

The Sharp End



December

Welcome Back

...and welcome the new crew

Happy Holidays

Our present to you

Resus

High Dose Insulin Therapy

Procedures

Pay attention to the bladder

Study Hall

AMI + Depression = bleeding?

Waiting Room- I

A visit from the tooth fairy

Waiting Room-II

The sore shoulder

Informatic

What medical advice are we ignoring?

Just the Tip

Tips for academics

Discussion

Thanks and Apologies

Welcome to Volume 6

It is hard to believe that we have been producing this little rag for over 6 months. People still seem to be enjoying the newsletter and the [mailing](#) list continues to grow. Also, our [twitter](#) account, [Facebook](#) page, and [webpages](#) are all coming along.

Our ED family keeps changing as we watched a crew of registrars and house officers get even smarter and we are welcoming a new crew of learners back to Middlemore. We hope we don't lose contact with the old crew and are looking forward to warping some new minds.

This issue has our first registrar contribution and we have a couple more articles by reg's in the pipeline. Hopefully, we will have some nursing contributors in the near future so they can continue to teach us right.

This is our summer holiday addition, filled with gifts, funnies and information.

Enjoy -*The Sharp End Crew*



Merry Christmas – Presents for you!

Great Holiday SALES!

[Emergency Medicine: Reviews and Prespectives](#) (EMRAP)

Maybe the best emergency medical education available; by **Mel Herbert**. Interviews and reviews of EM topics that you can use during your next shift. The sheep jokes are also pretty entertaining.

(3m free trial, then \$145 USD/year for learners)

[Emergency Medicine Abstracts](#)

Personally, by favorite source of medical education by **Hoffman** and **Bukata**. These two guys argue about 30 papers every month and it is the best source of a skeptical, practical, and evidence-based evaluation of the current EM literature.

(3m free trial, then \$145 USD/year for learners)

[Emedhome](#)

A great monthly podcast by **Amal Mattu**. Additionally, it provides a ton of audio and visual lectures from conferences all over the world.

(\$99 USD/year)

For Nurses

[Emergency in the Shed](#)

Is a [Podcast](#) weekly out of Oz for emergency nurses by emergency nurses.

[The Impacted Nurse](#)

By **Ian Miller** is an EM nursing blog out of Oz. It has been highly recommended.

Free stuff

[EM Crit](#)

By **Scott Weingart**. This [podcast](#) on emergency medicine and critical care is great and has a strong focus on ED resuscitation.

[Life in the Fast Lane](#)

Created by Australians **Cadogan** and **Nickson**. These are two guys review tons of EM stuff and this is the standard of online emergency education.

[Academic Life in Emergency Medicine](#)

From **Michelle Lin**. This website has an incredible amount of pithy bedside tips on nearly everything in emergency medicine.

[SmartEM](#)

By **Newman** and **Shreves**. This [podcast](#) discusses the evidence behind many of our common ED practices. An outstanding critical look at what we do in the ED.

[Ercast](#)

With **Rob Orman**. This [podcast](#) by a community EM doc has great interviews and provides amazingly practical advice on common EM situations.

[Free Emergency Medicine Talks](#)

Curated by **Joe Lex**. There are a hundreds of awesome EM talks from recent conferences around the world.

[The Poison Review](#)

by **Leon Gussow**, a short review and current topics about toxicology.

-Andy



These discussions are the opinions and ramblings of the authors, designed to stimulate thought and discussion.

This is in no way and should not be considered a practice guideline of any type

For Comments, Suggestions, or Contributions: Email Thesharpendcrew@gmail.com

Monitoring

The Christmas season is upon us.... And that means two things. Presents, (yours are on the front page) and heaps of candy, lollies, cakes and everything else you can make with sugar. So in keeping with the season... and the sweetness of it... lets review one thing we will need: Insulin...heaps and heaps of insulin.

High dose insulin therapy (HDIT) to be exact. Not for the candy, but for calcium channel blocker (CCB) and beta blocker (BB) overdose. An excellent recent review paper was just published in the *Journal of Clinical Toxicology: High-dose insulin therapy in beta-blocker and calcium channel-blocker poisoning*. Dr. Gussow, from the poison review states "This is a very well done review article of high dose insulin (HDI) therapy, and a must-read for anyone who treats poisoned patients." Although it is not possible to completely cover HDIT in this brief space, I highly encourage you to read this paper (I will give you a copy) BEFORE your next CCB OD ends up in resus 4! Here are some important points from the paper.

What is the mechanism of action of HDIT? There are many proposed mechanisms for the beneficial effect of HDIT. The top 3 are:

1. Increased inotropy (increasing coronary blood flow without increasing O2 requirements, in contrast to catecholamine agents)
2. Increased intracellular glucose transport (providing increased nutritional substrate for myocardial cells)
3. Microvascular dilatation leading to increased tissue perfusion (microvascular dysfunction is a hallmark of cardiogenic shock).

What is the efficacy of HDIT? Animal models have shown high-dose insulin to be superior to: doing nothing, calcium, glucagon, epinephrine, and vasopressin in terms of survival. Currently, there are no published controlled clinical trials in humans, but a review of case reports and case series supports the use of high-dose insulin as an initial therapy.

So just give me the dose already! The dosing recommendations have been increased to 1 U/kg insulin bolus followed by a 1-10 U/kg/h continuous infusion (start at 1 U/kg/h). A concentrated dextrose infusion should be initiated at the start of HDIT as well.

Any adverse effects? Just what you might expect...hypoglycemia. Blood sugar concentrations must be monitored regularly and glucose will likely be required throughout therapy and for up to 24 h after discontinuation of HDIT. Also keep an eye out for hypokalemia as well.

HDIT dosing

1. Glucose 25 g (50 mL of 50%) IV bolus
2. Short actin insulin 1 U/kg bolus (that's around 70U!)
3. Followed by an infusion starting at 1 U/kg/hr
4. Glucose drip as needed (25g/hr IV drip)

What are the target goals of HDIT? This is important- To quote Dr. Gussow "Titrating treatment to BP and pulse alone can be misleading, since the real goal of therapy is to maintain essential tissue perfusion." (remember, insulin is an inotrope and a vasodilator at the microvascular level with minimal effects on systolic BP.) "Better clinical parameters to follow include mental status, skin warmth and color, peripheral pulses, and urine output, as well as vital signs. Following lactate levels may also be helpful."

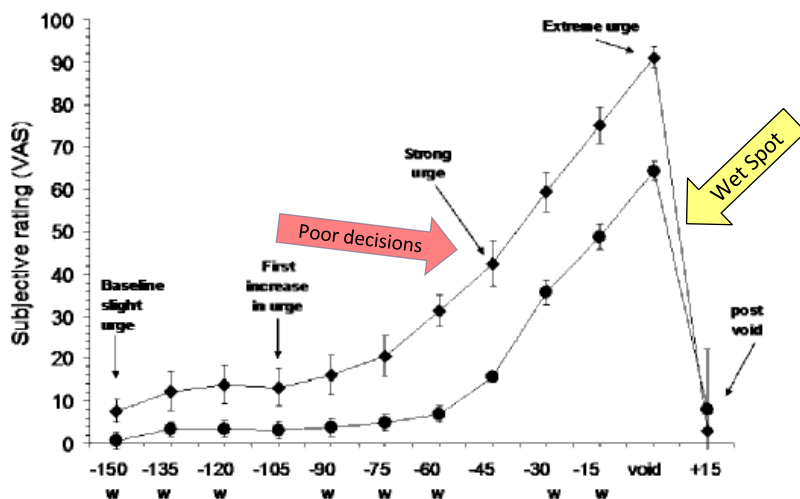
So what are my recommendations?

1. **Calcium Channel Blocker Overdose-** HDIT should be started as soon as there are signs of hemodynamic compromise. Don't wait for other therapies to fail. (It can take an 30 min - hour to so see a full response)
2. **Beta Blocker Overdose-** the evidence is not as clear. While it may be of some benefit, there's not much clinical data that support its use and, despite the recommendation of this paper, it should not be considered 1st line therapy in BB OD ... yet.
3. Monitor clinical parameters: mental status, skin warmth and color, peripheral pulses, and urine output, as well as vital signs during treatment with HDIT

-Chip

[Clin Toxicol \(Phila\). 2011 Apr;49\(4\):277-83](#)

Resus



This is a short tip: use the toilet before that next trauma. When I was re-reading my old issues of *Neurology and Urodynamics*, I found an article in the January issue titled **The Effect of Acute Increase in Urge to Void on Cognitive Function in Healthy Adults**. This study forced eight subjects to drink 250mls of water every 15 minutes until they "could no longer inhibit voiding" (until they wet themselves). During this time, they measured their cognitive function. As the urge to void increased, the subject's cognitive function decreased. This was especially true of their ability to keep attention and their working memory. Luckily, pissing themselves allowed their cognitive function to return to normal.

The take-home is that this offers scientific support for the ancient ED adage that you should never start a procedure with an empty stomach or a full bladder.

-Andy

[Neurourol Urodyn. 2011 Jan;30\(1\):183-7.](#)



Study Hall

Depressed about your recent MI? Well this could result in an increased risk of bleeding. A recent paper in the CMJ - [Risk of bleeding associated with combined use of selective serotonin reuptake inhibitors and antiplatelet therapy following acute myocardial infarction](#), shows that SSRIs appear to raise bleeding risk in patients with coronary disease who are taking antiplatelet drugs. What tha... are you serious?

So the theory is that the release of serotonin by platelets increases platelet aggregation at sites of vascular damage. Platelets do not synthesize serotonin but acquire it from the blood and store it. Since “reuptake inhibition” occurs in platelets too, SSRIs cause a lack of serotonin in platelets therefore decreasing their ability to aggregate. How does a randomized control trial for this get through an ethics review?

It doesn't. And will likely never. This was population-based retrospective study in which the authors examined data on all 27,000 patients (age >50) in Quebec who were discharged from hospitals after MIs between 1997 and 2007. During average follow-up of 3 years, about 4% of patients were hospitalized for bleeding. According to [Journal Watch](#), one the analyses was adjusted for potential confounders, bleeding risk was elevated by about 50% in pts who took an SSRI plus aspirin or clopidogrel (vs. aspirin or clopidogrel alone) and in those who took an SSRI plus dual antiplatelet therapy (vs. dual antiplatelet therapy alone).

50%! So should we be discontinuing everyone's SSRIs if they are on anti-platelet therapy? **No...**let me say again... **No**. It should sit in the back of your mind that they may be at slightly higher risk though.

So why are we reviewing it in TSE? Welcome to a new section that will occasionally pop up called “study hall”. Today we are reviewing literature.... Or rather encouraging you to do it. This paper is [free on-line](#) in its entirety. The authors do a very good job at discussing the limitations of their study which include:

1. Its design is retrospective and observational in nature. Selection bias is a major issue in such studies.
2. Because antiplatelet therapy is recommended for use in all patients following AMIs unless contraindicated because of a high risk of adverse events, they did not include pts who were not using anti-platelet therapy.
3. It may be that patients at increased risk of bleeding are more likely to have depression and require antidepressant therapy. Although their model adjusted for pt risk factors, residual bias may have remained.
4. They used physician billing information to ascertain the patients history of bleeding episodes
5. The inability to confirm compliance with the prescribed treatment regimens is a potential source of bias.

If you practice evidence based medicine; it is your job to make sure that evidence is strong. This is a great paper for you to work through its design, methods, results and most of all limitations. Start as if someone just told you a new study showed that patients taking SSRIs and clopidogrel have a significantly increased chance of bleeding and “you must take all your pts off their SSRIs if they take clopidogrel”. Then download the paper and work through it as above, and see if you would incorporate that into your practice.

-Chip

[CMAJ. 2011 Nov 8;183\(16\):1835-43](#)

Waiting room

Here is a case lifted (with Grinch-like joy) from the Dec *Annals of Emerg Med*. They present a 65-year-old male with no known medical history who arrives at the ED with a 4 days of shoulder pain following a fall onto his shoulder.

The physical exam revealed no fever with a heart rate of 110. His right shoulder felt warm and had a foul smelling black area with subcutaneous bullae and necrotic tissue surrounded by erythema and swelling. He had palpable crepitus superiorly and anteriorly

- What is the diagnosis?
- What drugs are involved in the treatment?
- What is the definitive treatment?
- What is the most significant predictor of mortality?
- Are NSAIDs a risk factor for this disease?

Answers in the next issue...

-Andy

[Ann Emerg Med. 2011;58:574](#)



ESCAP3

Waiting Room

I don't know about the rest of you, but dental presentations are one of those things I've never really been taught and have been muddling through as best I can. However, here are a couple of useful reminders to make you sound smart when talking to max/fax.

Describing the tooth. Teeth are identified using a binary system, ie each tooth has two numbers. The first number indicated the quadrant, the second the specific tooth. The quadrant numbering starts at the R upper jaw (think this is the side you stand on and start at the top) and moves clockwise. Therefore the upper right incisor is 11 but the lower right incisor is 41. There are 8 adult teeth in each quadrant (8 being the wisdom).



So that's adult teeth, how about paed's? Deciduous teeth continue on the quadrant numbering, so the upper R is quadrant 5 and move clockwise again. There are 5 deciduous teeth in each quadrant.

If a child is <6 it is likely that all their fully erupted teeth will be deciduous. If they are >12 all their teeth will be permanent. In between – ask the parent! (or take an OPG).

Someone rings you and asks you what to do with an avulsed permanent tooth – what do you tell them? Tell them not to touch the root and to put it back in the socket but, failing that, the old wives tale is true – put it in milk (and yes skim is ok, and if you wondering, so is breastmilk, saline, or egg white)

DO NOT put it in soy milk or flavoured milk. Saliva is ok but not as good as milk. Keep the tooth cool (not frozen). In these mediums you have a chance of successful reimplantation up to 24 hours later. If it is stored dry for >10 minutes all periodontal cells needed for reimplantation will be dead.

Never replace deciduous teeth. If its an avulsed deciduous tooth, just put it under the pillow and I will collect it.

- *The Tooth Fairy* (aka Emma Lawrey)

PS- for an hour-long talk on dental trauma, check out the [November EMRAP](#) board review section.

Can you name the 'album cover of the month' above?

Just the Tip

For the budding academic types out there in EM land, this month's tip is to listen to the EMRAP Educators Edition. This website and podcast covers everything from speaking like a pro, to bedside teaching, to running a simulation lab, to producing a a podcast. It might help you win our best registrar teacher award for this run.

-Andy
<http://www.emrapee.com>

What Medical Advice Are We Ignoring?

- 14% Something about being contagious
- 21% No alcohol for next hour
- 25% Stop chewing on wound
- 12% Don't take all 30 pills at once
- 15% Leave cone around neck for two weeks
- 13% Anything that contradicts God's grand plan for us to die of dysentery

From: [theonion](#)

Discussion

1. Wine of the month club: Our awesome CNS Michelle Peperkoorn found some infected hormonal contraceptive implants hiding under a cellulitis with the bedside ultrasound. She wins the bottle of wine. Congrats!
2. It is shocking to believe that we made it 6 months before we had to publish our first major correction. Due to my terrible editing, Terri's article on **D-dimer and PE** in Volume 4 got garbled in the final version. Blame the editors and wait for the **real version** in the next issue. -Andy

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