

Connections & Synergy

SHARING JOURNAL
CLUB SUMMARIES
ACROSS NZ.



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KOTAHITANGA



NETWORKING OUR JOURNAL CLUBS

Hello and welcome to this first publication of Kotahitanga. Here we hope to share the collective brain power of New Zealand's Emergency Departments' Journal Clubs. The motivation to start this project came from a realisation that multiple groups of ED experts, were frequently reviewing cutting edge literature, in isolation from one another. As a result, new and useful knowledge might be unearthed in one

department today, whilst not reaching another until much later. What if there was a way to quickly and succinctly share all that wisdom? And what if it could be shared by a super cool, modern and futuristic newsletter, edited by a witty writer. I have some mixed news, the first part is doable, the second part is spectacularly unlikely. So here it is, step one of hopefully a long and fruitful journey together.

Kotahitanga

(Kor-tar-he-tar-nga)

Conveys the
value of unity,
togetherness,
solidarity and
collective action

GET IN TOUCH

This newsletter is designed to facilitate the sharing of knowledge. Feedback on any of the content or the general layout is actively encouraged. Please get in touch via our email address.

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We are currently publishing summaries from Dunedin and Christchurch, but would love to work with more departments. If your ED has a regular journal club and is happy to share its findings, please get in touch.

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 also know 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. In this issue you will notice that Christchurch summaries are in beige and Dunedin ones are in blue.

If you would like to comment on a particular summary, we are happy to start a *Letters to the Editor* feature, to further conversations around interesting discussion points.

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 that underpin this newsletter.

For now we will aim to publish two monthly. Feel free to redistribute this newsletter to all interested ED staff. Hopefully you are all staying safe during this lockdown period.

Thank you for your time.



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Involved Departments:

- Christchurch
- Dunedin

Editor: Owain Wright

Pictures: Shutterstock

mini-JC

by Eva Ross March 2020
Christchurch



Low yield of paired head and cervical spine computed tomography in blunt trauma evaluation.

Gratero J et al.

Journal of Emergency Medicine. 2018;54(6):749-756.

Primary Question

To determine the yield of CT for diagnosing clinically significant injuries in both the head and neck, in patients who had CT head and neck ordered simultaneously as part of evaluation in blunt trauma.

Relevance to our Practice

Confirms current practice, Questionable science (scepticism required!)

Take Home Message

A low proportion of patients were found to have clinically significant injuries (CSI) in both the head and neck, at only 14 of 2888 patients (0.5%). This suggests against the routine reflex ordering of both scans in trauma. The paper highlighted the importance of using clinical decision making aides to avoid unnecessary imaging.

Other Pertinent Comments

This study was a retrospective chart review based in an Emergency Department in the US. The majority of the patients were male, median age 50, with the most common mechanisms of trauma being fall from standing (25%), assault (16%) and MVA (14%). 60% of patients were GCS 15 on arrival in ED. 90% of patients who has CT neck ordered as part of blunt trauma assessment also had simultaneously requested CT head scans. The paper had no details on indication for CT scan or clinical questions asked in scan request. No patient-oriented outcomes were collected or reported.

Along with the primary outcome above, Secondary analyses showed that patients with a CSI in either the head or neck were more likely to have injury in the other region, but generally these differences did not meet statistical significance. The study also found that 24% of head CT scans could have been avoided if clinical guidelines such as the NEXUS rule were applied. It is important to bear this in mind when interpreting the results given the differences in practice and CT utilisation between NZ and the US.

BACKGROUND

With increased computed tomography (CT) utilisation, clinicians may simultaneously order head and neck CT scans, even when injury is suspected only in one region.

OBJECTIVES

We sought to determine: 1) the frequency of simultaneous ordering of a head CT scan when a neck CT scan is ordered; 2) the yields of simultaneously ordered head and neck CT scans for clinically significant injury (CSI); and 3) whether injury in one region is associated with a higher rate of injury in the other.

METHODS

This was a retrospective study of all adult patients who received neck CT scans

(and simultaneously ordered head CT scans) as part of their blunt trauma evaluation at an urban level 1 trauma centre in 2013. An expert panel determined CSI of head and neck injuries. We defined yield as number of patients with injury/number of patients who had a CT scan.

RESULTS

Of 3223 patients who met inclusion criteria, 2888 (89.6%) had simultaneously ordered head and neck CT scans. CT yield for CSI in both the head and neck was 0.5% (95% confidence interval [CI] 0.3–0.8%), and the yield for any injury in both the head and neck was 1.4% (95% CI 1.0–1.8%). The yield for CSI in one region was higher when CSI was seen in the other region.

CONCLUSIONS

The yield of CT for CSI in both the head and neck concomitantly is very low. When injury is seen in one region, there is higher likelihood of injury in the other. These findings argue against paired ordering of head and neck CT scans and suggest that CT scans should be ordered individually or when injury is detected in one region.



mini-JC

December 2019

Dunedin



Association of Maternal First-Trimester Ondansetron Use With Cardiac Malformations and Oral Clefts in Offspring.

Huybrechts et al.

JAMA. 2018 Dec 18;320(23):2429-2437.

Primary Question

"Does ondansetron exposure in the first trimester of pregnancy increase the risk of cardiac malformations and oral clefts in offspring?"

Relevance to our Practice

Reminder of current practice, recommendations are in line with NZF guidance.

Take Home Message

Ondansetron not recommended for first trimester of pregnancy.

Other Pertinent Comments

First trimester nausea is usually mild and rarely needs drug therapy. On the rare occasion that vomiting is severe, short term treatment with cyclizine, metoclopramide or promethazine are appropriate.

BACKGROUND

Evidence for the fetal safety of ondansetron, a 5-HT₃ receptor antagonist that is commonly prescribed for nausea and vomiting during pregnancy, is limited and conflicting

METHODS

Design; Retrospective cohort study. Outcomes diagnosed within 3 months from date of birth.

Population; a cohort of pregnancies between 2000-2013 from women enrolled in Medicaid (1,816,414 pregnancies).

Inclusion criteria; mothers must have had Medicaid coverage before date of last menstrual period until 1 month after birth, and Infants must have had coverage for 3 months after birth.

Exclusion criteria: Exposure to teratogenic medications, pregnancies with chromosomal abnormalities.

Intervention: Filled 1 or more ondansetron prescriptions during first trimester.

Comparison: Those who did not fill any ondansetron prescriptions during the first trimester.

Secondary Outcomes; Congenital malformations, various subgroups of cardiac malformations and oral clefts.

RESULTS

Ondansetron usage in first trimester (after corrected for confounders) was not associated with cardiac malformations (0.99 (95% CI, 0.93 to 1.06)), nor congenital malformations (RR of 1.01 (95% CI, 0.98 to 1.05)). It was associated with an increased risk of oral clefts (RR was 1.24 (95% CI, 1.03 to 1.48)).

CONCLUSIONS

Bias; The population cohort was specifically for women requiring

Medicaid. Assumed all prescriptions were taken.

Authors conclusion; Among offspring of mothers enrolled in Medicaid, first trimester exposure to ondansetron was not associated with cardiac malformations or congenital malformations overall after accounting for measured confounders but was associated with a small increased risk of oral clefts.





mini-JC

by Cameron Bell April 2020

Christchurch

The Utility of MRI Imaging in Paediatric Trauma Patients Suspected of Having Cervical Spine Injuries.

Derderian et al.

J Trauma Acute Care Surg. 2019 Aug 16.

Primary Question

Do you need to do both CT and MRI in paediatric patients needing C-spine imaging.

Relevance to our Practice

Does not change current practice.

Take Home Message

Continue current practice.

Other Pertinent Comments

109 patients who underwent MRI alone were excluded from the study. A subgroup analysis of this cohort assessing the accuracy of MRI in identifying bony injury, potentially obviating the need for CT (and radiation exposure) would have been interesting.

The conclusions drawn by the author are made with the assumption that CT is favourable in paediatric patients.

I would not consider this study practice changing as it is essentially a small (n=221), single centre, retrospective chart audit that encourages CT imaging in both stable and unstable patients.

BACKGROUND

A single centre retrospective chart audit of paediatric trauma patients with the aim of assessing the necessity of performing both CT and MRI C spine in the assessment of C-spine injuries.

METHODS

A chart audit of all paediatric trauma patients who underwent both a CT and MRI C spine between 2001 and 2015. Based on radiographic findings, CT/MRI results were grouped into one of three categories; No injury, stable injury and unstable injury. Radiographic instability was defined as disruption of two or more contiguous spinal columns. Clinical instability as defined as those who required surgical intervention. The two primary exclusions were patients who received an MRI or CT alone.

RESULTS

221 patients met the inclusion criteria. CT found no injury in 160 (72.4%) patients. Among this group MRI found no injury in 84 (52.5%) cases, a stable injury in 76

(47.5%) cases and an unstable injury in none. CT identified a stable injury in 21 patients. Among this group MRI deemed 17 (81%) cases to be stable. 4 (19%) were identified as unstable injuries on MRI. Of the unstable injuries on CT (40), MRI was 100% concordant.

CONCLUSIONS

The primary conclusion made by the authors was that a normal CT is sufficient to clear the C spine and an MRI is not required unless for forensic purposes.



mini-JC

March 2020

Dunedin



The Additive Value of Pelvic Examinations to History in Predicting Sexually Transmitted Infections for Young Female Patients With Suspected Cervicitis or Pelvic Inflammatory Disease.

Farrukh S et al.

Ann Emerg Med. 2018 Dec;72(6):703-712

Primary Question

Can pelvic examinations be omitted in place of swab/urine tests when considering a diagnosis of cervicitis/PID (14-20year olds).

Relevance to our Practice

Confirms current practice of some, potentially practice changing for others. External validity questionable. Multiple potential confounders.

Take Home Message

Reconsider routine pelvic examinations in diagnosing cervicitis or PID.

Other Pertinent Comments

Could lead to shorter ED stays and increased patient engagement with sexual health service. Tests are non invasive and have good sensitivity and specificity.

BACKGROUND

Patient comfort: better engagement with sexual health services if patients don't experience pelvic examinations. Shorter stays in ED. Tests are easy, non-invasive and have good sens/spec. Other studies suggest exam may not help diagnosis.

METHODS

Studied young women (14 to 20) presenting to urban paed ED (in single centre) with pelvic pain or vaginal discharge, between Oct 2015 to Oct 2017 (total of 848). 288 included in final analysis (322 enrolled, but 34 excluded for testing errors; 560 excluded as study staff not available or were missed).

Exclusion criteria: Not fluent in English, never had pelvic exam before, unstable obs' (HR>110, BP<90), needed critical care management, if they refused testing.

All study participants had; a urine sample for nucleic acid testing (chlamydia/gonorrhoea) and microbiological analysis (trichomonas), a standardised history (based off CDC diagnostic criteria for cervicitis/PID). a pelvic exam (by the same clinician; exam recommended by CDC for diagnosis of cervicitis/PID).

Clinicians then indicated their certainty of diagnosis of cervicitis/PID on VAS after history and after exam. More than half indicated decision to treat with empiric antibiotics. Results were then compared with urine results (treated as gold standard).

RESULTS

Practitioners changed their management in 71 of 127 cases thought to have cervicitis/PID, but analysis revealed that examination did not statistically improve diagnosis above history alone. Both

(history alone or with exam) had a sens/spec of about 50%.

Antibiotic prescription was not based on just history and examination findings; but also included other factors such as the likelihood of the patient further engaging with health services and other risk factors.

Vaginal pruritus and discharge were (just) more common STI -ve patients. Statistically significant increased clinical suspicion in STI +ve patients.

AUTHORS CONCLUSIONS

"For young female patients with suspected cervicitis or pelvic inflammatory disease, the pelvic examination does not increase the sensitivity or specificity of diagnosis of chlamydia, gonorrhoea, or trichomonas compared with taking a history alone. Because the test characteristics for the pelvic examination are not adequate, its routine performance should be reconsidered."

mini-JC

Eva Ross - April 2020

Christchurch



Treatment effectiveness of azithromycin and doxycycline in uncomplicated rectal and vaginal Chlamydia trachomatis infections in women: a multicenter observational study (FemCure). .

Dukers-Muijers NH et al.

Clinical Infectious Diseases. 2019 Nov 13;69(11):1946-54.

Primary Question

What is the effectiveness of azithromycin and doxycycline for treatment of UNCOMPLICATED rectal and vaginal chlamydia?

Relevance to our Practice

Practice changing / confirms current practice. Potential academic interest.

Take Home Message

Doxycycline had a superior cure rate for rectal chlamydia, with a similar cure rate for vaginal chlamydia. Rectal chlamydia is present in many patients despite not having traditional risk factors or symptoms of this. Untreated rectal chlamydia can lead to auto-inoculation and reinfection with urogenital chlamydia leading to potential for fertility issues. This study was observational and not a randomised controlled trial.

Other Pertinent Comments

We need to interpret results with the fact in mind that there are likely significant biases: "multi-centre" but in one country. Selection bias as patients were allowed to opt in/out as they deemed appropriate, only 1/3 of patients eligible agreed to participate. Correcting for confounding factors, the authors still found a more significant trend towards better cure rates with doxycycline. Whilst we should interpret this with some caution, it still supports the current proviso that doxycycline is a better curative treatment for chlamydia, if the patient will adhere to taking it.

BACKGROUND

Rectal infections with Chlamydia trachomatis (CT) are prevalent in women visiting a sexually transmitted infection outpatient clinic, but it remains unclear what the most effective treatment is. We assessed the effectiveness of doxycycline and azithromycin for the treatment of rectal and vaginal chlamydia in women.

METHODS

This study is part of a prospective multicenter cohort study (FemCure). Treatment consisted of doxycycline (100 mg twice daily for 7 days) in rectal CT-positive women, and of azithromycin (1 g single dose) in vaginally positive women who were rectally untested or rectally negative.

Participants self-collected rectal and vaginal samples at enrolment (treatment time-point) and during 4 weeks of follow-up. The endpoint was microbiological cure by a negative nucleic acid amplification test at 4 weeks. Differences between cure proportions and 95% confidence intervals (CIs) were calculated.

RESULTS

We analysed 416 patients, of whom 319 had both rectal and vaginal chlamydia at enrolment, 22 had rectal chlamydia only, and 75 had vaginal chlamydia only. In 341 rectal infections, microbiological cure in azithromycin-treated women was 78.5% (95% CI, 72.6%–83.7%; n = 164/209) and 95.5% (95% CI, 91.0%–

98.2%; n = 126/132) in doxycycline-treated women (difference, 17.0% [95% CI, 9.6%–24.7%]; $P < .001$). In 394 vaginal infections, cure was 93.5% (95% CI, 90.1%–96.1%; n = 246/263) in azithromycin-treated women and 95.4% (95% CI, 90.9%–98.2%; n = 125/131) in doxycycline-treated women (difference, 1.9% [95% CI, –3.6% to 6.7%]; $P = .504$).

CONCLUSIONS

The effectiveness of doxycycline is high and exceeds that of azithromycin for the treatment of rectal CT infections in women.

mini-JC

March 2020

Dunedin



Association of Exposure to Diagnostic Low-Dose Ionizing Radiation With Risk of Cancer Among Youths in South Korea.

Hong JY et al.

JAMA Network Open. 2019 Sep 4;2(9):1-11.

Primary Question

To examine the risk of cancer after diagnostic low-dose radiation exposure.

Relevance to our Practice

Results consistent with other literature to date. Confirms current practice, highlights dangers of excess use of CT.

Take Home Message

Diagnostic low-dose ionising radiation is associated with increased incidence of cancer.

Other Pertinent Comments

Pros; huge numbers and thus power (largest to date), demonstrate causation (though still potential for reverse causation). Cons; no specific informed consent from 'participants', not all potential confounders accounted for (eg background radiation), not all exposures captured (eg exposure overseas or in private), unknown impact of loss-to-follow-up.

BACKGROUND

Diagnostic low-dose ionizing radiation has great medical benefits; however, its increasing use has raised concerns about possible cancer risks.

METHODS

This population-based cohort study included youths aged 0 to 19 years at baseline from South Korean National Health Insurance System claim records from January 1, 2006, to December 31, 2015. Exposure to diagnostic low-dose ionizing radiation was classified as any that occurred on or after the entry date, when the participant was aged 0 to 19 years, on or before the exit date, and at least 2 years before any cancer diagnosis. Cancer diagnoses were based on International Statistical Classification of Diseases and Related Health Problems, Tenth Revision codes. Data were analyzed from March 2018 to September 2018. The primary analysis assessed the incidence rate ratios (IRRs) for exposed vs non-exposed individuals

using the number of person-years as an offset.

RESULTS

The cohort included a total of 12 068 821 individuals (6 339 782 [52.5%] boys). There were 2 309 841 individuals (19.1%) aged 0 to 4 years, 2 951 679 individuals (24.5%) aged 5 to 9 years, 3 489 709 individuals (28.9%) aged 10 to 14 years, and 3 317 593 individuals (27.5%) aged 15 to 19 years. Of these, 1 275 829 individuals (10.6%) were exposed to diagnostic low-dose ionizing radiation between 2006 and 2015, and 10 792 992 individuals (89.4%) were not exposed. By December 31, 2015, 21 912 cancers were recorded. Among individuals who had been exposed, 1444 individuals (0.1%) received a cancer diagnosis. The overall cancer incidence was greater among exposed individuals than among non-exposed individuals after adjusting for age and sex (IRR, 1.64 [95%CI, 1.56-1.73]; $P < .001$). Among individuals who had undergone computed tomography scans in particular, the overall cancer incidence was greater among

exposed individuals than among non-exposed individuals after adjusting for age and sex (IRR, 1.54 [95%CI, 1.45-1.63]; $P < .001$). The incidence of cancer increased significantly for many types of lymphoid, hematopoietic, and solid cancers after exposure to diagnostic low-dose ionizing radiation. Among lymphoid and hematopoietic cancers, incidence of cancer increased the most for other myeloid leukemias (IRR, 2.14 [95%CI, 1.86-2.46]) and myelodysplasia (IRR, 2.48 [95%CI, 1.77-3.47]). Among solid cancers, incidence of cancer increased the most for breast (IRR, 2.32 [95%CI, 1.35-3.99]) and thyroid (IRR, 2.19 [95%CI, 1.97-2.20]) cancers.

AUTHORS CONCLUSIONS

This study found an association of increased incidence of cancer with exposure to diagnostic low-dose ionizing radiation in a large cohort. Given this risk, diagnostic low-dose ionizing radiation should be limited to situations in which there is a definite clinical indication.

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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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