



Resident Journal Review: September - October 2008

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This is a continuing column providing journal articles pertinent to EM residents. It is not meant to be an extensive review of the articles, nor is it wholly comprehensive of all the literature published. Rather, it is a short list of potentially useful literature that the busy EM resident may have missed. Residents should read the articles themselves to draw their own conclusions. This edition will include articles published over a two month period. These selections are from papers published in May and June 2008.

Burnside PR, Brown MD, Kline JA. Systematic review of emergency physician performed ultrasonography for lower-extremity deep vein thrombosis. Acad Emerg Med 2008;15:493-8.

This systematic review identified six articles which addressed the performance of emergency physician performed ultrasonography for the diagnosis or exclusion of deep venous thrombosis (DVT). Two physicians performed separate structured searches of MEDLINE and a librarian searched EMBASE, followed by a hand search of selected bibliographies for additional relevant studies. Only original research reports from emergency department (ED) patients who had signs and symptoms suggestive of DVT were included. Participants were required to have had an ultrasound performed by both emergency personnel and a subsequent study in a radiology department or vascular laboratory. Agreement between the studies was assessed.

For ED ultrasounds, the overall sensitivity from the six studies was 0.95 and the specificity was 0.96. While these numbers are promising, the authors identified substantial variability among the results through statistical testing of heterogeneity. In addition, they questioned the generalizability of the results, as the ultrasonographic skills of community practitioners may not match that of the study physicians.

Overall, the authors conclude that the test performance characteristics of ED ultrasounds are very good, but they call for a larger study of ED ultrasonography with a follow-up interval to assess clinically important outcomes. Until this evaluation, ED ultrasound for DVT should continue to be a "rule-in" evaluation and not a stand-alone diagnostic test to "rule-out" this important cause of morbidity and mortality.

Byyny RL, Mower WR, Shum N, Gabayan GZ, Fang S, Baraff LJ. Sensitivity of noncontrast cranial computed tomography for the emergency department diagnosis of subarachnoid hemorrhage. Annals of Emergency Medicine 2008;51:697-703.

The evaluation of a patient's "worst headache of my life" usually leads to a noncontrast cranial computed tomography (CT) and a lumbar puncture. The study authors evaluated the hypothesis that noncontrast CT with current generation scanners is sufficiently sensitive for the detection of spontaneous subarachnoid hemorrhage (SAH). In addition, the investigators collected data on the presenting mental status of a group of patients with SAH, to determine the performance of CT in different clinical settings.

Their single center retrospective review identified 149 patients with the diagnosis of spontaneous SAH. Cases were gleaned from all emergency department diagnoses of SAH, cerebrospinal fluid analyses sent from the emergency department and discharge summary International Classification of Diseases, Ninth Revision (ICD-9) codes for SAH over a three and a half year period in their institution.

Of the 149 patients, 139 SAHs were identified using non-contrast cranial CT, for a sensitivity of 93%. 87 patients (58%) presented with

headache and normal mental status; of these, CT identified 90% of diagnosed SAHs. Only 1 out of 61 patients with abnormal mental status and subarachnoid hemorrhage was missed on CT.

The authors conclude that current generation noncontrast CT scans are not sufficiently sensitive to rule-out the diagnosis of subarachnoid hemorrhage, and therefore, lumbar puncture must be performed when this diagnosis is being entertained. Of particular concern was the high miss rate (~10%) among patients with headache and normal mental status, as these represent the group most likely to benefit from early recognition of this intracerebral pathology.

Rodrigo GJ, Nannini LJ, Rodriguez-Roisin R. Safety of long-acting beta-agonists in stable COPD: a systematic review. Chest 2008;133:1079-87.

A meta-analysis in 2004 questioned the safety of long-acting beta-agonists (LABAs) in the setting of both asthma and chronic obstructive pulmonary disease (COPD).¹ This study suggested an increased risk of adverse events and respiratory deaths for patients using these medications. Since then, the safety and optimal strategy for use of LABAs has been debated.

The study authors performed a systematic review of MEDLINE, EMBASE, CINAHL and Cochrane Controlled Trials Register to identify trials that could address these concerns. A total of 27 randomized controlled trials were selected for analysis, representing 20,527 patients and 26,389 patient-years of follow-up. In fourteen studies comparing LABA with placebo, the overall cumulative exacerbation incidence was 7.5% in the LABA group and 10.8% in the placebo group. The number needed to treat was 30. In addition, there was no significant difference in all-cause deaths or respiratory deaths between patients assigned to LABA or placebo.

There are more than 1.4 million visits to emergency departments for COPD in the United States each year. For some patients, visits to the emergency department may represent their only contact with health professionals. As such, emergency physicians must be fluent in management of this chronic disease. Escalation of therapy, when appropriate, is one way that emergency physicians can improve the quality of life and reduce the number of exacerbations for our patients. This systematic review supports the beneficial effects and safety of LABAs in patients with stable moderate to severe COPD.

¹Salpeter SR, Ormiston TM, Salpeter EE. Cardiovascular effects of beta-agonists in patients with asthma and COPD: a meta-analysis. Chest 2004;125:2309-21.

Janssens HJ, Janssen M, van de Lisdonk EH, van Riel PL, van Weel C. Use of oral prednisolone or naproxen for the treatment of gout arthritis: a double-blind, randomized equivalence trial. Lancet 2008;371:1854-60.

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The mainstays of treatment for gout are nonsteroidal anti-inflammatory drugs (NSAIDs) and colchicine. Both classes of medication have disadvantages (colchicine has a narrow therapeutic window and NSAIDs have cardiovascular and gastrointestinal risks). The short term use of systemic corticosteroids has been suggested as a safe alternative for management of gouty arthritis. The investigators conducted a randomized, double-blind, controlled trial to test for the equivalence of prednisolone (35mg once per day) and naproxen (500mg twice per day) in the treatment of gout. Patients were assigned to one treatment arm for five days; the primary outcome was pain in the affected joint as described by the patient. The groups had a similar reduction in pain over the study period (80% in the prednisolone group and 88% in the naproxen group). No significant side-effects were reported in the prednisolone group.

This study provides compelling evidence for a short course of prednisolone in the acute treatment of gout, as an NSAID-sparing alternative.

Mayer SA, Brun NC, Begtrup K, et al. Efficacy and safety of recombinant activated factor VII for acute intracerebral hemorrhage. The New England Journal of Medicine 2008;358:2127-37.

This phase three clinical trial examined the efficacy and safety of recombinant activated factor VII (rFVIIa), to the ends of reducing hematoma expansion and improving survival and functional outcomes for intracerebral hemorrhages. Within four hours of the onset of stroke, 841 patients were randomly assigned to one of three groups: placebo, 20ug/kg rFVIIa, or 80ug/kg rFVIIa. The investigators measured poor outcome at 90 days using a modified Rankin scale. In addition, hematoma expansion was evaluated on repeat cranial CT scans at 24 and 72 hours after the onset of stroke.

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certain issue is bothering you, the best approach is to be active about it; instead of taking a back seat, do something! This means getting involved with your residency program and its advancement. Taking an active role will be a healthy way to manage your frustrations and benefit you, your peers and your residency program in the end. I did this by becoming an active member in applicant recruitment for my residency program. I also became a board member of AAEM/RSA, which has been such an amazing experience and fulfilled my desire to get involved on a national level. It makes me feel like I'm doing something for my specialty as well as my own well being. So if there is something about the system that interests you, get involved and make a difference.

Healthy living is also a huge aspect of intern year. I have to confess I probably did spend a month or two living on cookie dough that I swore I deserved for all my hard work. In retrospect, although immediately rewarding, it was probably not the best way to manage stress (well, maybe if it is done in moderation). I find, for most residents, being able to work out and eat healthy, helps to relieve stress. Healthy eating can be tough, and even the best hospital café doesn't always have the most nutritious options. I would try to bring fruit and my favorite water bottle to work to stay hydrated. Most residents forget to take care of the most important patient: him/herself. Always do things to make yourself happy and relieve stress, whether it is a pedicure or going to watch your favorite sporting event.

The investigators described a reduced hematoma expansion in the group of patients randomized to 80ug/kg rFVIIa, but there were no differences between the three groups in survival or functional outcome at 90 days. In addition, the authors performed and reported on a number of post hoc analyses, which were not described in the original trial design. Readers must carefully evaluate the importance of intermediate outcome measures, and even more rigorously scrutinize post hoc analyses that fall outside of initial study design. This study's intermediate outcome, reduced hematoma formation, did not translate into a meaningful clinical endpoint. This type of data-reporting puts a positive "spin" on the results. Based on the data that has been presented, it would be extremely difficult to justify the use of this expensive medication.

Interestingly, a quick review of the disclosures indicates that the study was funded by Novo Nordisk (the manufacturer of rFVIIa) and that several of the authors were either former employees of Novo Nordisk or held stock in the company at the time of the study.

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5. Remember that you are not alone:

I know that on several occasions during your intern year, you will feel alone. From my personal experience, going from medical school where I basically lived in a dorm with a roommate, to living by myself in suburbia was quite a drastic transition. I felt lonely, but gradually I met others who felt the same way I did. Throughout intern year, you will have many experiences - some good and others not so good. My best advice is to share your stories; not only does this help you vent, but it also helps you realize you are not the only person that these things happen to. The best response you can get after your toughest day of work is from a co-worker saying, "I know how you feel." Sometimes we think the stresses and strains of residency are just happening to us, but take comfort in knowing that you are not alone.

So there are my five tips for how I succeeded in being happy during my intern year. It does take work, but I am proof that it's possible. I do want to end with some advice for non-interns: the best thing you can do for new interns is to welcome them with a positive attitude, reassurance and guidance. Remember, you were once in their shoes and can be their best resource when times get tough. Interns, you will have an amazing year of learning, not only clinically, but also about yourself and the doctor you strive to become. Just remember to stop and smell the roses along the way.