2020


Background: Excessive gestational weight gain is a modifiable risk factor for the development of obstetric and neonatal complications, and can have a lifelong impact on the health of both mother and offspring. The purpose of this study was to assess whether in addition to standardized medical advice regarding weight gain in pregnancy (including adherence to the Institute of Medicine (IOM) guidelines) (IOM (Institute of Medicine) and NRC (National Research Council, Weight Gain During Pregnancy: Re-examining the guidelines, 2009)), the addition of daily weighing would provide a low cost and simple intervention to reduce excessive weight gain in pregnancy by maintaining weight gain within the target range.

Methods: Women presenting for antenatal care to a secondary level hospital were randomised to routine care or daily weight monitoring. Both groups received nutrition and exercise advice.

Results: Three hundred and ninety-six women were randomised to either the daily weight monitoring group or control group with complete data available for 326 women. The percentage weight gain above target (86.9% (SD 52.3) v 92.7% (SD 50.8) p = 0.31) and change in weight per week during the study period (0.59 kg (SD 0.30) v 0.63 kg (SD 0.31) p = 0.22) were lesser in those undergoing daily weighing compared to routine management, however these did not reach statistical significance.

Conclusion: Daily weight monitoring as a stand-alone intervention has potential to reduce excessive gestational weight gain. It may have a role as a part of a larger intervention involving dietary and exercise modifications. Trial registration: The trial was prospectively registered with the Australian New Zealand Clinical Trials Registry. (ACTRN12613001165774, 23/10/2013).


A 65-year-old woman called paramedics for stridor and neck swelling following an insect bite with a possible anaphylactic reaction. On arrival paramedics administered intramuscular epinephrine without any observed improvement in stridor. Paramedics then prepared 5 mg of 1:1000 epinephrine for nebulised administration, which was inadvertently given intravenously. The patient developed tachycardia, anxiety and a severe headache, with biochemical evidence of cardiac necrosis without any
haemodynamic compromise. The patient recovered over the next 24 hours and no long-term sequelae were identified on CT coronary angiogram, electrocardiography (ECG) echocardiography or invasive angiography. This case highlights the risk of cardiac ischaemia during epinephrine administration and the importance of protocols to ensure appropriate dosing. This case also raises questions regarding appropriate management of epinephrine overdose and shines a light on the absence of guidelines on the prevention of complications from epinephrine administration.


BACKGROUND Intensive care follow-up clinics (ICFCs) have been implemented internationally with the aim to address the growing number of patients living with sequelae of critical illness and intensive care. However, data on Australian intensive care follow-up practice are rare.

OBJECTIVES The primary objective was to determine the proportion of Australian intensive care units (ICUs) that offer a dedicated ICFC to ICU survivors, with the intention of improving long-term outcomes of critical illness. Secondary objectives were to identify models of ICU follow-up and barriers to the implementation of ICFCs. METHODS A custom-designed, pilot-tested 12-question online survey was sent to the nurse unit managers and medical directors of all 167 Australian ICUs listed in the database of the Australian and New Zealand Intensive Care Society. Outcome measures included proportion of ICUs offering ICFCs, details on types of follow-up services with staffing, funding source, and reasons for not providing ICU...


Antimicrobial de-escalation (ADE) is defined as the discontinuation of one or more components of combination empirical therapy, and/or the change from a broad-spectrum to a narrower spectrum antimicrobial. It is most commonly recommended in the intensive care unit (ICU) patient who is treated with broad-spectrum antibiotics as a strategy to reduce antimicrobial pressure of empirical broad-spectrum therapy and prevent antimicrobial resistance, yet this has not been convincingly demonstrated in a clinical setting. Even if it appears beneficial, ADE may have some unwanted side effects: it has been associated with prolongation of antimicrobial therapy and could inappropriately be used as a justification for unrestricted broadness of empirical therapy. Also, exposing a patient to multiple, sequential antimicrobials could have unwanted effects on the microbiome. For these reasons, ADE has important shortcomings to be promoted as a quality indicator for appropriate antimicrobial use in the ICU. Despite this, ADE clearly has a role in the management of infections in the ICU. The most appropriate use of ADE is in patients with microbiologically confirmed infections requiring longer antimicrobial therapy. ADE should be used as an integral part of an ICU antimicrobial stewardship approach in which it is guided by optimal specimen quality and relevance. Rapid diagnostics may further assist in avoiding unnecessary initiation of broad-spectrum therapy, which in turn will decrease the need for subsequent ADE.

The number of patients attending acute care hospitals with a diagnosis of dementia is increasing. The impact of hospitalization on function and adverse events is perceived to be greater for patients with dementia than those without. This study compared adverse events (falls, wounds, delirium, medication errors, infections, and incontinence), functional decline, and allied health therapy for patients with and without dementia (n = 240). Patients with dementia experienced significantly more adverse events and constant observation by staff, were more dependent with mobility, hygiene and feeding, more often nil by mouth, confused, and incontinent. Patients with dementia were significantly more likely to receive speech and physiotherapy, although they did not significantly improve in function during their hospital stay. Conversely, patients without dementia significantly improved in mobility and continence. The unique health care needs of patients with dementia need to inform models of care, policy, and practice to support safe health care delivery in this vulnerable population.


Background: CUB domain-containing protein 1 (CDCP1) is a cell surface receptor regulating key signalling pathways in malignant cells. CDCP1 has been proposed as a molecular target to abrogate oncogenic signalling pathways and specifically deliver anti-cancer agents to tumors. However, the development of CDCP1-targeting agents has been questioned by its frequent proteolytic processing which was thought to result in shedding of the CDCP1 extracellular domain limiting its targetability. In this study, we investigated the relevance of targeting CDCP1 in the context of pancreatic ductal adenocarcinoma (PDAC) and assess the impact of CDCP1 proteolysis on the effectiveness of CDCP1 targeting agents. Methods: The involvement of CDCP1 in PDAC progression was assessed by association analysis in several PDAC cohorts and the proteolytic processing of CDCP1 was evaluated in PDAC cell lines and patient-derived cells. The consequences of CDCP1 proteolysis on its targetability in PDAC cells was assessed using immunoprecipitation, immunostaining and biochemical assays. The involvement of CDCP1 in PDAC progression was examined by loss-of-function in vitro and in vivo experiments employing PDAC cells expressing intact or cleaved CDCP1. Finally, we generated antibody-based imaging and therapeutic agents targeting CDCP1 to demonstrate the feasibility of targeting this receptor for detection and treatment of PDAC tumors. Results: High CDCP1 expression in PDAC is significantly associated with poorer patient survival. In PDAC cells proteolysis of CDCP1 does not always result in the shedding of CDCP1-extracellular domain which can interact with membrane-bound CDCP1 allowing signal transduction between the different CDCP1-fragments. Targeting CDCP1 impairs PDAC cell functions and PDAC tumor growth independently of CDCP1 cleavage status. A CDCP1-targeting antibody is highly effective at delivering imaging radionuclides and cytotoxins to PDAC cells allowing specific detection of tumors by PET/CT imaging and
superior anti-tumor effects compared to gemcitabine in in vivo models. Conclusion: Independent of its cleavage status, CDCP1 exerts oncogenic functions in PDAC and has significant potential to be targeted for improved radiological staging and treatment of this cancer. Its elevated expression by most PDAC tumors and lack of expression by normal pancreas and other major organs, suggest that targeting CDCP1 could benefit a significant proportion of PDAC patients. These data support the further development of CDCP1-targeting agents as personalizable tools for effective imaging and treatment of PDAC.
10.7150/thno.43589

INTRODUCTION: Paraduodenal hernias are the most common type of internal hernia but a rare cause of bowel obstruction. Given the high risk of incarceration, obstruction and associated mortality, surgical repair is recommended. PRESENTATION OF CASE: We present a novel technique for laparoscopic repair of paraduodenal hernia using biosynthetic mesh to reinforce suture closure of the hernia defect. An 18-year-old healthy female presented with symptoms of recurrent subacute small bowel obstruction and right paraduodenal hernia was diagnosed on computed tomography (CT). Laparoscopic repair was performed with reinforcement of suture repair with GORE(R) BIO-A(R) Hiatal Tissue Reinforcement to decrease the risk of recurrence. The patient had an uneventful recovery and was discharged on the second post-operative day. Subsequent follow-up revealed complete resolution of symptoms. DISCUSSION: Biosynthetic tissue reinforcement carries a lower theoretical risk of erosion than permanent mesh. A hiatal-shaped prosthesis represents a suitable shape for paraduodenal hernia repair. CONCLUSION: We present the first reported use of bioabsorbable mesh to repair paraduodenal hernia. This technique may minimise risk of mesh erosion and can be considered a safe and effective approach where suture repair is inadequate due to large defect size.
10.1016/j.ijscr.2020.03.035

Antimicrobial de-escalation (ADE) is a component of antimicrobial stewardship (AMS) aimed to reduce exposure to broad-spectrum antimicrobials. In the intensive care unit, ADE is a strong recommendation that is moderately applied in clinical practice. Following a systematic review of the literature, we assessed the studies identified on the topic which included one randomized controlled trial and 20 observational studies. The literature shows a low level of evidence, although observational studies suggested that this procedure is safe. The effects of ADE on the level of resistance of ecological systems and especially on the microbiota are unclear. The reviewers recommend de-escalating antimicrobial treatment in patients requiring long-term antibiotic therapy and considering de-escalation in short-term treatments.
10.1007/s12325-020-01390-2

OBJECTIVE: To determine beliefs about methotrexate (MTX) in patients with rheumatoid arthritis (RA) in relation to utilized information sources.

METHODS: RA patients, who were current participants in the Australian national biologic registry, completed an online questionnaire regarding their use and views about MTX (N = 1010). Participants who used MTX were asked about which MTX information sources they consulted, and whether positive or negative views were obtained. The Beliefs about Medicine Questionnaire (BMQ), was used to measure patient beliefs about MTX.

RESULTS: The survey response rate was 804/1010 (80%). MTX survey data were analyzed for 742 RA participants (mean age 59 years, 76% female, mean disease duration 19 years) who had used MTX, with 494/742 (67%) reporting current use. Participants consulted multiple information sources (median 3, interquartile range 1-5). Rheumatologists (98%), general practitioners (GPs) (55%), internet searches (39%), educational websites (38%), and pharmacists (37%) were the most common information sources utilized. Positive MTX information was most often obtained from rheumatologists (92%), GPs (66%), and educational websites (56%). Negative information was most often obtained from relatives, social media, internet chat rooms and friends. Information from rheumatologists was the most influential on favorable BMQ MTX-specific scores, whereas information from educational websites also affirmed the need for MTX. CONCLUSION: RA patients have significant concerns regarding MTX and consult a variety of sources for MTX information. However, the patient perception of this information varies widely. Rheumatologists and educational websites are the most important information sources in terms of a positive influence on the patient's perception of MTX.


Background: Periprosthetic joint infection (PJI) is a devastating complication of joint replacement surgery. Most observational studies of PJI are retrospective or single-center, and reported management approaches and outcomes vary widely. We hypothesized that there would be substantial heterogeneity in PJI management and that most PJIs would present as late acute infections occurring as a consequence of bloodstream infections.

Methods: The Prosthetic joint Infection in Australia and New Zealand, Observational (PIANO) study is a prospective study at 27 hospitals. From July 2014 through December 2017, we enrolled all adults with a newly diagnosed PJI of a large joint. We collected data on demographics, microbiology, and surgical and antibiotic management over the first 3 months postpresentation.

Results: We enrolled 783 patients (427 knee, 323 hip, 25 shoulder, 6 elbow, and 2 ankle). The mode of presentation was late acute (>|30 days postimplantation and <|7 days of symptoms; 351, 45%), followed by early (>|=30 days postimplantation; 196, 25%) and chronic (>|=30 days postimplantation with <|=30 days of symptoms; 148, 19%). Debridement, antibiotics, irrigation, and implant retention constituted the commonest initial management approach (565, 72%), but debridement was moderate or less in 142 (25%) and the polyethylene liner was not exchanged in 104 (23%).
Conclusions: In contrast to most studies, late acute infection was the most common mode of presentation, likely reflecting hematogenous seeding. Management was heterogeneous, reflecting the poor evidence base and the need for randomized controlled trials.

10.1093/ofid/ofaa068


BACKGROUND: Acute pulmonary embolism (PE) is characterized hemodynamically by abrupt obstruction in trans-pulmonary blood flow. The echocardiographic Pulmonary to Left Atrial ratio (ePLAR, tricuspid regurgitation Vmax/mitral E/e') has been validated as a non-invasive surrogate for trans-pulmonary gradient (TPG) that accurately differentiates pre-capillary from post-capillary chronic pulmonary hypertension. This study assessed ePLAR as an incremental echocardiographic assessment tool compared with traditional measures of right ventricular pressure and function.

METHODS: In total, 110 (57.4 +/- 17.6 years) patients with confirmed sub-massive pulmonary emboli with contemporaneous echocardiograms (0.3 +/- 0.9 days) were compared with 110 age-matched controls (AMC). RESULTS: Tricuspid velocities were higher than AMC (2.6 +/- 0.6 m/s vs. 2.4 +/- 0.3 m/s, p < 0.05), although still consistent with "normal" right ventricular systolic pressures (34.2 +/- 13.5 mmHg vs. 25 +/- 5.3 mmHg, p < 0.05) with lower mitral E/e' values (8.2 +/- 3.8 vs. 10.8 +/- 5.1, p < 0.05). ePLAR values were higher than AMC (0.36 +/- 0.14 m/s vs. 0.26 +/- 0.10, p < 0.05) suggesting significantly elevated TPG. Detection of abnormal echocardiographic findings increased from 29% (TRVmax >/= 2.9 m/s) and 32% (reduced tricuspid annular plane systolic excursion) to 70% with ePLAR >/= 0.3 m/s.

CONCLUSIONS: Raised ePLAR values in acute sub-massive pulmonary embolism suggest elevated trans-pulmonary gradients even in the absence of acutely increased pulmonary artery pressures. ePLAR dramatically increases the sensitivity of echocardiography for detection of hemodynamic perturbations in sub-massive pulmonary embolism patients, which may offer clinical utility in diagnosis and management.

10.3390/jcm9010247


Studies have demonstrated correlations between accumulations of tumour-associated macrophages (TAMs), especially of M2-like phenotype, and increased mortality in advanced breast cancer. We investigated the prognostic potential of both main macrophage phenotypes in early hormone receptor-positive (HR+) breast cancer. The studied cohort of 136 patients participated in an institutional APBI phase II trial. Patient selection was characterized by HR+, small tumour size and no metastasis. Tissue microarrays from pre-RT resection samples were double stained for CD68/CD163 using immunohistochemistry. CD68+/CD163- cells were considered M1-like macrophages and CD68+/CD163+ was representative of M2-like macrophages. M1 and M2 macrophage densities were analysed semi-automatically in the stromal and intraepithelial tumour compartment. Low M1 and high M2 densities were strongly associated with decreased disease-
free survival (DFS). Combined TAM phenotype densities were studied after defining...

10.3390/cancers12020446


OBJECTIVES: Expiratory radiographs are sometimes performed in addition to inspiratory radiographs when a diagnosis of pneumothorax is suspected. There is little published evidence to support this practice and most studies suggest the additional radiograph does not confer any benefit in terms of increased sensitivity. The present study is the first to assess if specialist emergency physicians are more likely to detect a pneumothorax on an inspiratory radiograph compared to an expiratory radiograph. METHODS: Across two urban district EDs 103 paired radiographs positive for pneumothorax and 112 negative controls were identified for inclusion in the study. These were reviewed by three specialist emergency physicians who rated them as either positive or negative for pneumothorax. RESULTS: The mean sensitivity for the three reviewers was 84.8% (95% CI 82.0-87.5) for the inspiratory radiographs and 91.9% (95% CI 88.2-95.6) for the expiratory radiographs, a mean absolute difference of 7.1% (95% CI 2.2-12.1, P = 0.025) in favour of expiratory radiographs. CONCLUSIONS: When reviewed by emergency physicians the present study found expiratory radiographs confer an increase in sensitivity for the diagnosis of pneumothorax compared with inspiratory radiographs. In certain patients where the clinical suspicion for pneumothorax is high performing an expiratory radiograph may increase the likelihood of the diagnosis being made in the ED.

10.1111/1742-6723.13482