



The Weekly Probe

8th April 2016

Volume 13 Issue 9

Antibiotics – When micro (or serology) samples are sent, they need to be followed up. If the results don't need following up then the test doesn't need to be done.

So when writing discharge letters in particular, let the patient and their GP know the results need to be chased. It also helps to let the GP or the person chasing results to know what you have done including what specific antibiotic has been given.

Please do not say "the patients has been asked to continue the antibiotic" or "we have commenced a antibiotic" – be specific. It will help the patient the GP and those reviewing results.

THIS WEEK

Paediatric Seizures
Legionaire's Disease
Next week's case
Joke / Quote of the Week
The Week Ahead

Paediatric seizures

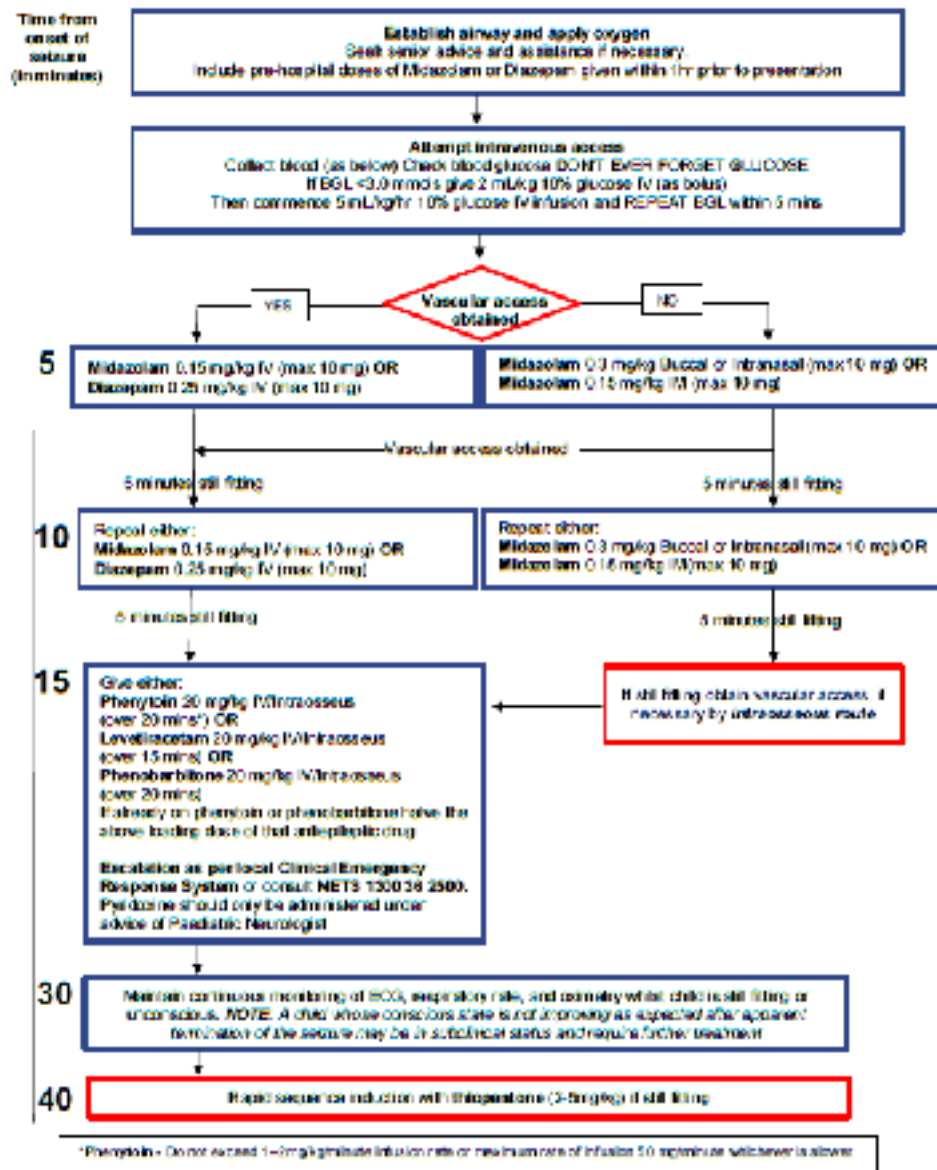
A 3 yo child presents with 30 minutes of ongoing generalised tonic-clonic afebrile seizures despite 0.1mg/kg IVI midazolam. What is your next option?

To address such a question in February the Ministry of health released the new Paediatric seizure guidelines.

In comparison to the previous guidelines there have been a couple of changes including:

- Definitions of hypoglycaemia vary between 2.2 and 3.5 mmol/L. APLS recommends administration of 2 mL/kg of 10% glucose for a BGL < **3.0** mmol/L.
- IV levetiracetam (Keppra) has been included in the management of seizures as a second line therapy – in addition to phenytoin 20mg/kg and phenobarb 20mg/kg – ie **all 20mg/kg**
- This guideline is for infants and children. The first line treatment for **neonates with seizures** (first 28 days) remains phenobarbitone
- Rectal diazepam has been removed as a first line choice. Midazolam, administered by buccal, nasal or intramuscular route is more effective (IMI midazolam into a contracting muscle seems intuitively more appropriate then into the mouth or nose of a fitting child with secretions ++)
- Never seen it given so it is appropriate that paraldehyde has been removed as second line therapy based on recent product information that it contains low levels of crotonaldehyde which is known to be genotoxic and carcinogenic. Give only after speaking to intensivist, paed neurologist or paediatrician The recommended maximum life-time dose of paraldehyde is now 30 mL.

ACUTE MANAGEMENT OF SEIZURES FOR INFANTS AND CHILDREN



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Please note:

- In the algorithm the **timing is from onset of seizure**, and **not** from the arrival to the ED
- It is important to attempt to control the seizure without delay as the longer the seizure continues the more difficult it becomes to control
- Prolonged seizures and/or repeated doses of anti-epileptic medications especially benzodiazepines may lead to respiratory compromise of breathing requiring on-going respiratory support including intubation
- In assessing medication load, one needs to consider benzodiazepines given by carers and ambulance personnel as part of the total dosage
- Midazolam or diazepam administered < 1 hour prior to presentation should be regarded as 'initial doses already given' in the algorithm
- After no response to two doses of midazolam, appropriate second line antiepileptics i.e. a long acting anti (e.g. phenytoin/levetiracetam/phenobarbitone) should be introduced early (i.e. at 20 minutes from onset of seizure).

Last week it was mentioned to keep an eye out for potential Legionnaires' cases after a number have noted in the city yet over the last week there have been reported cases in the Kogarah / Rockdale region.

What is Legionnaires'?

First recognized in 1976 during an outbreak at an American Legion Convention in the US – equivalent to our RSL, yet RSL syndrome here is a complex of olecranon bursitis, chronic SDH, nicotine stains and cirrhosis –Michael E is an example of this clinical entity.

Legionellosis refers to the two clinical syndromes caused by bacteria of the genus *Legionella*:

- Legionnaires' disease is the more common syndrome of pneumonia caused by *Legionella* species
- Pontiac fever is an acute, febrile, self-limited illness that has been linked to *Legionella* species.

Legionnaires' disease — Incubation period 2-10 days – most commonly 5-6 days .

Risk factors for *Legionella* infection include chronic lung disease, smoking, diabetes, immunosuppression, malignancy, chronic corticosteroid use, and end-stage kidney disease.

Legionella pneumonia is uncommon in children.

There is no person-person transmission .

Wide range of presenting symptoms

Respiratory symptoms initially are not prominent; the cough at first is mild and only slightly productive. The sputum may be blood-streaked, but gross hemoptysis is rare. Chest pain can occur in some patients (15-35%) and if accompanied by haemoptysis may lead to an erroneous diagnosis of pulmonary embolus.

Gastrointestinal symptoms are often prominent with diarrhoea (20-50%), nausea, vomiting, and abdominal pain.

Other- Patients are commonly lethargic with headache (40-50%), myalgia / arthralgia (20-40%) and occasionally stupor / confusion .

On examination – similar to other pneumonic processes with fever, crackles, hypoxia. Bradycardia relative to temperature elevation has been found in elderly patients with more severe pneumonia but is nonspecific.

Miscellaneous findings include: disseminated intravascular coagulation, glomerulonephritis, rhabdomyolysis, various rashes, and neuropathies; these are nonspecific findings that may be related to the severity of infection, underlying disease, or perhaps side effects of drug therapies.

Laboratory findings — Laboratory abnormalities are common, but nonspecific, including renal and hepatic dysfunction, thrombocytopenia, leukocytosis, and hypophosphatemia. Hyponatremia (serum sodium <130 meq/L) occurs significantly more frequently in Legionnaires' disease than in pneumonias of other aetiologies. Hematuria and proteinuria also are common.

CXR - fever may precede visualization of the pulmonary infiltrate-no characteristic chest radiograph finding as all types of infiltrates have been described including nodules, infiltrates, overt consolidation and cavities (esp in immunosuppressed pts)..

Suspicion should also be increased in patients at risk for *Legionella* infection, such as smokers, those with chronic lung disease, and immunosuppressed patients.

Pontiac fever — This milder form of *Legionella* infection is often referred to as Pontiac fever- fever, malaise, chills, fatigue and headache, without any respiratory complaints. Chest radiograph is unrevealing. The mean incubation period is 36 hours, much shorter than the 2 to 18 days for Legionnaires' disease. The illness is usually self-limited and typically does not require treatment.

Extrapulmonary disease — Extrapulmonary disease is extremely rare.

SPECIFIC LABORATORY DIAGNOSIS Among the species in the Legionellaceae family, *L. pneumophila* is responsible for 90 percent of infections.

- **Culture on selective media** — The single most important test for Legionnaires' disease is isolation of the organism by culture. When Legionnaires' disease is suspected, both a urinary antigen test , *Legionella* culture of a respiratory specimen and serology should be ordered.

- **Urinary antigen testing** — Can detect *L. pneumophila*, serogroup 1- advantages are that results are available within hours and test may be performed pre or post Abs, the test remains +ve for days during antibiotic administration & easy to get a sample BUT only tests for serogroup 1, which causes the majority of cases
- **Direct Fluorescent Antibody staining** — The reported sensitivity of DFA stains has ranged from 25 to 75 percent- highly specific – need to get sputum sample which can be delayed in some pts .
- **Serology** —doesn't change acute treatment- less important as need 4X rise in antibodies after 8-12 weeks after infection. – some labs don't test the initial sample until a convalescent sample is sent making the test worthless in an acute sense- however the public health unit have requested this be taken to track potential cases. Sensitivity 75% and specificity 95%.
- **Polymerase chain reaction** — also available to assess throat swab specimens, bronchoalveolar lavage (BAL), urine, and serum - ? role uncertain

Treatment

For adult patients with mild *Legionella pneumonia*, use:

- azithromycin 500 mg orally, daily for 5 days

OR

- doxycycline 100 mg orally, 12-hourly for 10 to 14 days.

For adult patients with severe *Legionella pneumonia*, use:

- azithromycin 500 mg IV or orally, daily (erythromycin via central line if not available)

PLUS EITHER

- ciprofloxacin 400 mg IV, 12-hourly (up to tds if obese patient)
or ciprofloxacin 750 mg orally, 12-hourly

OR

rifampicin 300 mg IV or orally, 12-hourly

Tx for 7-10 days if immunocompetent – 14-21 days if immunocompromised.

NEXT WEEK'S CASES

A 78yo lady presents with chest tightness. She is noted to have a PR 128. What is going on?



JOKE / QUOTE OF THE WEEK

After the death of Ronnie Corbett one of the Two Ronnies last week it prompted a search for one of their gags – try this medical one with [Ronnie Barker](#) or one with [Ronnie Corbett](#)



*"You know I hate when you check
your messages at the table."*

Please forward any funny and litigious quotes you may hear on the floor (happy to publish names if you want)

THE WEEK AHEAD

Tuesdays - 12:00 – 13:45 Intern teaching -Thomas & Rachel Moore

Wednesday 0800-0900 Critical Care Journal Club. ICU Conf Room / 12.00-1.15 Resident MO in Thomas & Rachel Moore

Thursday 0730-0800 Trauma Audit. Education Centre / 0800-0830 MET Review Education centre / 1300-1400 Medical Grand Rounds. Auditorium.