plays a role in increasing mammographic density and breast cancer risk through stimulating inflammatory responses. Inflammation is a hallmark of cancer development and is associated with a poor prognosis. Little is known about the drivers that initiate inflammation in high mammographic density, however, innate immune components may play a key role, such as Toll-Like Receptors (TLRs). In response to exogenous and endogenous stimuli, TLRs trigger inflammation through activation of Myeloid differentiation primary response 88 (MYD88) and Nuclear factor kappa B (NF-kB).
Hypothesis: The Toll-Like Receptor signaling pathway is a key component of high mammographic density that mediates increased inflammation and increased breast cancer risk.
Aim: We aim to investigate the role of TLR2, and TLR4, the downstream signalling pathways (Myd88 and NF-kB), and exogenous and endogenous triggers of TLRs in high mammographic density. We also aim to investigate the effect of a TLR agonist (bacterial lipopolysaccharide) and antagonist (Naltrexone) on breast tissue explants.
Methods: Immunohistochemistry will be conducted on paired high and low mammographic density Formalin-Fixed Paraffin-Embedded (FFPE) tissues (n=16) to identify TLR4, TLR2, MyD88, NF-kB HMGB1, and Hsp70. Immunofluorescence staining will identify the cell types expressing TLRs. To investigate microbiome distribution in high and low mammographic density we will perform fluorescent in situ hybridization (FISH) to detect bacterial 16s rRNA, then DNA will be isolated and sequenced using Illumina V9 sequencing. Metagenomic analyses will be performed using the Microbial Genomics Pro Suite Module. Fresh human breast tissue fragments (n=12) will be treated with TLR agonist and antagonist and assessed by histology and immunohistochemistry.

LAY DESCRIPTION

Breast tissues with high density has a high amount of connective tissue and reduced amount of fat tissue. Women with high breast density have increased risk of breast cancer. Research indicates that inflammation cause high breast density, but we do not know what cause the inflammations. In this study, we will examine how inflammation occur, to determine the mechanisms and drivers of inflammation in breast density. This study will enable us to identify new approaches to reduce breast density and breast cancer risk.

ABSTRACT 11

EOSINOPHILIC AIRWAY INFLAMMATION ELICITED BY STAPHYLOCOCCUS AUREUS STRAINS: ROLE IN CHRONIC RHINOSINUSITIS

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Background: chronic rhinosinusitis (CRS) is a common disease affecting the paranasal sinuses. The pathogenesis CRS is not fully understood; however, Staphylococcus aureus colonisation has been implicated as a driver of disease in CRS. However, around 30% of the healthy Western population are permanently colonised with S. aureus into the nose and paranasal cavity. A better understanding of the role of long-term S. aureus nasal colonisation is required in elucidating the pathogenesis of CRS.
Aim: to assess the effect of long-term exposure to secreted factors of S. aureus strains isolated from a non-CRS carrier and CRS patients in a rodent model.
Methods: Wistar albino rats were randomized into 4 groups: one vehicle-control group and three groups for the S. aureus secreted factors collected from the S. aureus strains. The three S. aureus strains were isolated from a non-CRS carrier, an eosinophilic-CRS patient, and a non-eosinophilic CRS patient, respectively. The animals received 20 µL daily instillation of secreted factors intranasally. After 28 days, whole skull samples were collected and processed for histology. To evaluate molecular changes, we sequenced cDNA molecules using long reads technology and tested the enrichment of transcripts.
Results: The secreted factors of all S. aureus strains lead to significantly higher lymphocytic infiltration compared to the control group ($p<0.05$). However only S. aureus strains that were isolated from CRS patients had a significantly elevated eosinophilic tissue infiltration compared to control ($p<0.05$). The transcriptome data showed that daily instillation with secreted factors has a substantial influence on several hallmark inflammatory pathways with significant differential expression between control and stimulated groups and intra-stimulation groups ($p<0.05$).
Conclusion: Long-term exposure to secreted factors of S. aureus strains elicits an inflammatory response on the nasal mucosa with differential in severity and transcriptome between CRS strains and non-CRS strains.

LAY DESCRIPTION

Our group, the Ear-, Nose-, Throat surgery research department, has found that not all Staphylococcus Aureus (SA) bacteria are similar in their effects on the nasal membrane. SA is known to be a malicious bug in chronic sinus disease. We looked at the nasal cavities of rats exposed with SA particles and compared them with non-sinus disease SA specimen. We found that the effects were different regarding inflammation. The findings of this work can give clarification on residing SA bacteria in the nasal cavities of chronic sinus disease patients.

ABSTRACT 12

AN ANTIBACTERIAL GEL AGAINST STAPHYLOCOCCI BIOFILMS TO PREVENT SURGICAL SITE INFECTIONS

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Introduction: Staphylococci are associated with surgical site infections affecting 12% of surgeries. Typically, an infection is treated with systemic antibiotics, however, the rise of antibiotic-resistance and the formation of biofilms (i.e. bacterial clusters embedded in a protective matrix) lead to high morbidity and mortality, and increased healthcare costs. Therefore, more effective antibacterial treatments for surgical site infections are a major unmet need.
Hypothesis: A novel thermosensitive gel with embedded antibacterial nanoparticles inhibits staphylococci biofilms.
Methods: Nanoparticles comprising diethyldithiocarbamate and copper ions (DDC-Cu-NP) were tested in vitro for their antibiofilm activity against methicillin resistant Staphylococcus aureus (MRSA) and Staphylococcus epidermidis (SE) via the AlamarBlue assay. In vivo toxicity and efficacy of the DDC-Cu-NP were investigated in infected Galleria mellonella larvae over 4 days. DDC-Cu-NP were embedded in a thermosensitive gel and prevention of biofilm growth was determined via the colony biofilm assay. Statistical analysis: log-rank test with Holm-Bonferroni adjustment of Kaplan-Meier survival curves.
Results: Treatment with DDC-Cu-NP resulted in 91% MRSA and 83% SE biofilm killing. DDC-Cu-NP showed no toxicity in Galleria mellonella larvae and significantly increased the survival of SE infected larvae over 4 days (77% survival of infected, treated larvae vs. 27% survival of infected, untreated larvae, $p<0.01$). In the colony biofilm model, MRSA formed biofilms when left untreated, or when treated with the blank gel, while no biofilm was formed in the presence of gel with DDC-Cu-NP.
Conclusion: The results suggest that DDC-Cu-NP are a promising antibiofilm strategy against staphylococci. Prevention of biofilm formation can be achieved locally at the surgical site by delivering DDC-Cu-NP in a thermosensitive gel. A mammalian animal study to investigate efficacy and safety of the gel is warranted.

LAY DESCRIPTION

Over 3 million major surgeries are performed in Australia every year, like hip implant surgery. The surgical wound can become infected by superbugs and, as antibiotics fail, result in ongoing disease and high deathrates. While the number of surgeries steadily increase, bacteria become more resistant and few new antibiotics are developed, causing a need for new antibacterial treatments. We discovered a new way to destroy superbugs with an old anti-alcoholic drug. Similar to a hangover, it weakens the bacteria and makes them helpless to copper particles. As a gel, it killed Golden Staph in laboratory studies and is now ready for animal trials.

ABSTRACT 13

ASSESSING THE INFLUENCE OF PREGNANCY AND ITS COMPLICATIONS ON CARDIOVASCULAR DISEASE RISK

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Background & Aim: There is increasing evidence that women who experience placenta-mediated pregnancy complications are more likely to develop coronary artery disease (CAD) at a younger age. This is the first study to assess relationship between pregnancy complications and premature coronary artery disease (PCAD) in Australian women.
Methods: The research project involved a data linkage approach merging three databases of South Australian cohorts by employing a retrospective, age-matched case-control study design. Cases (n=721) were ascertained from Coronary Angiogram Database of South Australia (CADOSA). Women <60 years from CADOSA were linked to South Australian Perinatal Statistics Collection (SAPSC) to determine their pregnancy outcomes. Controls (n=194) were ascertained from North West Adelaide Health Study (NWAHS) and comprised of women who were healthy or had health conditions other than CAD, age-matched to CADOSA (+/- 5 years) and linked to SAPSC to determine their pregnancy outcomes. PCAD was defined as >50% stenosis in one or more coronary arteries at angiography.
Results: Women who were diagnosed with PCAD were more likely to have experienced a placenta-mediated pregnancy complication i.e. gestational hypertension (OR=3.35, 95% CI: 1.02,10.98), pre-term birth (OR=4.40, 95% CI: 2.53,7.64), low-birth weight (OR=4.09, 95% CI: 2.39,7.00), previous miscarriage (OR=2.33, 95% CI: 1.22,4.44), asthma (OR=3.54, 95% CI: 1.08,11.60) or anaemia (OR=2.05, 95% CI: 1.44,3.67) and/or have risk factors for CAD including pre-existing diabetes (OR=3.60, 95% CI: 3.07,4.22), active smoking (OR=9.92, 95% CI: 4.12,23.87) and obesity (OR=4.47, 95% CI: 1.33,15.00) during pregnancy compared to women without CAD ($p<0.05$).
Conclusion: Women diagnosed with PCAD have conventional CVD risk factors and some are uniquely related to their pregnancy. These clinical events may be considered novel risk factors for future PCAD and require attention in contemporary preventative cardiology practice.

LAY DESCRIPTION

The aim of this project was to investigate the association between pregnancy complications and future cardiovascular disease risk among women aged <60 years. This association was established by linking three databases (registries) of South Australia. The findings of this project suggested that women who were diagnosed with cardiovascular disease had pregnancy complications and conventional cardiac risk factors such as obesity, smoking and diabetes during their pregnancy. Targeted strategies are required by cardiologists and public health experts to address this burden of early cardiac events in women with pregnancy complications.

ABSTRACT 14

RESUSCITATION ORDERS IN GENERAL SURGERY: AN ANALYSIS OF 12,846 PATIENTS

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Introduction: Limited data exist regarding factors associated with resuscitation order completion and not-for-cardiopulmnonary resuscitation (CPR) status in general surgery patients. This study aimed to characterise resuscitation order completion in a large general surgery population.
Methods: A multi-centre retrospective cohort study of consecutive general surgery in-patients over a two-year period was conducted. Logistic regression was used to evaluate for associations between demographic factors and resuscitation order completion and not-for-CPR status.
Results: 12,846 general surgery patients were included, with 1,853 (14.4%) having a resuscitation order. Of those with resuscitation orders, 964 (52.0%) were documented as being for CPR in cardiac arrest. Increased age (95%CI 1.04 to 1.05, P < 0.001), increased Charlson comorbidity index (95%CI 1.13 to 1.17, P < 0.001) and lower socioeconomic status (95%CI 0.995 to 0.999, P = 0.008) were associated with a greater likelihood of receiving a resuscitation order. Female gender (95%CI 0.60 to 0.95, P = 0.016), increased age (95%CI 0.91 to 0.93, P < 0.001), and Charlson comorbidity index (95%CI 0.86 to 0.92, P < 0.001) were significantly associated with being not-for-CPR. Having a resuscitation order (95%CI 10.9 to 29.7, P < 0.001) and being not-for-CPR (95%CI 10.0 to 42.8, P < 0.001) were significantly associated with increased in-hospital mortality. Having a specified religion was associated with an OR of 1.29 for being for CPR (95%CI 1.02 to 1.62, P = 0.032).
Conclusions: Resuscitation plans are used infrequently, and heterogeneously, in general surgery patients. Understanding these disparities may improve end of life care during critical deterioration.

LAY DESCRIPTION

Resuscitation orders are agreements between doctors and patients regarding decisions in situations that may result in death. These include measures taken to revive the patient. This study analysed a large dataset of 12,846 general patients and their resuscitation orders. Some findings were intuitive, such as that between increased age and increased comorbidities and being not-for-resuscitation. However, the findings that between female and lower socio-economic patients are more likely to be not-for-resuscitation requires further investigation.

ABSTRACT 15

ANOCA: AN UNDER-RECOGNISED AND UNDER-TREATED DISORDER. INSIGHTS FROM THE CADOSA REGISTRY.

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Background: Coronary artery disease (CAD) on angiography provides an explanation for angina symptoms. However, patients with Angina and Non-Obstructive Coronary Arteries (ANOCA, stenosis <50%) pose a clinical challenge- they are often discharged with "non-cardiac" chest pain despite ischaemic mechanisms still being implicated and outcome studies demonstrating a guarded prognosis.
Aims: To compare ANOCA vs. Stable CAD patients in (i)clinical presenting features and (ii)management and outcomes (mortality and hospital readmission).
Methods: All consecutive ANOCA and Stable CAD enrolled in the CADOSA (Coronary Angiogram Database of South Australia) Registry between 2012-2018 were included. Among 30,015 angiograms performed, there were 2,327 ANOCA and 4,248 Stable CAD patients.
Results: ANOCA patients were younger (61¬±11 vs.66¬±11, p<0.05) and more often female (58% vs.27%, p<0.05) in comparison to Stable CAD. ANOCA and Stable CAD patients were indistinguishable in relation to (i)chest pain precipitant (exertion, 60% vs.65%, p<0.05), (ii)relieving factors (nitrates 20% vs.22%, p>0.05), and (iii)frequency of undertaking a non-invasive ischaemia test (61% vs.58%, p<0.05) and objective evidence of ischaemia (70% vs.76%, p>0.05). Discharge management between ANOCA and Stable CAD patients were markedly different in (i)cardioprotective agents (81% vs.96%), and (ii)anti-ischaemic agents (75% vs.90%), all p<0.05. ANOCA and Stable CAD patients had similar (i)12 month mortality (1% vs.2%, p<0.05) and (ii)chest pain readmission into hospital at 1 month (2% vs.3%, p<0.05), 6 months (3% vs.4%, p<0.05) and 12 months (3% vs.4%, p>0.05).
Conclusion: ANOCA and Stable CAD patients have indistinguishable presenting features, but following angiographic documentation of no CAD, they are not provided with a satisfactory diagnosis for their symptoms, nor prescribed cardioprotective/anti-ischaemic agents. Both groups had a similar prognosis at 12 months (mortality and chest pain readmission).

LAY DESCRIPTION

Chest pain is usually caused by blockages in the heart but some chest pain patients will have no blockages. We have a good understanding on those with blockages, but not much is known about those without blockages and hence they are not cared for properly and usually suffer from chest pain for a long time. My study found that compared to patients with blockages, those without blockages were: (a) younger and more often female (b) less likely to be discharged with medication (c) equally likely to die 1 year later and (d) equally likely to come back to the hospital with chest pain 1 year later.

ABSTRACT 16

CYTOKINE-INDUCED KILLER CELL THERAPY: A POTENTIAL TREATMENT FOR METASTATIC CANCER

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Cytokine-induced killer (CIK) cells are an autologous adoptive cellular immunotherapy derived from peripheral blood mononuclear cells (PBMCs). They are a heterogeneous mixture of cells including CD3+CD56+, CD3+CD56- and CD3-CD56+ subpopulations. Their key advantage over standard T cell therapies is the use of MHC-dependent and independent mechanisms, which would be expected to improve tumour clearance. Although clinical trials have shown that CIK cell therapy can improve overall and progression-free survival in multiple malignancies, including metastatic disease, the production and delivery of CIK cell therapy has not been standardised, hindering its adoption in Australia.

The aim was to compare complete RPMI media and three GMP-certified serum-free media (CTSTM optimizer, TexMACSTM or X-VIVO15TM) for the yield and cytotoxic capacity of CIK cells generated from PBMC obtained from healthy donors or patients with colorectal cancer metastatic disease. Flow cytometry was performed at different time points to monitor the growth and change in the ratios of the major cell subsets. The CIK cell cultures were tested for cytotoxic capacity using in vitro 2D and 3D systems.

The X-VIVO15TM media resulted in comparable CIK cell numbers to RPMI for cells from healthy donors and patients. There is no difference in the cytotoxic capacity in the 2D and 3D assays between CIK cells grown in RPMI or X-VIVO15TM.

The results showed that X-VIVO15TM media was the best of the GMP media tested for generating CIK cells for clinical use. There was no difference between it and RPMI in the number of CIK cells generated from either healthy donors or cancer patients, nor in markers of functionality such as intracellular cytolytic markers of cytokine secretion. The CIK cells were cytotoxic in vitro to a range of colorectal cancer cell lines (HT-29, Colo205, SW620 and SW480), 3D spheroids and patient-derived organoids (PDOs).

LAY DESCRIPTION

Bowel cancer is one of the most common cancers in Australia. When it spreads to the liver it is difficult to treat. The immune system can produce cells with anti-cancer properties. Cytokine-induced kill (CIK) cells can be generated from white blood cells when triggered in culture, and kill cancer cells efficiently. We aimed to compare different media for their ability to support the generation of CIK cells, between cancer patients and healthy donors. Culture in X-VIVO15 media resulted in the best yield and functions of CIK cells. The protocol maybe suitable for CIK cell production and for the treatment of patients with secondary cancer.

ABSTRACT 17

OVER-EXPRESSION OF SFRP5: A NOVEL TREATMENT STRATEGY FOR COLORECTAL CANCER LIVER METASTASES

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Secreted Frizzled-Related Protein 5 (SFRP5) is a Wnt signalling pathway antagonist. Reduced plasma SFRP5 correlates with colorectal cancer liver metastasis (CRLM). Recombinant adeno-associated virus (rAAV) gene therapies have recently been approved for human use. We hypothesize that a rAAV therapy that expresses SFRP5 in the liver (rAAV-SRFP5) would benefit patients with CRLM. The aims of this study were to generate a rAAV-SFRP5 viral vector to overexpress SFRP5 in mouse liver and determine if SFRP5 overexpression altered the growth of established CRLM in a mouse model. Codon-optimized murine Sfrp5 and Renilla luciferase reporter (RLuc) were cloned into the multiple cloning site of a rAAV expression vector to generate a SFRP5-RLuc expression plasmid. Sanger sequencing confirmed the plasmid sequence. SFRP5-RLuc was transfected into HEK293T packaging cells, and SFRP5 expression was confirmed by immunofluorescence (IF) on cells, and ELISA on conditioned media. Functional SFRP5 and RLuc expression was confirmed using a Wnt signalling TOP-flash and luciferase activity assays, respectively. To generate rAAV-SFRP5, SFRP5-RLuc and viral plasmids were co-transfected into HEK292T. Purified rAAV-SFRP5 will be injected into C57BL/6 mice and tissue expression confirmed by SFRP5 IF, and bioluminescence imaging (BLI) using an in vivo imaging system for RLuc. Mouse colon cancer cell line stably transduced with Firefly luciferase (MC38-FLuc) will be injected directly into mouse liver, guided by ultrasound. Mice will be treated with rAAV-SFRP5 or rAAV-control, and tumour growth will be monitored using FLuc BLI. In conclusion, a functional SFRP5-RLuc plasmid has been engineered and validated, and ongoing studies are evaluating efficacy of rAAV-SRFP5 gene therapy in vivo.

LAY DESCRIPTION

Patients with bowel cancer that has spread to the liver have few treatment options. We are developing a new treatment for these patients. The treatment causes the liver to make a substance normally found in the blood. This substance is reduced in patients when cancer spreads. If successful, the treatment will provide a new option for patients with metastatic bowel cancer.

ABSTRACT 18

ESTABLISHING NORMATIVE PINCH STRENGTH VALUES: A CROSS-SECTIONAL, OBSERVATIONAL STUDY

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Pinch strength is important in the performance of activities of daily living (ADLs) and in many clinical settings, including hand injury rehabilitation and neurological assessment. Currently, there are no standardised values that characterise normal pinch strength, preventing objective evaluations of hand function. This study aimed to define the normative ranges of lateral, two-point and three-point pinch strength in healthy adults of working age, using a standardised and objective measure. Secondary aims included assessment of the effect of age, gender and hypermobility on pinch strength. Data was collected from 520 participants aged 18-65 years of age. The study produced normative data for the three types of pinch strength assessed and found that the greatest predictor of pinch strength is gender, with minimal influence from participant age or hand dominance. This data could be utilised in hand and neurological rehabilitation programs to assist clinicians and allied health staff in quantifying a patient's pinch strength deficiency and then to guide their recovery targets.

LAY DESCRIPTION

The ability to pinch objects is very important for many different activities. Currently, there is limited research into how strong an individual's pinch strength should be based on their age, gender and the hand they use to write. This study tested the pinch strength of a number of healthy people in order to help define normal pinch strength. This information will help doctors and therapists to evaluate the severity of a hand injury and for assessing progress during hand rehabilitation.

ABSTRACT 19

CAN WE INDUCE ENDOTHELIAL DYSFUNCTION IN A RAT MODEL OF T2D?

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Introduction: Type 2 diabetes (T2D) has been shown to cause endothelial dysfunction, a hallmark of diabetic cardiomyopathy (DbCM). We hypothesize that inhibiting poly (ADP-ribose) polymerase-1 (PARP-1), an energy-depleting DNA repair enzyme, will halt the development of endothelial dysfunction and subsequent DbCM.
Aim: To evaluate the impact of PARP-1 inhibition on endothelial dysfunction in a rat model of T2D.
Method: Rats were treated with a combination of high-fat diet and a single dose of streptozotocin (STZ). Two weeks later, blood concentration of glucose was measured, and rats were then treated with either vehicle or the PARP-1 inhibitor 3AB, for 2 weeks. Glucose tolerance test (GTT) was undertaken and the rats were then humanely killed to excise thoracic aorta for vascular reactivity and epididymal fat pad was weighed as a marker of adiposity. Aortic rings were mounted in organ baths containing Krebs buffer at 37°C. Isometric tension was measured. Cumulative concentrations of phenylephrine, acetylcholine, and glyceryl trinitrate were applied to determine contractile and endothelium-dependent and -independent vasorelaxation responses, respectively. Finally, EC50 and the maximum drug effect (Emax) were calculated.
Results: T2D rats had an increase in the fat pad/body weight ratio compared to control rats (p=0.018). There was no difference in fed blood glucose between diabetic and control groups, but GTT showed difference in AUC between diabetic and control rats, (p=0.0049). There was no difference in vascular reactivity between control and T2D rats, either in contractile response to phenylephrine or in endothelium-dependent or -independent relaxation responses. Intervention with 3-AB did not affect EC50 or Emax values compared to untreated T2D rats.
Conclusions: This pilot study showed that there was no difference in endothelial function between mildly diabetic and control rats, reflecting a need to accentuate the T2D model.

LAY DESCRIPTION

Type 2 diabetes is associated with the development of abnormal blood vessel reactivity: arteries constrict readily and dilate poorly. We have tried to create a model of this vascular abnormality in rats so that we can investigate the effectiveness of a drug called 3-AB in protecting diabetic blood vessels. However, our results indicate that the very mild diabetes induced in these rats is not associated with abnormalities of blood vessel function.

ABSTRACT 20

LYSOGENIZATION OF PATIENT DERIVED S. AUREUS BY HLB-CONVERTING BACTERIOPHAGE (SA3INT) INCREASES VIRULENCE

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Introduction: Staphylococcus aureus colonizes 30% of the human population, but only a few causes severe infection. S. aureus' virulence varies and partly depends on the presence of prophages, viral DNA embedded in S. aureus core genome, such as hlb-converting prophage (Sa3int). Exotoxins and immune modulatory molecules encoded by this prophage can further inhibit human innate immunity increasing S. aureus pathogenicity.
Aim: Investigate genomic plasticity of S. aureus and changes in extracellular proteins after acquisition of Sa3int prophage.
Methods: We sequenced S. aureus isolated from the sinus cavities of a patient with a severe chronic rhinosinusitis using long-read Nanopore technology. In sillico analysis showed presence of a Sa3int prophage. Using mitomycin C, we induced the prophage, transduced it into a Sa3int-free isolate and confirmed by sequencing. We compared growth kinetics, biofilm biomass and metabolic activity between parent and lysogen by establishing growth curves, crystal violet and resazurin assays. Exoproteins were identified and quantified using mass spectrophotometry. GraphPad was used to analyse the results and $p<0.05$ was deemed significant.
Results: Integration of Sa3int prophage transiently down-regulated the beta-hemolysin expression but did not alter the growth kinetics, adhesion and the metabolic activity of biofilm. However, the acquisition of Sa3int prophage significantly increased biofilm biomass ($p=0.05$, t-test). Further, Sa3int prophage acquisition significantly changed the expression of secreted proteins with a significant upregulation of 45 proteins and downregulation of 23 proteins, mainly involved in immunomodulation.
Conclusion: S. aureus carrying Sa3int prophage release immune modulatory toxins that help them escape innate immunity and cause chronic infection. These findings contribute to the development of novel mechanisms that render S. aureus susceptible to immune response by blocking prophage-associated defence mechanisms.

LAY DESCRIPTION

Staphylococcus aureus colonizes 30% of the human population, but only a few causes a severe infection. Recent research suggests bacteria causing chronic infections also carry bacterial viruses (prophages) that may enhance their pathogenicity. To study this, we transferred a virus isolated from a severe patient into virus-free bacteria and studied virulence of the modified bacteria. We found that bacteria carrying the virus formed higher biofilm and released multiple toxins contributing to severe infection. Also, these toxins shielded bacteria from human immunity, causing chronic infections.

ABSTRACT 21

MOST REFERRALS FOR FUNCTIONAL GASTROINTESTINAL DISORDERS ARE INADEQUATE: FINDINGS FROM A CLINICAL AUDIT OF A TERTIARY GASTROENTEROLOGY SERVICE WAITLIST

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Introduction: Reduction in gastroenterology outpatient waitlists remains a priority for tertiary health services. HealthPathways provides agreed referral criteria for Functional Gastrointestinal Disorders (FGiD) between primary and tertiary services. Identification of patients for diversion into diet-first FGiD clinic can provide a high-level care as a waitlist management strategy.
Aim: The clinical audit aimed to describe the appropriateness and adequacy of referrals eligible for a diet-first FGiD clinic within a tertiary gastroenterology service.
Methods: A retrospective audit evaluating all FGiD outpatient referrals accepted for waitlisting by a tertiary gastroenterology service was completed in June 2021 by a trained dietitian and gastroenterologist. Eligible referrals included adults ≤40 years with FGiD for investigation in the absence of high-risk symptoms that necessitate gastroenterology intervention.
Results: Retrospective assessment of 1873 referrals waitlisted between April 2015 and June 2021 was completed. Sixty-four (3.4%) referrals met inclusion criteria for a diet-first FGiD clinic. The median wait time was 688 days (IQR 457, 1095 days). Of those eligible for the diet-first FGiD clinic, 10 (7%) referrals met all HealthPathway recommendations. Key information was frequently missing from referrals including coeliac serology in 44 (66%) referrals and iron studies in 54 (84%) referrals. Excessive or redundant testing present within referrals included coeliac genotyping and serology in 4 (6%) referrals, carbohydrate breath testing in 7 (11%) referrals and computer tomography in 4 (6%) referrals.
Conclusion: Suboptimal referral quality impacted appropriate triage and was a significant barrier to identifying suitable referrals for a diet-first FGiDs clinic. The current audit identified the importance of linking with primary health care providers to develop comprehensive referral pathways.

LAY DESCRIPTION

A large proportion of referrals on the gastroenterology wait list are for functional gastrointestinal disorders. Diet and lifestyle changes can improve many of the symptoms these patients experience. This research examined how many functional referrals would benefit from seeing a dietitian first. This research found most patients were waiting approximately 2 years to see a gastroenterologist. Most referrals were missing key information to inform assessment and treatment options. This research identified the need for improved referral pathways from general practitioners into specialist gastroenterology services.

ABSTRACT 22

THE IMPACT OF THE TUMOUR MICROBIOME ON IMMUNE CELL INFILTRATION AND RESPONSE TO THERAPY IN TRIPLE NEGATIVE BREAST CANCER

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Introduction: Triple negative breast cancers (TNBC) are associated with poor prognosis. Treatment includes chemotherapy by itself or with immunotherapy. However, not all patients respond to treatment, and about 25% will relapse with distant metastasis. The mechanisms mediating drug resistance are poorly understood. Emerging evidence suggests that tumour microbiome varies by breast cancer type and correlates with prognostic features and patient outcomes.
Hypothesis: That specific intracellular bacteria in TNBC alters response to therapy and tumour immune cell infiltration.
Aims: To determine 1) the role of TNBC intracellular bacteria in the response to chemotherapy in vitro and in vivo; 2) if intracellular bacteria modulate TNBC immune cell infiltration, including T, B, NK and myeloid cell subsets, including PD-1 and PD-L1 expression.
Methods: Murine TNBC cell lines (AT-3, 4T1 and EMT-6) will be co-cultured with fluorescent labelled (CFSE) bacteria identified from previous studies, including Enterococcus faecalis, Staphylococcus xylosus, Streptococcus cuniculi, Lactobacillus johnsonii, and Pseudomonas Aeruginosa to study bacterial invasion and response to chemotherapy in vitro. To investigate the effect of bacteria on the response to chemotherapy in vivo, cancer cells with or without intracellular bacteria will be implanted into the mammary ducts of immunocompetent mice, and the mice will be treated with doxorubicin chemotherapy or vehicle. Tumour size, metastasis, and mouse mortality will be monitored for up to 3 weeks. Fluorescent in situ hybridization and 16S rRNA sequencing will be used to determine the intratumoural microbiome. To assess tumour infiltrating immune cell subsets, formalin-fixed paraffin-embedded tissue sections will be stained using CO-Detection by indEXing multiplexed immunofluorescence staining, and dissociated fresh tissues will be analysed using spectral flow cytometry.

LAY DESCRIPTION

Patients with TNBC suffer an unfavourable prognosis. Those patients having higher infiltration of microenvironment components, such as PDL-1 benefits the most from immunotherapy, however, the reasons behind this are unclear. Tumour-resident intracellular microbiota is an emerging tumour component that has been documented for a variety of cancer types, including breast cancer with unclear biological functions. Here we will examine if the intracellular microbiome of TNBC modulate the response to chemotherapy in mice. We believe that intervention of intratumoural microbiome might be worth exploring for advancing oncology care for TNBC patients.

ABSTRACT 23

BACK PAIN IN AN AUSTRALIAN FARMER - AN UNUSUAL PRESENTATION OF CRYPTOCOCCOSIS

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Introduction: Cryptococcosis most commonly manifests with central nervous system (CNS) or pulmonary disease. Infrequently, it presents with vertebral osteomyelitis.
Hypothesis/Aims: To describe a rare case of cryptococcal vertebral osteomyelitis in an immunocompetent patient.
Methods: Literature review and case report
Results: A 53-year-old Indigenous male presented with a four-month history of acute-on-chronic lumbar back pain on a background of two years of left eye floaters diagnosed as vitritis of unclear aetiology. Computed tomography revealed a lytic lesion in the left L3 pedicle, mediastinal and hilar lymphadenopathy as well as pulmonary nodules concerning for malignancy. A bone biopsy arranged by an oncologist, only sent for histopathology, unexpectedly revealed multinucleate giant cell inflammation with numerous thickened capsuled organisms staining positive for Cryptococcus neoformans. Further investigations showed a serum cryptococcal antigen titre of 1:256. MRI did not demonstrate any evidence of cerebral cryptococcosis. His lumbar puncture had a normal opening pressure, biochemistry and cell count with cryptococcal antigen titre of 1:2. HIV, HTLV, interferon gamma release assay and viral hepatitis screens were negative. Further history revealed a significant occupational exposure to pigeon excreta. He was commenced on liposomal amphotericin and 5-fluorocytosine induction treatment for a minimum of 4-6 weeks, followed by consolidation therapy.
While Cryptococcus more commonly affects the CNS and lungs in immunocompromised hosts, cryptococcal vertebral osteomyelitis remains rare, especially in immunocompetent hosts, with four cases of primary presentations described in the literature.
Conclusion: Although infrequent, cryptococcosis should be considered as a differential in selected patients with chronic back pain and risk factors for exposure. In such patients, tissue culture should be requested in addition to histopathology.

LAY DESCRIPTION

Back pain is common. In some persistent cases, scans are performed to exclude cancer. However, not all that looks like cancer necessarily is cancer. We describe a case of a farmer with back pain who had frequent exposure to pigeon faeces. He had a concerning spot on his CAT scan, which was biopsied and sent only for cancer tests. Infection was not considered until the biopsy returned with unexpected results. Further tests diagnosed a ‘cryptococcus’ fungal infection, which is rare in someone with a functioning immune system. He was successfully treated with a course of antifungals. This case reminds us to think broadly when managing back pain.

ABSTRACT 24

A NOVEL T-CELL BASED ZIKA VIRUS DNA VACCINE.

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Zika virus (ZIKV) is a mosquito-borne flavivirus causing birth defects in pregnancy, for which there is no vaccine. Vaccines in development focus on the induction of neutralising antibodies (NAb) against the viral envelope (E). Vaccines that use flavivirus E antigens carry a risk of antibody-dependant enhancement of infection (ADE), a phenomenon where binding of the virus to suboptimal antibodies enhances virus entry into host cells, followed by replication and more severe disease.
During natural ZIKV infection, CD8+ T cell responses preferentially target highly conserved non-structural (NS) proteins, which do not elicit cross-reactive antibodies. Therefore, novel ZIKV vaccines that use NS T cell antigens will abrogate the risk of ADE.
Studies from convalescent ZIKV patients revealed that NS3 is the dominant antigenic target of T cell responses during infection. This makes it an attractive immunogen for vaccine development. In this study, we developed a novel DNA vaccine encoding NS3 (pNS3) and evaluated its immunogenicity in mice. Mice were vaccinated three times at 2-week intervals. T cell immunity post-vaccination was assessed using an in vivo fluorescent target array (FTA) and an in vitro IFN-g enzyme-linked immunospot (ELISpot) assays.
Vaccination with pNS3 elicited robust in vivo NS3-specific CD8+ T cell responses when stimulated with multiple overlapping peptides spanning NS3. Similarly, ELISpot data showed significant IFN-g responses from cells stimulated with NS3 peptide pools. NS3 pool 3 gave the highest response in FTA and ELISpot, suggesting that it contains immunodominant T cell epitopes. Our data shows that pNS3 vaccine is highly immunogenic inducing strong T cell responses.
Evaluation of protective efficacy of pNS3 against ZIKV challenge in vaccinated mice is underway. Taken together our results have important implications for the development of protective and safe T cell based ZIKV vaccines, that can abrogate the risk of ADE of flavivirus disease.

LAY DESCRIPTION

Infection with Zika virus during pregnancy causes severe defects in unborn children. There are no vaccines to prevent infection. Most Zika vaccines in development focus on the structural viral protein (envelope) as its vaccine target. This is problematic as the viral envelope can produce infection enhancing antibodies after immunisation. A safer alternative is to use viral proteins that do not make these antibodies. One such protein is NS3, which induces strong T cell immunity during infection, so it is an excellent target for vaccines. Here we evaluate immunity and protection afforded by new NS3 vaccine in an animal model of Zika infection.

ABSTRACT 25

IMPAIRED PLATELET PROSTACYCLIN SIGNALLING: CONTRIBUTION TO PATHOPHYSIOLOGY OF "NORMAL" AGEING AND OF CORONARY ARTERY SPASM

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Introduction: Cardiovascular ageing is associated with progressive attenuation of vasodilator and anti-aggregatory responses to nitric oxide (NO), and there is increasing evidence that this "NO resistance" is a marker of increased risk of cardiovascular morbidity and mortality. We have also shown that NO resistance may appear in platelets at younger ages in patients with ischaemic heart disease and heart failure, but especially in patients with coronary artery spasm (CAS). On the other hand, less is known regarding changes in signalling with other anti-aggregatory autacoids such as prostacyclin (PGI2) in either normal ageing or CAS.
Hypotheses/Aims: We currently postulated that PGI2 might also exhibit signalling anomalies in normal ageing and CAS populations. We therefore examined changes in anti-aggregatory responses to the NO donor sodium nitroprusside (NO) and to the PGI2 analogue Iloprost (IP) with normal ageing and in association with the chronic phase of CAS.
Results: Platelet aggregation was induced in whole blood with ADP and anti-aggregatory responses to SNP and IP determined. Normal ageing (n=17) was associated with substantial attenuation of anti-aggregatory responses to SNP and IP ($p<0.001$ for both). CAS (n=21) was associated with markedly impaired responses to both SNP and IP ($p<0.01$ for both), but with a minimal rate of age-related decline relative to that seen with normal ageing (ANCOVA: $p=0.02$ for difference). With normal ageing, the ratio of IP to SNP responses tended to increase.
Conclusions: Normal ageing is associated with progressive and substantial declines in platelet responsiveness to the anti-aggregatory effects of both NO and PGI2, and it is possible that with advanced age, PGI2 represents the prominent homeostatic anti-aggregatory autacoid. On the other hand, the current results demonstrate that CAS should be regarded as a condition whereby both the NO and PGI2-initiated signalling pathways are attenuated, even with early age of onset.

LAY DESCRIPTION

Both normal ageing and the debilitating condition of coronary artery spasm (CAS) are associated with impaired tissue responses to nitric oxide (NO), a chemical released from blood vessels. This phenomenon of "NO resistance" predisposes towards clotting, thereby increasing risk of cardiac death. However, prostacyclin (PGI2) also normally prevents clot formation. Currently, we compared the impact of ageing and CAS on platelet responses to PGI2 and NO. Responses decreased with age and were severely impaired in CAS patients irrespective of age. Therefore, both normal ageing and CAS impose a pro-thrombotic burden through impairment of PGI2 and NO.

ABSTRACT 26

IMPROVING SURGICAL EXCELLENCE: CAN COACHING SURGEONS IMPROVE PATIENT ENGAGEMENT?

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Introduction: Non-technical skills complement technical skills in surgeons to provide best possible care for patients. The former is essential to promote patient engagement. Coaching has been introduced to surgeons as a method to improve non-technical skills.

Aims: We aimed to investigate the effects of coaching for surgeons upon patient engagement in the outpatient consultation setting.

Methods: This was a single-centre cohort study conducted at The Queen Elizabeth Hospital, South Australia. Consultant surgeons, suitable coaches, and patients were recruited. Coaches underwent further training by a human-factors psychologist on being an effective coach. Outpatient consultations were recorded in an audio-visual format and analysed by investigators. Patient talking time, mutual eye gaze between surgeon and patient, and number of questions asked by the patient were measured as outcomes for patient engagement.

Results: 182 patients, 12 surgeons, and 4 coaches consented to the study. Each surgeon underwent 2 coaching sessions, 5 to 6 weeks apart. There were 62 pre-coaching patient consultations, 63 patient consultations after one coaching session, and 57 patient consultations after two coaching sessions. The mean talking time of the patient increased significantly after a single coaching session ($P<0.05$) without making significant difference to the total consultation time ($p=0.76$). Coaching sessions did not have a significant effect on mutual eye gaze or mean number of questions asked by the patient.

Conclusion: Coaching of non-technical skills for surgeons appears to objectively improve patients' engagement during the outpatient consultation. This would suggest that tailored coaching programs could be developed and delivered to surgeons to improve care delivery.

LAY DESCRIPTION

Coaching has been used to improve performances in sports and business. Recently, it has been demonstrated that surgeons could be coached to improve skills essential to provide the best care to patients. At The Queen Elizabeth Hospital, we have recruited 12 surgeons to investigate the effects of individualised coaching on their performance as well as patient outcomes. We have found that after the surgeons received coaching, their patients participated more in outpatient consultations. This would suggest coaching does improve a surgeon's non-technical skills to facilitate delivery of care to patients, improving outcomes.

ABSTRACT 27

WARD ROUND WOES: ERRORS, MISUNDERSTANDINGS, INACCURACIES, AND POTENTIAL IMPROVEMENTS

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Introduction: Ward rounds are crucial to providing high-quality patient care in hospitals. The surgical ward round encompasses patient review, refinement of diagnosis, initiation of treatments, and discharge planning. Ward round quality is one of the main areas of surgical care that is linked to patient outcomes, yet ward rounds themselves remain largely understudied and underrepresented in the literature. Accurate and thorough ward round documentation is known to improve communication and patient outcomes. Accordingly, checklists have been proposed to improve ward round documentation.
Hypothesis: A structured checklist will improve the accuracy of case note documentation in the surgical ward round.
Methods: A pre- and post- cohort intervention pilot study was performed by reviewing 135 audio-visual recordings of surgical ward rounds between 2019 and 2022 at two tertiary level hospitals (The Queen Elizabeth Hospital and Mount Gambier and Districts Health Service). Recordings were transcribed verbatim, designated a level of importance by an external reviewer, and compared to the written case notes to determine accuracy. For the intervention, the intern was given a structured checklist to utilise during case note documentation. Patient age, sex, length of stay, location, as well as the senior doctor leading and the intern documenting the ward round were also assessed to determine their impact on documentation accuracy.
Results: There was no difference in the accuracy of case note documentation between groups. However, other factors such as patient age (P=0.009), the number of days the patient had been admitted to the ward (P=0.002), location (P=0.002) and who the intern documenting the ward round was (P value <0.0001) had significant effect on the accuracy of ward round documentation. Results indicated that important components of ward round discussion were only documented 67.9% of the time.
Conclusion: A structured checklist did not impact the documentation accuracy in this study. However, the results have highlighted that a significant portion of important discussion had in the surgical ward round is not documented in the case note. This study has further emphasised the complexity of the ward round, the abundance of variables that can impact quality, and the necessity for further research.

LAY DESCRIPTION

In hospitals, teams of doctors review each patient in their care in the daily ward round. This allows important communication between doctor and patient, to assist planning, and to allow the patient to voice questions or concerns. A poor-quality ward round can lead to lengthened stay, increased chance of complication, and higher cost for hospitals. Thorough documentation is important for ward round quality. However, in our attempts to improve documentation through a checklist, we discovered that a third of important conversation (regarding discharge, booking, patient concerns) is not documented, ultimately leading to poorer quality rounds.

ABSTRACT 28

A PROSPECTIVE RANDOMISED, CONTROLLED TRIAL SWITCHING SIROLIMUS FOR MYCOPHENOLATE TO ENHANCE IMMUNOLOGICAL RESPONSES TO THIRD DOSE COVID-19 VACCINATION IN KIDNEY TRANSPLANT RECIPIENTS WITH POOR BASELINE HUMORAL IMMUNITY

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Background: Kidney transplant recipients (KTR) have inadequate responses to 2-dose COVID vaccination schedules and are at increased risk of severe COVID-19. Formation of T cell memory following vaccination is regulated by mTOR complex 1. mTOR inhibitors have been used in pre-clinical models to boost vaccine-elicited cytotoxic T cell memory responses. In observational studies, KTR receiving mTOR inhibitors had improved serological neutralisation and SARS-CoV-2 reactive T cell responses to 2 doses of COVID-19 vaccine, including cytotoxic T cells and circulating T follicular helper cells.

Hypothesis: In stable KTR using sirolimus as a substitute for mycophenolate prior to a 3rd dose of COVID-19 vaccine will enhance COVID-19 vaccine responses.

Methods: KTR receiving tacrolimus, mycophenolate and corticosteroid with inadequate response to 2 doses of a COVID vaccine (defined by anti-RBD IgG <100U/mL) and no history of COVID infection were recruited from 2 Australian transplant centres. Patients were randomised in a 1:1 ratio to continue mycophenolate maintenance or switch to sirolimus (trough level target 6 ng/mL). All patients received a 3rd dose of mRNA COVID-19 vaccine and had immunological responses measured 4-6 weeks later.

Results: 55 patients were randomised to sirolimus switch (n = 29), or control (n = 26). 3 patients in each arm withdrew during the study. Baseline characteristics were similar between groups with mean age 61 ± 9 vs. 56 ± 11 years, male predominance 69% vs. 70%, and baseline GFR 55 ± 15 vs 59 ± 20 mL/min. Mean sirolimus level was 6.3 ng/mL at vaccination, and 5.5 ng/mL at follow-up. Sirolimus switch was well-tolerated and adverse events were similar between groups (SAE 2 vs 1; p 0.63). There were no rejection episodes during the study. There was no significant difference in vaccine antibody response between groups, or in T cell responses between groups as measured by ELISpot.

Conclusions: Sirolimus switch is safe and well-tolerated. Replacing mycophenolate with the mTOR inhibitor sirolimus does not appear to enhance either humoral or cellular immunological response to 3rd dose COVID vaccination.

LAY DESCRIPTION

Kidney transplant recipients are immunosuppressed and vulnerable to COVID-19. However, because of their immunosuppression, they do not have adequate responses to COVID-19 vaccines. We performed a clinical trial to test a change in immunosuppression medication in stable kidney transplant recipients to see whether it improves response to a 3rd COVID-19 vaccine. There was no improvement noted but the switch was safe and well-tolerated.

ABSTRACT 29

REPURPOSING THE ANTI-ANGINAL DRUG PERHEXILINE FOR THE TREATMENT OF HEAD AND NECK SQUAMOUS CELL CARCINOMA

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Solid Tumour Group, Basil Hetzel Institute for Translational Health Research, The Queen Elizabeth Hospital, South Australia, Australia

Head and neck cancer (HNC) is the 6th most common cancer worldwide contributing a significant amount to the global cancer disease burden. Targeting cancer metabolism is an emerging field for cancer control. Fatty acid metabolism plays a critical role in cancer energy production and is an essential regulator of the tumour microenvironment, including the activity of tumour-associated immune cells. Perhexiline, an anti-anginal drug, is a reported fatty-acid metabolism inhibitor, that can decrease the viability of a wide range of cancer cells in vitro and inhibit cancer xenotransplants outgrowth in vivo. However, it is not known if HNC respond to perhexiline treatment. The purpose of this study was to determine if perhexiline either alone or in combination with cisplatin, a common chemotherapeutic for the treatment of HNC, can effectively control HNC outgrowth. The half-maximal inhibitory concentration (IC50) of conditional treatments was determined using two proliferation assays (crystal violet staining assay and IncucyteS3 live cell imaging) on HNC cell lines in vitro. Drug interaction (synergy, additive, or antagonist) was then determined by Synergy Finder Plus analysis system. Our results show that perhexiline treatment can inhibit HNC outgrowth in vitro and that this drug has no synergistic effects with cisplatin. Our next steps will be to determine if perhexiline can inhibit HNC outgrowth in vivo using a syngeneic mouse model of HNC. Furthermore, we will investigate the effects of perhexiline on the local tumour immune microenvironment by flow cytometry and multiplex immunofluorescent microscopy. Together, we show that perhexiline has potential to be repurposed for the treatment of HNCs.

LAY DESCRIPTION

Chemotherapy treatment may cause side effects such as heart damage which will impact a patient's life. A treatment with less side effects can benefit these patients. This project investigates possibility of perhexiline, a drug used to treat heart diseases, as a treatment for head and neck cancer patients. Furthermore, we will also investigate the combination treatment effects of perhexiline with other chemotherapy. This project will provide a potential alternative treatment for head and neck cancer patients.

ABSTRACT 30

A META-ANALYSIS OF THE TUMOUR TISSUE MICROBIOME IN HEAD AND NECK CANCER

Yeo K, Bouras G, Smith E, Valentine R, Vreugde S, Fenix K
Department of Surgery-Otolaryngology Head and Neck Surgery, The Basil Hetzel Institute for Translational Health Research, Central Adelaide Local Health Network, South Australia, Australia.

Background: Head and neck cancer is the sixth most common malignancy worldwide, with 90% of cases derived from distinct mucosal epithelium regions, collectively, known as head and neck squamous cell carcinoma (HNSCC). Early-stage diagnosis for HNSCC has an 80% five-year survival rate, that significantly drops to 35% when it becomes advanced. Recent studies have demonstrated distinct tumour microbiota within the tumour microenvironment in majority of cancers. These microbial signatures have been correlated with therapeutic responses and patient outcome. In HNSCC, majority of studies consist of small cohorts which identified varying bacteria composition within different tissue sample types (tumour, tumour-adjacent, healthy). However, these studies did not report a consensus microbial signature to differentiate these samples. The purpose of this meta-analysis is to determine if there is a consistent tumour microbiome signature that can be identified in HNSCC. These microbial signatures can be then used to predict microbial-host metagenome functions and further studies on the tumour microenvironment.
Method: The tissue microbiome 16S rRNA amplicon sequences were obtained from NCBI and processed using QIIME2-DADA2. Data were batch-adjusted using sPLSDA-batch and analysed using multivariate (PERMANOVA, sPLSDA, ANOSIM) and univariate (ANOVA) discriminant analysis to differentiate between sample types. Post-hoc analysis was performed using unpaired welch-t test to compare difference in abundance between sample types. Functional prediction was performed using PICRUST2.
Results: HNSCC tumour tissue samples displayed distinct microbial signature (PERMANOVA - $R2 = 0.013$, $p < 0.001$) compared to tumour-tumour adjacent and healthy tissue. Multivariate sPLSDA discriminant analysis identified 84 representative bacteria to differentiate the 3 sample types. Fusobacterium and Streptococcus was most abundant in healthy and tumour tissues respectively, while Rothia was most abundant in tumour-adjacent tissues. Functional prediction identified acetyl-CoA fermentation to butanoate II and L-glutamate degradation V pathways were most enriched in cancer tissues.
Conclusion: Distinct microbial signatures were found in cancer, tumour-adjacent and healthy HNSCC tissues. These microbial signatures displayed distinct functional enriched pathway which may influence the tumour microenvironment.

LAY DESCRIPTION

Head and neck cancer is a cancer of the mouth, nose, throat, and voice box. It is a deadly disease that can lead to low quality of life for patients even with treatments. The tissue samples from healthy and cancer patients contains different number and types of bacteria. These differences can positively or negatively affect the body's defence system and the cancer. This research will allow us to identify the "good" and "bad" bacteria within cancer tissues which may guide our future treatment for head and neck cancer patients.

TQEH Research Expo Prize Winners: 1992 – 2021

2021		2020	
Honours & Summer Student	Lana Matteucci	**Honours Student**	Michelle Sims
Junior Laboratory Research	Man Ying (Celine) Li	**Junior Laboratory PhD Student**	Gohar Shaghayegh
Senior Laboratory Research	Muhammed Awad	**Senior Laboratory PhD Student**	Michael Gouzos
Junior Clinical Research	Joshua Kovoor	**Clinical Research Group 1**	Alannah Quinlivan
Senior Clinical Research	Anna Megow	**Clinical Research Group 2**	Giri Krishnan
Best Mini-Oral (Group A)	Madeleine Bryant	**Mini-Oral - Undergraduates**	Dawn Whelan
Best Mini-Oral (Group B)	Sheree Cross	**Mini-Oral - PhD students**	Muhammed Awad
Best Lay Description	Amita Ghadge	**Best Lay Description**	Sean Mangion

2019		2018	
Honours/Summer Student	Ahad Sabab	**Honours/Summer Student**	Ashley Twigger
Junior Laboratory PhD Student	Laurine Kaul	**Junior Laboratory PhD Student**	Giri Krishnan
Senior Laboratory PhD Student	Amita Ghadge	**Senior Laboratory PhD Student**	Lisa Cherian
Clinical Trainee	Oscar Russell	**Clinical Trainee**	Rachel Goggin
Clinical Higher Degree Student	Mark Thompson	**Clinical Higher Degree Student**	Anupam Gupta
Mini-Oral/Poster Prize (Lab)	Maryam Nakhjavani	**Poster Prize**	Namfon Pantarat
Mini-Oral/Poster Prize (Clinical)	Tom Eldredge	**Best Lay Description**	Rachel Goggin
Best Lay Description	Unyime Jasper	**Ivan De La Lande Award**	Clementine Labrosciano

2017		2016	
Honours/Summer Student	Sean Mangion	**Honours/Summer Student**	Bahador Assadi-Khansari
Junior Laboratory PhD Student	Sathish Paramasivan	**Junior Laboratory PhD Student**	Vahid Atashgaran
Senior Laboratory PhD Student	Christopher DeFelice	**Senior Laboratory PhD Student**	Dijana Miljkovic
Clinical Trainee	Fiona Chan	**Clinical Research Group 1**	Ben Thurston
Clinical Higher Degree Student	Mian Ooi	**Clinical Research Group 2**	Scott Ellis
Poster Prize	Alexandra Shoubridge	**Poster Prize**	Vasilios (Bill) Liapis
Best Lay Description	Maddison Archer	**Best Lay Description**	Vasilios (Bill) Liapis

2015		2014	
Honours Student	Aashray Gupta	**Honours Student**	Tammy Willsmore
Junior Laboratory PhD Student	Vasilios (Bill) Liapis	**Junior Laboratory PhD Student**	Kati Richter
Senior Laboratory PhD Student	Aneta Zysk	**Senior Laboratory PhD Student**	Bill Panagopoulos
Junior Clinical Researcher	Zoe Kopsaftis	**Clinical Research Group 1**	Shailaja Nair
Senior Clinical Researcher	Kristin Carson	**Clinical Research Group 2**	Harshani Jayasinghe
Poster Prize	Ben Thurston	**Poster Prize: Junior**	Alice Du
Best Lay Description	Kati Richter	**Poster Prize: Senior**	Helen Palethorpe
		Best Lay Description	Aneta Zysk

2013		2012	
Honours Student	Zacki Malik	**Honours Student**	Sathish Paramasivan
Junior Laboratory PhD Student	Vikram Padhye	**Junior Laboratory PhD Student**	Erin Swinstead
Senior Laboratory PhD Student	Amanda Drilling	**Senior Laboratory PhD Student**	Irene Zinonos
Clinical Research Group 1	Tharshy Pasupathy	**Clinical Research Group 1**	Neil CW Tan
Clinical Research Group 2	Shailaja Nair	**Clinical Research Group 2**	Rachel Dreyer
Poster Prize	Shalini Sree Kumar	**Poster Prize**	Michael Collins
Best Lay Description	Tamsin Garrod	**Best Lay Description**	Tessa Gargett

2011		2010	
Honours Student	Sam Biermann	**Honours Student**	Joshua Woenig
Junior Laboratory PhD Student	Amenah Jaghoori	**1st year PhD Laboratory**	Camille Jardeleza
Senior Laboratory PhD Student	Irene Zinonos	**2nd year PhD Laboratory**	Joshua Jervis-Bardy
Clinical Higher Degrees	Elsa Dent	**3RD year PhD Laboratory**	Sam Boase
Clinical Research	Scott Graf	**Clinical Higher Degree**	Rachel Dreyer
Poster Prize	Yang Du	**Poster Prize**	Sumithra Krishnan
Best Lay Description	Michael Djukic	**Best Lay Description**	Chris Lauder

2009		2008	
Honours Student	Raymond Yu	**Honours Group 1**	Krishna Jeyaraman
Junior Laboratory PhD Student	Kanchani Rajopadhyaya	**Honours Group 2**	Kanchani Radjopadhyaya
Senior Laboratory PhD Student	Darling Rojas	**PhD Basic Science Jnr**	Tyson Matthews
Clinical Higher Degree	Andrew Foreman	**PhD Basic Science Snr 1**	Christine Ball
Allied Health-Pharmacy	Nicole Such	**PhD Basic Science Snr 2**	Victoria Kopetz
Poster Prize	Shaundeep Sen	**Nursing & Allied Health**	Hayley Vasileff
Best Lay Description	Michael Collins	**Higher Degrees Clinical**	Rowan Valentine
		Poster Prize	Andrew Foreman
		Best Lay Description	Boris Fedoric

2007		2006	
Honours student	Tyson Matthews	**Honours student**	Darling Rojas
PhD Basic Science Jnr	Darling Rojas & Boris Fedoric	**PhD Basic Science**	Deirdre Zander
PhD Basic Science Snr	Nicola Leung	**PhD Basic Science**	Christine Ball
PhD Snr Clinical	Shilpa Prasad	**PhD Clinical 1**	Alkis Psaltis
Higher Degrees Clinical	Tong Le	**PhD Clinical 2**	Achim Beule
Nursing & Allied Health	Hayley Vasileff	**Nursing & Allied Health**	Wendy McInnes
Undergraduates Vacation	Julia Kirby	**Undergraduates Vacation**	Khanh Tran
Poster Prize	Alicia Chan	**Poster Prize**	Rosanna Tavella

2005		2004	
Honours Group 1	Boris Fedoric	**Honours Group 1**	Kara Cashman
Honours Group 2	Nick Mabarrack	**Honours Group 2**	Joanne Reed
PhD Junior Laboratory	Rebecca Dragovic	**PhD Junior Laboratory**	Rebecca Dragovic
PhD Senior Laboratory	Theresa Hickey	**PhD Senior Laboratory**	Harshita Pant
PhD Clinical	Alkis Psaltis	**PhD Clinical**	Wai Lim
Nursing & Allied Health	Peter Cheung	**PhD Population Health**	Mark Kohler
Undergraduates Vacation	Amellia Laidlaw	**Medical Student**	Anthony Pisanello
Poster Prize	Cadence Minge	**Poster Prize**	Theresa Hickey

2003		2002	
Honours Group 1	Maggie Centenera	**Honours**	Deborah Marrocco
Honours Group 2	Claire Seymour-Griffin	**PhD Junior Laboratory**	Ashley Newland
PhD Junior Laboratory	Ben Davies	**PhD Senior Laboratory 1**	Cassandra Woithe
PhD Senior Laboratory	Madelyn Zawitkowski	**PhD Senior Laboratory 2**	Madelyn Zawitkowski
PhD Clinical	Jim Jannes	**Higher Degree Clinical**	Matt Worthley
PhD Population Health	Katie Kandelaars	**Higher Degree Surgical**	Charles Morrison
Poster Prize	Melanie Bagg	**Medical Student**	Sasa Todorovic
		Poster Prize	Lien Ho

2001

Honours	Ashley Newland
Higher Degree Jnr	Cassandra Woithe
Higher Degree Snr	Al Truong Tran
Higher Degree Clinical	Matt Worthley
Higher Degree Surgical	Fiona Court
Advanced Fellowship Trainee	Anita Lee
Medical Student	Aiden Burrell
Poster Prize	Greg Roach

2000

Honours Group 1	Ilse Dahn
Honours Group 2	Melanie Sutton
Higher Degree Group 1	Samantha Yates
Higher Degree Group 2	Tina Bianco
Higher Degree Clinical	Merlin Thomas
Nursing & Allied Health	Libby Birchmore
Medical Student	Victoria Tay
Poster Prize	Nicole Lamond

1999

Honours	Tenielle Webb
Higher Degree Group 1	Ai Truong Tran
Higher Degree Group 2	Damien Hussey
Higher Degree Clinical	Denise Roach
Advanced Fellowship Trainee	Justin Evans
Nursing & Allied Health	Terry Jones & Dorothy Pannell
Medical Student	Edmund Tse & Ru-Siang Cheng

1998

Honours	Ai Truong Tran
Higher Degree Group 1	Sarah Swinburne
Higher Degree Group 2	Damien Hussey
Higher Degree Clinical	Sarah Downie
Advanced Fellowship Trainee	Alan Wigg
Nursing & Allied Health	Robyn Clark
Medical Student	Rae-Wen Chang
Poster Prize	Lucia Sabordo

1997

Honours	Samantha Yates
Higher Degree Group 1	Lisa Butler
Higher Degree Group 2	Michael Texler
Higher Degree Clinical	Dorothy Keefe
Advanced Fellowship Trainee	Andrew Luck
Nursing & Allied Health	Simon Stewart
Medical Student	Nan Williams

1996

Honours	Anthony Kiosoglous
Higher Degree Group 1	Jennifer Hardingham
Higher Degree Group 2	Guy Patrick
Higher Degree Clinical	Christopher Zeitz
Advanced Fellowship Trainee	Alan Wigg
Nursing & Allied Health	Julie Lucker
Medical Student	Michael Osborn
Poster Prize	Matthew Callaway

1995

Honours	Antiopi Varelias
Higher Degree Group 1	Guy Patrick
Higher Degree Group 2	Andreas Evdokiou
Higher Degree Clinical	Christopher Zeitz
Advanced Fellowship Trainee	Toby Coates
Medical Student	Rohini Sharma

1994

Honours	Lucia Sabordo & Linda Dadds
Higher Degree Group 1	Rebecca Ritchie & James Moore
Higher Degree Group 2	Guy Patrick
Advanced Fellowship Trainee	David Campbell
Medical Student	I-Wen Chu

1993

Basic Science	Dean Bacich
PhD/MD	Cui Lan Zhang
In Training	Jennifer Hardingham
Clinical	Dorothy Keefe
Medical Student	Kenneth Ooi

1992

Basic Science	Yi Zhang
PhD/MD	Warwick Grooby
Clinical	David Campbell

TQEH Research Expo Plenary Lectures: 1992 - 2021

2021 **Dr Michael Cusack – SA Chief Medical Officer**
"Outcomes & Data – 20 years on from Bristol"

2020 **Professor Toby Coates – Royal Adelaide Hospital and The University of Adelaide**
"Recycling Islets to Treat Diabetes"

2019 **Professor John Rasko AO – Centenary Institute, Sydney**
"Cell and Gene Therapy: great power brings great responsibility"

2018 **Professor Peter Rathjen – The University of Adelaide**

2017 **Hon. Mark Butler MP – Australian Labor Party**
"The Politics of Ageing"

2016 **Professor Anne Kelso AO – NHMRC**
"Medical research: why we mustn't stop now"

2015 **Professor Steve Webb – Royal Perth Hospital, University of Western Australia & Monash University**
"Pushing or pulling over the evidence-practice gap"

2014 **Professor Brendan Crabb – Burnet Institute**
"Malaria in the 21st century"

2013 **Professor Tanya Monro – The University of Adelaide**
"From theoretical physics to solutions in health and defence: a transdisciplinary journey"

2012 **Professor Barry Brook – The University of Adelaide**
"Future climate extremes and how to avoid them!"

2011 **Professor Steve Wesselingh - SAHMRI**
"Health Reform and Medical Research: Building better links between medical research and health care delivery to improve health outcomes"

2010 **Professor David Allen - The University of Sydney**
"Duchenne muscular dystrophy; connecting the gene to the disease"

2009 **Professor David Vaux - La Trobe University**
"Ten rules for the presentation and interpretation of data in publications"

2008 **Dr Bob Irving - Nanotechnology Victoria**
"Nanotechnology - Opportunities and Challenges at the Smallest Frontier of Science"

2007 **Jenni Metcalfe - President Australian Science Communicators**
"A Schizophrenic Life: the Career of a Science Communicator"

2006 **Dr Rob Morrison - Science Communicator**
"Trust me, I'm a Science Communicator"

2005 **Professor Rob Norman - The University of Adelaide**
"The reproductive revolution: How The Queen Elizabeth Hospital led the field"

2004 **Robyn Williams - Australian Broadcasting Corporation**
"How modern medicine changed the world - some anniversaries"

2003 **Dr Sarah Robertson - The University of Adelaide**
"Facing Challenges and Finding Solutions in Reproductive Medicine"

2002 **Professor John Chalmers - The University of Sydney**
"Enhancing Health and Medical Research in the Teaching Hospital Environment"

2001 **Professor Peter Rathjen - The University of Adelaide**
"Regenerative medicine using stem cells: Medicine for the new millennium"

2000 **Professor Grant Sutherland - The University of Adelaide**
"The human genome project: Applications to medical research"

1999 **Dr Philip Reece - Biota Holdings**
"Biota and Relenza: New drug discovery in Australia"

1998 **Professor Colin Matthews (Moderator) - The University of Adelaide**
Speakers: Dr Tim Kuchel, Dr David Turner, Dr John Chandler
"And Man-made Dolly: The ethics of cloning"

1997 **Dr Julian Cribb - CSIRO**
"The origin of AIDS"

1996 **Dr Deane Hutton - Science Communicator**
"20:20 vision – Living in the 21st Century"

1995 **Professor Mike Tyler - The University of Adelaide**
"Frogs – the new frontier for natural products pharmacology"

1994 **Dr Gael Jennings - Australian Broadcasting Corporation**
"Communicating research via the medium of television"

1993 **Dr Mark Wahlqvist - Monash University**
"Salt intake and the non-pharmacological treatment of hypertension"

1992 **Professor David Jarrett - The Queen Elizabeth Hospital**
"The place of research in the face of a shrinking medical budget"

The Institute

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