CONNECTIONS & SYNERGY

Sharing Journal Club Summaries Across NZ

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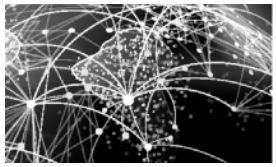

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KOTAHITANGA

NETWORKING OUR JOURNAL CLUBS

Welcome back to Kotahitanga. Here we aim to share the collective wisdom from the journal clubs of numerous EDs across New Zealand.

Multiple separate groups of ED experts frequently review cutting edge literature in isolation from one another. Kotahitanga's mission is to share that wisdom and accelerate the dissemination of locally beneficial new ideas in Emergency Medicine. Hopefully this will also reduce unnecessary duplication of work and serve as a forum for local and national discussions.

WE HAVE A NEW CONTRIBUTOR!

Welcome to Hawke's Bay ED.

KOTAHITANGA

Conveys the Value of Unity, Togetherness, Solidarity & Collective Action

GET IN TOUCH

This month we have the privilege of welcoming Hawke's Bay ED to Kotahitanga. It is always a pleasure to expand our bubble of knowledge and we are perpetually keen to add more contributors. If your ED has a regular journal club and is happy to share its findings, please get in touch. We now publish summaries from Hawke's Bay, Taranaki Base, Nelson, Dunedin & Christchurch.

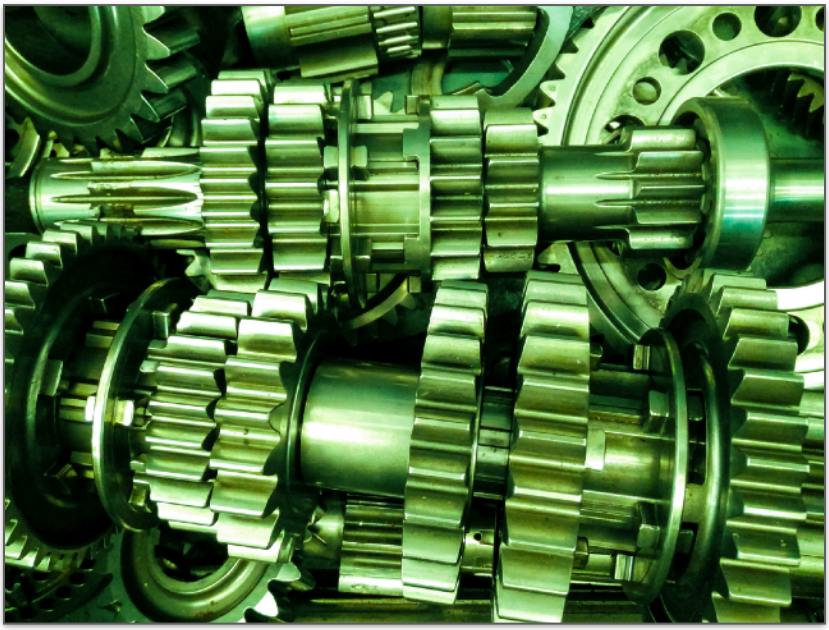
Submissions can be in whatever format suits. Many of our current submissions are via powerpoint slides. Whilst we try to standardise the presented structure, our primary aim is to share the locally formulated conclusions. So please don't be put off if your department does things slightly differently to what is presented here.

We are also aware that the external validity of conclusions drawn locally, might not be universally applicable. To help mitigate this factor, each summary will be clearly labelled to show where it was reviewed. This allows you to make your own conclusions regarding a summary's relevance to your department.

The name for this newsletter was chosen with the help of our local Maori Health Service Team and aims to echo the ideas of unity, collaboration and sharing.
Feedback on any of Kotahitanga's content or the general layout is actively encouraged. Please get in touch via our email address; kotahitanga@edhermes.net .
For now we will aim to publish monthly. Feel free to redistribute this newsletter to all interested ED staff.

Drop us an email if you would like to go directly onto our mailing list.

Thank you for your time. Noho ora mai.



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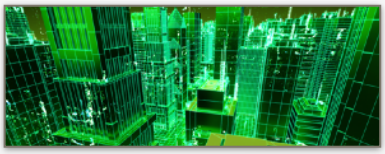


Contact: kotahitanga@edhermes.net
Involved Departments:
- Christchurch
- Dunedin
- Nelson
- Taranaki Base
- Hawke's Bay

Editor: Owain Wright

mini-JC
July 2020 - Christchurch
Rosie Livesey

Diagnosis of urinary tract infection in older persons in the emergency department: To pee or not to pee, that is the question.

Ellen Burkett et al.

EMA, 2019 Oct;31(5):856-862. doi:10.1111/1742-6723.13376. Epub 2019 Sep 2. (10221)

Primary Question

Which of the older people who present to the Emergency Department should we be testing for UTIs, how we should interpret the results and when we should treat.

Relevance to our Practice

- Practice changing for some.
- Confirms current practice for others.

Take Home Message

We should only test older people for a UTI if they have symptoms of UTI (eg. acute dysuria, acute frequency or incontinence, suprapubic or costoverterbral pain etc) or if they have fever or rigors or delirium without sign of infection at another source

Older People have high rates of asymptomatic bacteriuria, especially those with indwelling catheters, which may look like a UTI on dipstick or MSU – this leads to over treatment.

Other Pertinent Comments

Offensive smelling urine is NOT a reason to test for a UTI!!

Contamination of urine samples is also an issue in older people, catheter urines are recommended for people with cognitive impairment – however you must have a high index of suspicion as catheter insertion is an invasive and potentially distressing procedure.

Author's Conclusion

There are several critical points for the ED physician to consider in diagnosing UTI in older adults:

1. Urinalysis or urine microscopy should only be ordered where the history and examination suggest likely UTI.
2. Routine indiscriminate urinalysis or urine microscopy is to be avoided.
3. For those unwell with non localising acute symptoms where UTI is part of the differential diagnosis, err on the side of looking for alternative diagnoses before testing urine, as the risk of detecting ASB that has no causal relationship to the non-specific symptoms is substantial.
4. Meticulous attention to how the urine is collected is required. However, catheter specimen urine collection of people with cognitive and sensory impairments is distressing, invasive and only necessary if the pre-test probability for UTI is sufficient. There is significant room for improvement of ED assessment of UTI in older persons with an imperative to assess clinical probability of UTI prior to ordering urine microscopy and culture. The current practice of widespread, indiscriminate testing of urines for UTI in older persons risks avoidable morbidity for individuals and may contribute to increasing prevalence of multi-resistant organisms. Furthermore, anchoring onto a diagnosis of UTI in settings where this is not clinically supported, means that the true underlying cause of the persons presentation may go unrecognised and untreated.

mini-JC

Feb 2019 - Nelson

A. Munro

Six years of epinephrine digital injections: absence of significant local or systemic effects.

Muck et al

Ann Emerg Med 2010 Sep;56(3):270-4. doi: 10.1016/j.annemergmed.2010.02.019. Epub 2010 Mar 26.

Primary Question

Determine the frequency of complications following accidental discharge of adrenaline auto-injectors into fingers.

Relevance to our Practice

- Practice changing for some.
- Epipen utilisation in the community is increasing, accidental digital injection is not uncommon
- Use of digital adrenaline has been traditionally discouraged, this paper goes a long way to dispelling the dogma.

Take Home Message

Accidental adrenaline injection into a digit does not require specific treatment or prolonged observation.

Careful use of adrenalised lignocaine for haemostatic control and for the prolongation of anaesthetic effect in the care of digital injury/procedures is recommended.

Other Pertinent Comments

Hospital clinical records were not accessed- all information obtained from systematic toxicological centre notes.

BACKGROUND

Accidental auto injector of adrenaline into the fingers is common. Adverse events could plausibly translate to clinical practice there-by busting the long-standing myth of avoiding adrenaline in digits and other distal body parts.

METHODS

Retrospective interrogation of regional toxicological data base recording advice sought for accidental hand and finger injection of auto-injector. Toxicology centre notes review for subset of digital injections.

RESULTS

There were 365 epinephrine injections to the hand identified for the 6-year period. Of these, 213 were digital injections, and 127 had follow-up. All patients had complete resolution of symptoms. None of the patients were hospitalised or received hand surgery consultation or surgical care. Significant systemic effects were not reported. Pharmacologic vasodilatory treatment was used in 23% (29/127) of patients. Ischaemic effects were documented for 4 patients, and 2 of these had symptom resolution within 2 hours. All 4 patients received vasodilatory therapy and were discharged home, with complete resolution of symptoms.

CONCLUSIONS

Because the adrenaline concentration in lignocaine / adrenalin preparations is far lower than in auto-injectors, it is safe to use in fingers and possibly other distal body parts.

mini-JC

April 2019 - Dunedin

J. van Geffen

Chest computed tomography imaging utility for radiographically occult rib fractures in elderly fall-injured patients

Singleton et al.

J Trauma Acute Care Surg - 2019 May;86(5):838-843. doi: 10.1097/TA.0000000000002208

Primary Question

To determine whether CT-diagnosed rib fractures in elderly fall patients with a normal CXR are associated with increased in-hospital resource utilisation or mortality?

Relevance to our Practice

- Confirms current practice.

Take Home Message

Routine use of chest CT in elderly patients presenting with a fall does not offer a specific benefit and may actually result in unnecessary hospital admissions. There is no association between radiographically occult rib fractures (not visible on chest x-ray) and an increase in hospital resource utilisation, pneumonia or mortality.

Other Pertinent Comments

Management of rib fractures, suspected or proven, remains the same irrespective of whether or not a chest CT detects occult fractures missed on the chest x-ray. Study performed in US which has a healthcare system centred around private healthcare insurance, hence the use of imaging in the US may differ from New Zealand.

BACKGROUND

Previous studies demonstrate an association between rib fractures and morbidity & mortality in trauma. This relationship in low-mechanism injuries, such as ground-level fall, is less clearly defined. Furthermore, CT has increased sensitivity for rib fractures compared with CXR; its utility in elderly fall patients is unknown. We sought to determine whether CT-diagnosed rib fractures in elderly fall patients with a normal CXR were associated with increased in-hospital resource utilisation or mortality.

METHODS

Retrospective analysis of ED patients presenting over a 3-year period. Inclusion criteria: age, 65 years or older; chief complaint, including mechanical fall; and both CXR and CT obtained. We quantified rib fractures on CXR and CT and re- ported operating characteristics for both. Outcomes of interest included hospital admission/length of stay (LOS), ICU admission/LOS, endotracheal intubation, tube thoracostomy, locoregional anaesthesia, pneumonia, in-hospital mortality.

RESULTS

We identified 330 patients, mean age was 84 years (±SD, 9.4 years); 269 (82%) of 330 were admitted. There were 96 (29%) pa- tients with CT-diagnosed rib fracture, 56 (17%) by CT only. Compared with CT, CXR had a sensitivity of 40% (95% confidence interval, 30–50%) and specificity of 99% (95% confidence interval, 97–100%) for rib fracture. A median of two additional radio- graphically occult rib fractures were identified on CT. Despite an increased hospital admission rate (91% vs. 78%) p = 0.02, there was no difference between patients with and without radiographically occult (CT+ CXR–) rib fracture(s) for: median LOS (4; in- terquartile range (IQR) 2–7 vs 4, IQR 2–8); p = 0.92), ICU admission (28% vs. 27%) p = 0.62, median ICU LOS (2, IQR 1–8 vs 3, IQR 1–5) p = 0.54, or in-hospital mortality (10.3% vs. 7.3%) p = 0.45.

CONCLUSIONS

Among elderly fall patients, CT-identified rib fractures were associated with increased hospital admissions. However, there was no difference in procedural interventions, ICU admission, hospital/ICU LOS or mortality for patients with and without radiographically occult fractures.

mini-JC

October 2019 - Hawke's Bay

S. Harger

A Randomized Trial of Epinephrine in Out-of-Hospital Cardiac Arrest.

Perkins G.D. et al. New England Journal of Medicine 2018
DOI: 10.1056/NEJMoa1806842

Primary Question

Does administration of Adrenaline during OOHCA affect survival compared to placebo?

Relevance to our Practice

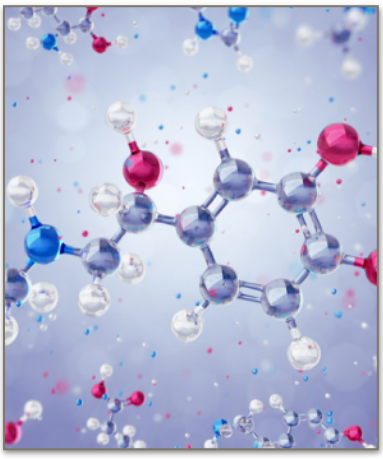
- Confirms current practice.

Take Home Message

A huge and well conducted study (>8000 pts) which throws up almost as many questions as it answers. Essentially giving adrenaline helps people survive physiologically to hospital, but those patients have long term neurological outcomes which are at least no better than in giving placebo. A survey of the public done prior to the study suggested that the vast majority of people viewed neurological status post resuscitation as more important than ROSC or physiological survival. There may be a subgroup of patients who benefit from adrenaline in arrest (indeed, anaphylaxis and asthma mediated arrest were excluded from the data), however the group felt that when applied to a non-stratified population the outcome data above suggest that we should have serious discussions around Adrenaline's ongoing inclusion in the algorithm. There was variability amongst those present as to whether they felt confident enough yet on the background of this trial not to give adrenaline in an arrest (given the right clinical circumstances).

BACKGROUND

Concern about the use of epinephrine as a treatment for out-of-hospital cardiac arrest led the International Liaison Committee on Resuscitation to call for a placebo-controlled trial to determine whether the use of epinephrine is safe and effective in such patients.



METHODS

In a randomized, double-blind trial involving 8014 patients with out-of-hospital cardiac arrest in the United Kingdom, paramedics at five National Health Service ambulance services administered either parenteral epinephrine (4015 patients) or saline placebo (3999 patients), along with standard care. The primary outcome was the rate of survival at 30 days. Secondary outcomes included the rate of survival until hospital discharge with a favourable neurologic outcome, as indicated by a score of 3 or less on the modified Rankin scale (which ranges from 0 [no symptoms] to 6 [death]).

RESULTS

Adrenaline group achieved a higher 30 day survival (primary outcome) compared to placebo group. Secondary outcomes – increased ROSC and survival to hospital with Adrenaline group however NO significant difference for rates of neurologically independent survival (Rankin score <4) and higher number of survivors with poor neurological outcomes in Adrenaline group.

CONCLUSIONS

In adults with out-of-hospital cardiac arrest, the use of epinephrine resulted in a significantly higher rate of 30-day survival than the use of placebo, but there was no significant between-group difference in the rate of a favourable neurologic outcome because more survivors had severe neurologic impairment in the epinephrine group.

mini-JC

December 2019 - Taranaki

Elizabeth Jones

A randomized controlled trial of gabapentin for chronic low back pain with and without a radiating component.

Atkinson et al.

Pain. 2016 July ; 157(7): 1499–1507.

Primary Question

Is gabapentin an effective pain killer in chronic low back pain?

Relevance to our Practice

- Confirms current practice.

Take Home Message

Gabapentin has not been proven to be effective in the management of chronic lower back pain against the placebo.

Other Pertinent Comments

This as a small trial of patients with chronic back pain >6 months. Well designed but possible selection bias and a large portion was lost to follow up. Population in study mostly middle-aged white married males. Likely not generalisable to all patients. Study reported some serious significant side effects with gabapentin – suicidal behaviours, head and neck injuries and traffic incidents/accidents. A 2017 study in Australia with pregabalin (approximately 200 people) for sciatic back pain (cases with pain for 1week – 1 year duration) , showed similar outcomes i.e. no significant improvement in pain control. Best to reserve for situations where proven effective – post herpetic neuralgia and diabetic neuropathy.

BACKGROUND

Gabapentin is prescribed for analgesia in chronic low back pain, yet there are no controlled trials supporting this practice

METHODS

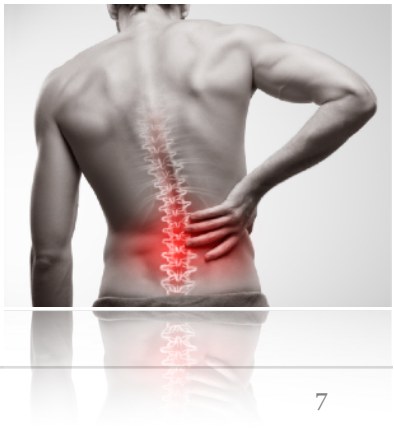
This randomized, 2-arm, 12-week, parallel group study compared gabapentin (forced titration up to 3600 mg daily) with inert placebo. The primary efficacy measure was change in pain intensity from baseline to the last week on treatment measured by the Descriptor Differential Scale; the secondary outcome was disability (Oswestry Disability Index). The intention-to-treat analysis comprised 108 randomized patients with chronic back pain (daily pain for ≥6 months) whose pain did (43%) or did not radiate into the lower extremity. Random effects regression models which did not impute missing scores were used to analyse outcome data

RESULTS

Pain intensity decreased significantly over time ($P < 0.0001$) with subjects on gabapentin or placebo, reporting reductions of about 30% from baseline, but did not differ significantly between groups ($P = 0.423$). The same results pertained for disability scores. In responder analyses of those who completed 12 weeks ($N = 72$), the proportion reporting at least 30% or 50% reduction in pain intensity, or at least "Minimal Improvement" on the Physician Clinical Global Impression of Change did not differ significantly between groups.

AUTHORS CONCLUSION

There were no significant differences in analgesia between participants with radiating ($n = 46$) and non-radiating ($n = 62$) pain either within or between treatment arms. There was no significant correlation between gabapentin plasma concentration and pain intensity. Gabapentin appears to be ineffective for analgesia in chronic low back pain with or without a radiating component.



mini-JC

Nelson
A. Munro

Do risk factors for chronic coronary heart disease help diagnose acute myocardial infarction in the Emergency Department?

Body et al.
Resuscitation 2009 doi:10.1016/j.resuscitation.2008.06.009

Primary Question

Presence or absence of historical risk factors in patients with acute coronary syndrome.

Relevance to our Practice

- Academic interest - Many risk stratification tools used in the emergency setting include traditionally recognised risk factors to determine the likelihood of AMI. The presence or absence of these factors do not actually predict the risk (or lack thereof) for patients with acute chest pain for ACS.

Take Home Message

A history or presence or absence of high cholesterol, hypertension, diabetes, family history or personal previous AMI is not predictive of risk for ACS in the acute setting.

Other Pertinent Comments

The paper was a subset of the larger study and had separate ethics approval. Risk factors were considered present if answered as so in the history of if patients were on indicated medications. ACS was defined by 12 hour troponin cut-off, ECG changes consistent with AMI, or imaging consistent with AMI. The presence or absence of one or more risk factors had a sensitivity of 92.5% and specificity of 12.2% for rule out rule in ACS respectively. 100% of patients had 6 month-follow-up. There was weak association between traditional risk factors revascularisation, death or ACS at six month follow-up.

BACKGROUND

The famous longitudinal Framingham study linked hyperlipidaemia, hypertension, smoking, diabetes, a family and a personal history of coronary artery disease. While these are all risk factors for future AMI, the utility of this knowledge in the acute setting seems less useful as a predictor of ACS.

METHODS

Prospective cohort of consecutive chest pain patients in a tertiary ED (Manchester Royal Infirmary), custom data sheet for recognised risk factors as part of normal ACS workup, which included 12 hour troponins (as was consistent with the practice at the time). All had 6 month follow-up. Risk factors were obtained as part of a structured history from the patient or were implied by medications they were currently taking.

RESULTS

A cohort of 804 patients with chest pain of possible cardiac origin. Absence of all risk factors was associated with a negative likelihood ratio of 0.61 (weak predictor). 12% of all patients without risk factors had ACS.

CONCLUSIONS

Traditional risk factors (family history of premature AMI, diabetes, hypertension, previous angina or AMI, hyperlipidaemia or smoking) are poor predictors of ACS for acute chest pain patients.

mini-JC

October 2019 - Hawke's Bay

S. Harger

Effect of Alteplase vs Aspirin on Functional Outcome for Patients With Acute Ischemic Stroke and Minor Nondisabling Neurologic Deficits. The PRISMS Randomized Clinical Trial.

Khatri et al.

Trial. JAMA. 2018;320(2):156–166. doi:10.1001/jama.2018.8496

Primary Question

Double-blind RCT looking at functional outcomes (modified Rankin score) at 90 days in people with non-disabling strokes (NIHSS score 0-5) treated with Alteplase (Intervention) vs Aspirin (Control)

Relevance to our Practice

- Confirms current practice.
- Academic Interest

Take Home Message

The results from the study are telling – there was no significant difference in primary outcome between the alteplase and aspirin groups. In addition, there were five of the alteplase patients who had severe intra-cranial haemorrhage vs no patients in the aspirin group. This is in a group defined as having 'non-disabling' strokes. So it appears this study suggests no benefit to alteplase and, indeed, harm. What is even more unsettling is the fact that the sponsors (read: drug company) withdrew funding – ostensibly due to 'slow recruitment', however the cynic in us can't help wondering if this was a tactic to stop these results becoming public and harming sales. Maybe they'll keep running studies (and stopping them) until they get a positive result? But we all know that the medical community wouldn't allow this sort of behaviour, right?

Other pertinent comments

A well designed and well conducted study with well matched groups. Industry funded study. The group found this study interesting for a number of reasons. Not least, there was vigorous discussion around the evidence base for mainstream thrombolysis and the observed phenomenon of 'medical creep' – that the boundaries of when a therapy is administered are pushed outside the limits of the initial study population.

BACKGROUND

More than half of patients with acute ischemic stroke have minor neurologic deficits (National Institutes of Health Stroke Scale [NIHSS] score of 0-5) at presentation. Although prior major trials of alteplase included patients with low NIHSS scores, few without clearly disabling deficits were enrolled

METHODS

The PRISMS trial was designed as a 948-patient, phase 3b, double-blind, double-placebo, multicenter randomized clinical trial of alteplase compared with aspirin for emergent stroke at 75 stroke hospital networks in the United States. Patients with acute ischemic stroke whose deficits were scored as 0 to 5 on the NIHSS and judged not clearly disabling and in whom study treatment could be initiated within 3 hours of onset were eligible and enrolled from May 30, 2014, to December 20, 2016, with final follow-up on March 22, 2017.

RESULTS

Among 313 patients enrolled at 53 stroke networks (mean age, 62 [SD, 13] years; 144 [46%] women; median NIHSS score, 2 [interquartile range {IQR}, 1-3]; median time to treatment, 2.7 hours [IQR, 2.1-2.9]), 281 (89.8%) completed the trial. At 90 days, 122 patients (78.2%) in the alteplase group vs 128 (81.5%) in the aspirin group achieved a favorable outcome (adjusted risk difference, −1.1%; 95% CI, −9.4% to 7.3%). Five alteplase-treated patients (3.2%) vs 0 aspirin-treated patients had sICH (risk difference, 3.3%; 95% CI, 0.8%-7.4%).

CONCLUSIONS

Among patients with minor nondisabling acute ischemic stroke, treatment with alteplase vs aspirin did not increase the likelihood of favorable functional outcome at 90 days. However, the very early study termination precludes any definitive conclusions, and additional research may be warranted.

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Consent is obtained in all cases of patient information discussion.

All opinions presented in this letter are the personal opinion of the writer of the piece and does not necessarily represent the policies or ideology of the departments or the editorial staff.

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