

CONNECTIONS & SYNERGY

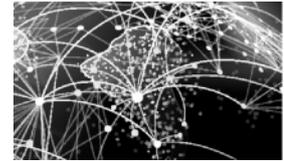
Sharing Journal Club Summaries Across NZ



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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.



In case of poisoning call

0800 POISON
(0800 764 766)

KOTAHITANGA

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



GET IN TOUCH

Welcome to 2021 and I hope you all had a lovely Valentines day weekend. For those of you in the dog house for forgetting to get your significant other a gift, I'm sure they will be plicated by a copy of Kotahitanga. Especially as this month is heavily dominated by POCUS, check out pages 5-7 for all the juicy details.

If your ED has a regular journal club and is happy to share its findings, please get in touch. We now publish summaries from Hutt, 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.

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
- ★ Hutt

Editor: Owain Wright

mini-JC

Feb 2021 - Dunedin

S. Beck



Advanced reperfusion strategies for patients with out-of-hospital cardiac arrest and refractory ventricular fibrillation (ARREST): a phase 2, single centre, open-label, randomised controlled trial.

Yannopoulos D, et al.

The Lancet 2020; [https://doi.org/10.1016/S0140-6736\(20\)32338-2](https://doi.org/10.1016/S0140-6736(20)32338-2)

Primary Question

Survival to hospital discharge in patients who receive early ECMO for OHCA vs standard ACLS.

Relevance to our Practice

- Practice changing
- New and Exciting.

Take Home Message

Possible mortality benefit for ECMO vs standard ACLS but limitations of study make generalisability low, if validated has the potential to be practice changing with shift to emphasis on early ECMO for OHCA .

BACKGROUND

Among patients with OHCA and VF, more than half present with refractory VF unresponsive to initial standard ACLS treatment. We did the first randomised clinical trial in the USA of ECMO - facilitated resuscitation versus standard ACLS treatment in patients with OHCA and refractory VF.

METHODS

For this phase 2, single centre, open-label, adaptive, safety and efficacy randomised clinical trial, we included adults aged 18–75 years presenting to the University of Minnesota Medical Center (MN, USA) with OHCA and refractory ventricular fibrillation, no return of spontaneous circulation after three shocks, automated-cardiopulmonary resuscitation with a Lund University Cardiac Arrest System, and estimated transfer time shorter than 30 min. Patients were randomly assigned to early ECMO-facilitated resuscitation or standard ACLS treatment on hospital arrival by use of a secure schedule

generated with permuted blocks of randomly varying block sizes. Allocation concealment was achieved by use of a randomisation schedule. The primary outcome was survival to hospital discharge. Secondary outcomes were safety, survival, and functional assessment at hospital discharge and at 3 months and 6 months after discharge. All analyses were done on an intention-to-treat basis. The study qualified for exception from informed consent (21 Code of Federal Regulations 50.24).

RESULTS

Between Aug 8, 2019, and June 14, 2020, 36 patients were assessed for inclusion. After exclusion of six patients, 30 were randomly assigned to standard ACLS treatment (n=15) or to early ECMO-facilitated resuscitation (n=15). The mean age was 59 years (range 36–73), and 25 (83%) of 30 patients were men. Survival to hospital discharge was observed in one (7%) of 15 patients (95% credible interval 1.6–30.2) in the standard ACLS

treatment group versus six (43%) of 14 patients (21.3–67.7) in the early ECMO-facilitated resuscitation group (risk difference 36.2%, 3.7–59.2; posterior probability of ECMO superiority 0.9861). The study was terminated at the first preplanned interim analysis by the National Heart, Lung, and Blood Institute after unanimous recommendation from the Data Safety Monitoring Board after enrolling 30 patients because the posterior probability of ECMO superiority exceeded the prespecified monitoring boundary. Cumulative 6-month survival was significantly better in the early ECMO group than in the standard ACLS group. No unanticipated serious adverse events were observed

CONCLUSIONS

Early ECMO-facilitated resuscitation for patients with OHCA and refractory ventricular fibrillation significantly improved survival to hospital discharge compared with standard ACLS treatment

mini-JC

November 2020 - Nelson
Andrew Munro



High-flow nasal cannula versus conventional oxygen therapy in relieving dyspnea in emergency palliative patients with do-not-intubate status: A randomized crossover study.

O Ruangsomboon et al.

Ann EM May 2020 615-626 <https://doi.org/10.1016/j.annemergmed.2019.09.009>

Primary Outcome

Does high -flow nasal cannula reduce breathing discomfort in palliative care patients with dyspnea?

Relevance to our Practice

- Potentially practice changing - improving care for the dying.

Take Home Message

High flow nasal prong oxygen provides relief of respiratory distress in palliative care patients in respiratory failure.

Other Pertinent Comments

Small study. IV morphine was titrated in both groups in attempts to get Borg scores of 5 and below. 2 patients were intolerant of HFNC. Patients were given the option of continuing on either therapy after completion of the trial, 78% opted for HFNC. 18% died during their ED period and 66% during their subsequent hospital stay.

BACKGROUND

Palliative care patients present with respiratory distress which can be difficult to manage using conventional methods. Non-invasive ventilation means patients can't talk, take anything orally or effectively have secretions monitored or cleared. High flow nasal cannula provides warmed humidified titratable O₂ at flow rates of up to 60 l/min. Use

in the ED has rapidly expanded to all cause hypoxia either as a treatment or to bridge to more invasive methods. This might be the first randomised controlled trial in do-not-intubate palliative care patients in the ED.

METHODS

Single centre randomised non-blinded crossover trial comparing conventional O₂ therapy with high-flow nasal cannula in 48 palliative patients with known do-not resuscitate status. 24 were randomly allocated 60 mins of either conventional O₂ therapy or high flow Nasal cannula for 60 mins and then crossed to the opposite study group. A modified standardised Borg scale (1 to 10 patient self-scoring scale of comfort), respiratory rate, pulse oximetry and mean arterial pressure were measured at 15, 30 and 60

minutes during both interventions.

RESULTS

41 patients completed the protocol. High flow nasal cannula provided superior relief of respiratory symptoms with a mean Borg score of 2.9 vs 4.9. Respiratory rates were also better in the nasal cannula group 25 vs 31/min. More IV morphine was required in the conventional group compared to HFNC.

CONCLUSION

High flow nasal cannula provides a viable option for relief of respiratory symptoms in palliative care patients in acute respiratory failure.



mini-JC

Feb 2021 - Nelson

A. Munro & L. Mukundan



Impact of point of care testing on length of stay of patients in the Emergency Department: a cluster-randomised controlled trial.

Hausfater P et al

Academic Emerg Med V 27 10 Oct 2020

Primary Outcomes

• Does an extended panel of point of care tests (POCT) reduce Emergency Department length of stay (EDLOS)? Secondary outcomes included time to test result, patient and staff satisfaction.

Relevance to our Practice

• Blood results are often pivotal to decision making in the ED. Central laboratory testing builds in a delay to obtaining results. POCT seems an attractive option.

Take Home Message

Utility of POCT is unsettled. An extended panel of tests in this study reduces mean ED LOS, but not by much (7 minutes). POCT significantly reduced time to test result being available (by about 50 minutes).

Other Pertinent Comments

The study was performed in the ED of a single 1700 bed hospital in Paris (an annual presentation rate of 69,000 mean age 46 +/- 20yrs). A small proportion, 384 of 2,377 patients returned a survey and appeared more satisfied with their care in the intervention arm, perhaps because POCT significantly reduced time to result availability. ED staff expressed high level of satisfaction with POCT. Condition related pathways that specify discrete POCT may still improve EDLOS in some patient groups. It is hypothesised that ED physician not accessing results in a timely fashion blunts the effectiveness of POCT as measured by EDLOS.

BACKGROUND

ED LOS contributes to ED crowding and its attendant hazards. It is well established many factors are beyond the control of the ED. By moving lab tests to the ED it is conceivable that this might reduce ED crowding by increasing flow for patients having blood tests. There

are many studies looking at the role of POCT in the ED and the issue remains unsettled.

METHODS

Open label clustered randomised to either intervention period (POCT) or control period (hospital laboratory test) for 18 consecutive weeks. Each week was randomised without prior knowledge to staff. POCT was performed in the ED by a lab technician. Standardised methods for EDLOS and time for test results were used. All patients who were registered during the study period were included for analysis (whether or not they got a blood test). A satisfaction survey was offered to all patients in the last two weeks of the study.

RESULTS

Just under 21000 patients available essentially half each in control and intervention group. Overall there was a non-significant reduction in EDLOS of 7 minutes during POCT. 36% of patients received a blood test in both groups intervention and control arms. Of those who were blood tested there was a reduction in EDLOS of 17 minutes in the intervention group compared to control.

CONCLUSION

POCT in this study showed a non-significant reduction in ED LOS. This may in part be related to entrenched clinician work patterns.



mini-JC

Dec 2020 - Nelson
C. Kirk



Ultralong versus long peripheral intravenous catheters: a randomized controlled trial of ultrasonographically guided catheter survival.

Bahl A et al

Annals EM V76 2 Aug 2020

Primary Outcomes

In patients with difficult IV access who have a peripheral line inserted using ultrasound, do 6.35cm 'ultralong' catheters last longer than 4.8cm 'standard long' catheters?

Relevance to our Practice

Catheters inserted using ultrasound have a dismal survival time (although they usually last long enough for the patient to get to the ward!).

Take Home Message

We should use 6.35cm 'ultralong' catheters when inserting peripheral lines using ultrasound, especially if the vein is deeper than 10mm.

Other Pertinent Comments

There are conflicting statements regarding blinding in the study; at best there was partial blinding. 12 patients were recruited but excluded from analysis because catheter 'placement was not completed'. It is not stated whether this was due to difficulty placing the catheter or which catheters were used. The lead investigator received a grant from the manufacturer of the ultralong catheters who otherwise played no role in the study.

Ultralong catheters are not much harder to insert than standard long, and they are associated with less infiltration and phlebitis. We should be cautious about changing practice based on a single RCT, but in this case it is probably justified.

BACKGROUND

Peripheral IV lines placed using ultrasound in patients with difficult access have a premature failure rate of 46 – 56%. Causes of catheter failure include infiltration, dislodgment, phlebitis, and infection. There is evidence that failure rate is lower if a greater length of catheter is in the vein. Many institutions have long 4.8cm catheters available for insertion using ultrasound. Longer 'midline' catheters inserted using over a wire may be used but these have a higher rate of thrombosis and infection. Recently 6.35cm 'ultralong' catheters inserted over a needle have become available. This study investigated whether ultralong catheters last longer than a standard long catheter and

compared ease of use and complications.

METHODS

A convenience sample of adult ED patients with difficult IV access was recruited. Patients were randomised to either a standard long or ultralong catheter, which was placed using ultrasound. Lines were flushed and assessed every eight hours by nursing staff.

The primary endpoint was duration of catheter survival. Other data collected included length of catheter in the vein, success rate of cannulation at first attempt, and complications of the catheter.

RESULTS

257 patients were analysed in the study. The risk of failure of the

ultralong catheter was approximately half that of the standard long catheter (hazard ratio 0.54; 95% CI 0.35 to 0.82). The median ultralong survival duration was 5.7 days and median standard long duration was 3.9 days, with a difference in duration of 44 hours (95% bootstrapped CI 9 to 218 hours). Failure rate was twice as high in those with less than 2.75cm of catheter in the vein. Cannulation was successful on the first attempt in 74% of ultralong catheters compared with 79% of standard long catheters. Phlebitis and infiltration occurred less frequently with ultralong catheters. The differences in other complications did not reach statistical significance.

mini-JC

Jan 2021 - Dunedin

S. Beck



A Prospective Evaluation of Point-of-Care Ultrasonographic Diagnosis of Diverticulitis in the Emergency Department.

A. Cohen, et al.

Annals of Emergency Medicine – December 2020, Volume 76 No 6

Primary Question

What is the sensitivity, specificity, positive predictive value and negative predictive value of point-of-care ultrasonography in diagnosis of diverticulitis in the ED compared to CT scan.

Relevance to our Practice

- Academic Interest.
- New and Exciting.

Take Home Message

When performed by highly trained users, POCUS can be used to accurately diagnose diverticulitis in the ED.

Other Pertinent Comments

Following group discussion, although interesting, this will likely not change practise in Dunedin ED significantly for the majority of patients. Those that clinically require admission will proceed to CT anyway, and those that are well enough for discharge tend to be diagnosed clinically. The paper does not focus on differentiating which patients are complicated vs uncomplicated acute diverticulitis.

BACKGROUND

Point-of-care ultrasonography has shown moderate to excellent sensitivity in diagnosing diverticulitis, but information about its utility in the emergency department (ED) is limited.

Study objective: We evaluate the sensitivity and specificity of point-of-care ultrasonography, performed by ultrasonographic fellowship-trained emergency physicians and physician assistants, compared with computed tomography (CT) scan in diagnosing acute diverticulitis in the emergency department (ED).

METHODS

This was a prospective observational study of a convenience sample of patients with suspected diverticulitis who were treated at an academic ED between 2017 and 2020. Sonographers were blinded to clinical data, laboratory results, and CT scan findings. A total of 19

ultrasonographic fellowship-trained emergency physicians and physician assistants performed the ultrasonographic examinations. Point-of-care ultrasonographic diagnosis of acute diverticulitis was defined as the presence of bowel wall thickening, greater than 5 mm, surrounding a diverticulum, enhancement of the surrounding pericolonic fat, and sonographic tenderness to palpation. The primary outcome measures were sensitivity, specificity, positive predictive value, and negative predictive value of point-of-care ultrasonography in the diagnosis of diverticulitis compared with CT, which was considered the criterion standard.

RESULTS

Data from 452 patients were analyzed. Median age was 60 years, 54% were women, and 36% had a diagnosis of diverticulitis based on CT scan. Of the 452

patients, there were 13 false-positive (3%) and 10 false-negative (2%) point-of-care ultrasonographic examinations. Overall, compared with CT, point-of-care ultrasonography had a sensitivity of 92% (95% confidence interval 88% to 96%), specificity of 97% (95% confidence interval 94% to 99%), positive predictive value of 94% (95% confidence interval 90% to 97%), and negative predictive value of 96% (93% to 98%) in the diagnosis of diverticulitis.

CONCLUSIONS

In a convenience sample of ED patients with suspected diverticulitis, point-of-care ultrasonography performed by ultrasonographic fellowship-trained emergency physicians and physician assistants could be used as an imaging modality for diagnosing acute diverticulitis, with high sensitivity and specificity compared with CT scan.

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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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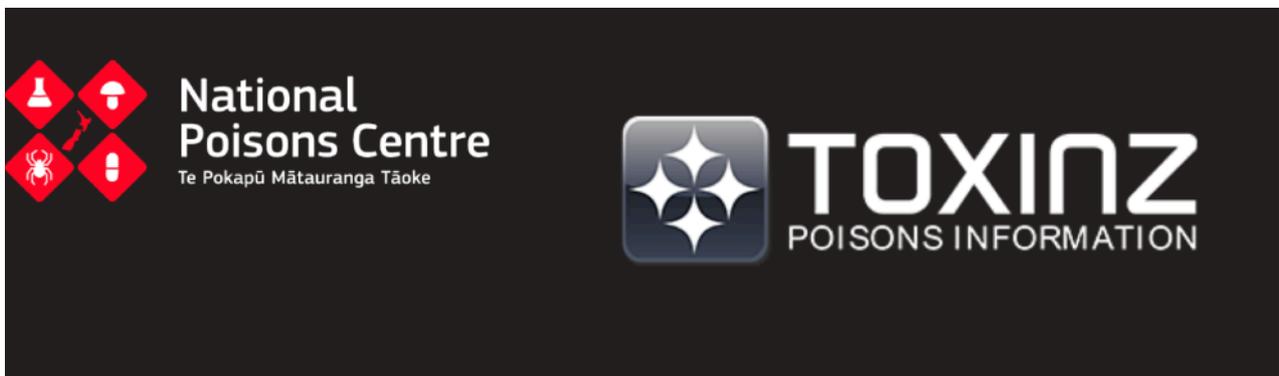
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