CHOOSING WISELY VII

Alan S. Peterson, M.D.
Associate Director, Family & Community Medicine
Walter L. Aument Family Health Center

This is my seventh article in this *Journal* on "Choosing Wisely" from The Board of Internal Medicine Foundation. As regular readers know, each specialty group has or will be developing a minimum of "Five Things Physicians and Patients Should Question." As usual, my choices of "Top Tips" are included after the Choosing Wisely items.

The American Society of Anesthesiologists (ASA) published its first Choosing Wisely list relating to anesthesiology practices In October 2013. After reviewing those first, I discuss Pain Management, including the ASA's recently released list of recommendations related to pain management which has been endorsed by The American Pain Society (APS). It is crucial that patients with chronic pain are taught strategies for coping with the pain. I also include with the ASA's list a five step plan that helps patients with pain develop five essential coping skills, and offers cost-effective benefits.

Finally, I review updates on a number of topics.

THE AMERICAN SOCIETY OF ANESTHESIOLOGISTS RECOMMENDATIONS

1. In patients without significant systemic disease (ASA I or II) who are undergoing low-risk surgery, don't obtain baseline laboratory studies such as complete blood count, basic or comprehensive metabolic panel, or coagulation studies when blood loss/fluid shifts are expected to be minimal. This recommendation is not significantly different from those of some of the other academies that have been reported in my previous articles on Choosing Wisely. The current recommendation about pregnancy testing is that all female patients of child bearing age be *offered* it rather than be required to undergo testing. This recommendation has allowed individual physicians and hospitals to set their own practices and policies related to pre-operative pregnancy testing. (Because of the desire for flexibility, a recommendation to avoid routine pregnancy testing was excluded from the top five preoperative list.)

2. In asymptomatic, stable patients with known cardiac disease (such as coronary artery and/or valvular disease) undergoing low or moderate risk non-cardiac surgery, don't obtain baseline diagnostic cardiology testing such as trans-thoracic/esophageal echocardiography or cardiac stress testing. Again, this recommendation does not differ much from what other specialties have published. Testing may be appropriate if the results would change management prior to surgery; could change the decision of the patient to undergo surgery; or could change the type of procedure that the surgeon will perform.

3. Don't use pulmonary artery catheters (PACs) routinely for cardiac surgery in patients with a low risk of hemodynamic complications (especially with the concomitant use of alternative diagnostic tools such as transthoracic echocardiography). "Increased risk of hemodynamic complications" is defined as a patient with clinical evidence of significant cardiovascular disease, pulmonary dysfunction, hypoxia, renal insufficiency, or other conditions associated with hemodynamic instability such as advanced age, endocrine disorder, sepsis, trauma, or burns. The use of a PAC during cardiac surgery has been associated with increased mortality and a higher risk of severe end-organ complications. There is a clear consensus in the literature that the use of a PAC cannot be recommended as a routine, though it does have a definite role in a very select group of patients undergoing cardiac surgery.

4. Don't administer packed red blood cells to a young healthy patient who is not actively bleeding and has a hemoglobin ≥ 6g/dL unless the patient is symptomatic or hemodynamically unstable. Note that the hemoglobin threshold for transfusion has varied from 6.0-10.0g/dL in multiple studies, and the optimum criterion for transfusion remains controversial in several clinical settings. In randomized studies, hospital mortality was lower in patients who had were allocated to a lower hemoglobin threshold for transfusion vs those allocated to the group with a higher hemoglobin threshold. Decisions to transfuse should be based on a combination of both clinical and hemodynamic parameters.

5. Don't routinely administer colloid (dextrans, hydroxylethyl starches, and albumin) for volume

resuscitation without appropriate indications. There is no evidence from multiple randomized controlled trials that resuscitation with colloids reduces the risk of death compared with crystalloids. Colloids are also more expensive. Current evolving literature should be referred to when faced with specific conditions like sepsis, traumatic brain injury, acute renal injury and burns—thereby creating a forum for discussion among the providers of the efficacy of such a treatment in that individual.

Specific references for articles supporting this and other Choosing Wisely recommendations can be obtained at: www.choosingwisely.org.

AMERICAN SOCIETY OF ANESTHESIOLOGISTS—PAIN MEDICINE RECOMMENDATIONS

1. Don't prescribe opioid analgesics as *first-line therapy* to initiate treatment of chronic non-cancer pain. There is no question that opioid analgesics are overused and are creating a great deal of addiction and even death in this group of non-cancer pain patients. Other multimodal therapy should be instituted first. This includes non-drug treatment such as behavioral and physical therapies. If drug therapy appears indicated, non-opioid medication such as non-steroidal anti-inflammatory drugs (if no contraindications) and anti-convulsants should be utilized first. This is one of the prime points that we teach our residents today.

2. For *chronic* treatment of non-cancer pain, don't prescribe opioid analgesics as long-term therapy until the risks are considered and discussed with the patient. Patients need to be informed of the risks of such treatment before they are placed on opioid analgesics. Many patients do not understand the significant potential for addiction, and even some physicians don't understand it. Physicians and patients should review and sign a written agreement that identifies their responsibilities to each party, such as requiring urine drug testing. Consequences of non-compliance with the agreement also need to be addressed. Caution should be utilized in prescribing opioids and benzodiazepines together. All patients should be warned not to drive when taking any of these medications. The nearly universal side effects of constipation and low testosterone or estrogen should be anticipated and treated proactively. Many physicians do not understand these side effects.

3. For acute low back pain without specific indications, avoid imaging studies such as MRIs, CTs, or other X-rays. I will be addressing low back pain more specifically in a subsequent Choosing Wisely article. Imaging for low back pain in the first six weeks after pain begins should be avoided in the absence of specific clinical indication such as a history of cancer with possible metastasis, known aortic aneurysm, progressive neurological deficit, etc. Incidental findings on studies can divert attention and increase the risk of unhelpful surgery if these are done without indication within the first six weeks after pain begins.

4. Don't use intravenous sedation for diagnostic and therapeutic nerve blocks or joint injections as a default practice in adults. (This recommendation does not apply to pediatric patients.) Ideally, diagnostic procedures should be performed with local anesthetics alone. After evaluation and discussion of the risks, intravenous sedation could be used after assessing the acute effects of the procedure for pain relief and the potential for false positive responses.

5. Avoid any irreversible intervention for non-cancer pain that carries significant costs and/or risks. These include peripheral chemical neurolytic blocks or peripheral radiofrequency ablation, as these may cause long-term risks such as weakness, numbness, or increased pain.

Important references supporting these five items can be found at www.choosingwisely.org.

FIVE STEPS TO HELP PATIENTS COPE WITH PAIN

Although this is not strictly one of the Choosing Wisely groups, it does fit with the topic of pain that I discussed previously in this article. Some groups have taken these five steps into their practice as part of a psychology practice or part of a pain clinic. There may be some primary care practices that want to set aside time for such issues to be dealt with in a more specialized manner. These were presented in a conference at PAINWeek 2013. The five coping steps each involve various simple tools and tasks that allow patients to look beyond the narrow focus of their pain and gain a broader, better perspective.

The five steps are:

1. **Understanding**: Patients need information about their pain and the options for its treatment. They wonder if opioids are safe. Are they addictive? What are the pros and cons of alternatives? Patients can be taught about the "gate control" theory on pain. Explanations about nerve pain, inflammation, and muscle pain can be quite helpful, as can explanations concerning how pain signals go to the brain and how to think of the "gate control" as a volume control that amplifies or turns down the pain. There are at least six pain gates—depression, anxiety, anger, poor sleep, a focus on pain, and changes in pain.

2. **Accepting**: Patients are urged to try to regard pain as not necessarily equated with suffering; doing so can also help prevent one of the most powerful exacerbations of pain – that of catastrophizing. Patients can be told to think of the pain associated with childbirth where there is physical pain, but it doesn't have to be all-encompassing suffering that permeates every aspect of their life. Patients may reject the idea of acceptance, feeling it suggests they are "giving in" and "giving up", but ultimately acceptance allows for progression in the direction away from the anger that can come with resisting the pain. Patients can be encouraged to move from "why me?" to "what now?"

3. **Calming**: Soothing of stress can have a significant effect on easing pain; options are extensive ranging from tai-chi and/or progressive muscle relaxation to medication, biofeedback, and just simply controlled breathing. While most adults breathe with their shoulders, more air can be taken in by breathing with the diaphragm.

4. **Balancing**: Patients on a burnout track, who push on until the job is done and the pain is too much, commonly wind up with pain flairs and the need for "breakthrough medication." Balancing activities, getting adequate sleep, and managing time, can prevent such situations. Patients need to be reminded to pace themselves and that slow and steady wins the game because they will get more done and have less pain that way. Patients need to be reminded to have "uptime" and "downtime" and to stop activity earlier than usual.

5. **Coping**: Equip patients with multiple tools to cope with their pain without having to reach for a pain killer.

a. Beside the standard heat pack and massage for muscle pain, or an ice pack for joint pain, suggest distracting devices such as video games, which are particularly effective distractions. 3-D video games are used in burn units when they are changing bandages, and they can be so engaging that patients don't feel the bandages coming off. TV is not as effective.

b. When patients need to resort to breakthrough medicine, suggest they first take a breath mint. Having them simply pause for a second to focus on the dissolving breath mint allow them to get through the flair up without medication.

c. Provide patients with hand-outs that outline the advice and recommendations from the session for reference.

–It is not so much the type of pain that a person has, as the type of person that the pain has.

(For our non-physician readers, it is important to mention that the foregoing items are provided solely for informational purposes and are not intended as a substitute for consultation with a medical professional. Patients with any specific questions about the items on this list or their individual situation should consult their physician.)

TOP TIPS

UPDATES IN OSTEOPOROSIS

In elderly men and women, a study[1] found little, if any, additional benefit to repeat bone mineral density (BMD) screening four years after baseline testing. A recent similar study recommended a baseline examination at age 65, with repeat testing after 5 years in patients with moderate osteopenia, and only after 15 years in patients with mild osteopenia.[2] Apparently, we should be doing far fewer DEXA scans than we have been doing.

The usefulness of the Male Osteoporosis Risk Estimations Score (MORES) for screening was studied in a primary care setting.[3] As with most screening tests in primary care for diseases with low prevalence, the negative predictive value of the MORES is high: 99%, but the positive predictor value is low: 11%. This means a false positive rate of up to 89%. The estimated number needed to screen with MORES over a ten year period to prevent one additional hip fracture with treatment was 654, compared with 1,604 for universal screening. The number needed to screen to prevent any single major osteoporotic fracture is 259 for the MORES vs 636 for universal screening. It is thought that it may be better to spend our efforts encouraging patients to eat a diet with adequate calcium intake, exercise regularly, and take at least 800 units of vitamin D daily. Patients, however, don't always follow advice.

In 2013 osteoporosis management guidelines were updated for men and women by Britain's National Osteoporosis Guideline Group (NOGG)[4] from their 2009 guidelines:

- Persons with a previous vertebral fracture or a pre-treatment hip BMD T-score of -2.5 SD or less may be at increased risk for vertebral fracture if zoledronic acid is discontinued.
- After three years of zoledronic acid treatment, the benefits of BMD persist for at least another three years after discontinuation. Most patients should

stop treatment after three years, and their physician should review the need for continuation of therapy three years later.
- If bisphosphonates are discontinued, fracture risk should be reevaluated after every new fracture or after two years, if no new fracture occurs.
- Continuation of bisphosphonates without the need for further evaluation is recommended for high-risk individuals. When bisphosphonates are continued, treatment review, including a renal function evaluation, is needed every five years.
- Withdrawal of bisphosphonate treatment is associated with decreases of BMD and bone turnover after two to three years for alendronate and one to two years for ibandronate and risedronate.
- Pharmacotherapies shown to lower risk for vertebral fracture (and for hip fracture in some cases) include bisphosphonates, denosumab, parathyroid hormone peptides, raloxifene, and strontium ranelate.
- Generic alendronate is usually first-line treatment because of its broad spectrum of anti-fracture efficacy and low cost.
- When alendronate is contraindicated or poorly tolerated, Ibandronate, risedronate, zoledronic acid, denosemab, raloxifene, or strontium ranelate may be appropriate therapy.
- Because of high cost, parathyroid hormone peptides should be used only for patients at very high risk especially for vertebral fractures.
- Post-menopausal women may benefit from calcitriol, etidronate, and hormone replacement therapy.
- Approved treatments for men at increased risk for fracture are alendronate, risedronate, zoledronic acid and teriparatide.
- Patients at increased risk for fracture should start alendronate or other bone-protective treatment at the onset of glucocorticoid therapy.
- For post-menopausal women, approved pharmacotherapy for prevention and treatment of glucocorticoid-induced osteoporosis includes alendronate, etidronate, risedronate; approved treatment options in both sexes are teriparatide and zoledronic acid.
- Calcium with vitamin D supplementation is widely recommended for older persons who are housebound or live in residential or nursing homes and is often recommended as an adjunct to other treatments for osteoporosis.
- Potential adverse cardiovascular effects of calcium supplementation are controversial, but it may be prudent to increase dietary calcium intake and use vitamin D alone rather than using both calcium and vitamin D supplementation.

UPDATES IN PULMONARY DISEASE

A study of antibiotics in hospitalized patients with community-acquired pneumonia (CAP) assessed whether adding a macrolide to a beta-lactam antibiotic reduced mortality.[5] The combination (in this study, usually clarithromycin plus amoxicillin) was more effective than a beta-lactam alone (usually amoxicillin or amoxicillin/clavulanic acid) for patients hospitalized with moderate or severe CAP. Those taking the combination treatment had a lower 30 day mortality rate in the moderate-severity group (22% vs 30%, adjust odds ratio [AOR] = 0.54;95% CI, 0.41-0.72) and in those with severe pneumonia (45% vs 51%; AOR = 0.76;0.6-0.96). Patients receiving combined therapy were younger and had fewer comorbidities, but the multivariate analysis should have at least partially accounted for these differences.

There has always been a question about the length of time one should use steroids in an acute exacerbation of COPD. A study carried out by investigators in Emergency Departments in Switzerland found that a 5 day course of systemic glucocorticoids is at least as effective as a 14 day course in the treatment of adults with an acute exacerbation of COPD.[6] They began with 40 mg of intravenous methylprednisolone on day one followed by 40 mg of oral prednisone daily for days 2-5, then either 40 mg of oral prednisone daily or match placebo for days 6-14. All patients received antibiotic therapy for seven days and an inhaled, nebulized, short-acting bronchodilator as clinically indicated during hospitalization. Approximately 8% of patients in each treatment group were discharged directly from the Emergency Department; the remaining patients were hospitalized. There were no significant differences in recurrent COPD exacerbations between the short-term and conventional treatment groups. The median time to exacerbation was 43.5 days in short-term treatment group and 29 days in the conventional group. In subgroup analyses, the authors found no differences in results by differing severities of COPD. There were also no treatment group differences in the need for mechanical ventilation, quality of life assessments, hypertension, hyperglycemia, worsening infection rates, gastrointestinal bleeding, or all-cause mortality.

A final article in this group deals with the question of identifying exacerbations of mild to moderate COPD that did not require antibiotic treatment. The decision to prescribe an antibiotic for a patient with COPD is a frequent dilemma.[7] The decision is made by many based on an increase in dyspnea, sputum volume, and sputum purulence, symptoms described 25 years ago by Anthonisen et al on the basis of a randomized placebo controlled trial in patients with exacerbations of severe COPD (mean FEV_1, 33% predicted).[8] These criteria have been extrapolated to all patients with COPD irrespective of severity of airflow obstruction, but information about their predictive validity in patients with exacerbated mild to moderate COPD (FEV1 >50% predicted) has been lacking. This study used data from 152 patients of the placebo arm of a randomized trial of amoxicillin/clavulanate for exacerbations of mild to moderate COPD. Clinical response in relation to Anthonisen criteria and point-of-care serum C-reactive protein (CRP) test (cutoff, 40mg/L) was assessed with multivariate logistic regression analysis. Among the Anthonisen criteria, only an increase in sputum purulence is a significant predictor of failure with antibiotics. The use of a point-of-care CRP test significantly increases the predictive accuracy of failure. Both of these easy-to-obtain factors may help clinicians to identify patients with exacerbated mild to moderate COPD who can be safely treated without antibiotics in an ambulatory setting.

UPDATES IN PEDIATRIC INFECTIONS

The first article is from The Academy of Pediatrics and outlines three major principals for prescribing antibiotics to children with upper respiratory tract infections.[9] These principles address the growing threat of antibiotic resistance:

- For acute otitis media, consider watchful waiting for children aged 2 years or older and those with mild-moderate symptoms and unilateral disease.
- For bacterial sinusitis, antibiotics are recommended for children with clinical features of acute illness, particularly symptoms that are severe or worsening. Observation or antibiotics can be considered in patients whose symptoms have lasted over 10 days.
- For pharyngitis, the AAP recommends antibiotics after laboratory confirmation of group A Streptococcus. A pediatric infectious disease specialist comments: "For some infections—severe otitis media, worsening or severe sinusitis, and Group A beta Strep pharyngitis—antibiotics are indicated, but physicians should apply stringent criteria when making these diagnoses, and the prescribing of the broad-spectrum antibiotics for these conditions is discouraged."

In regard to those antibiotics, a study of nearly 500 patients treated approximately half empirically with a narrow-spectrum agent and the rest with a broad-spectrum agent.[10] The narrow-spectrum antibiotics were just as effective as empirical therapy with a broad-spectrum antibiotic for pediatric pneumonia. The narrow-spectrum group had a ten hour shorter length of stay. There was no difference in duration of oxygen, duration of fever, or readmission. The 2011 guidelines for treating children with CAP published by The Pediatric Infectious Diseases Society and the Infectious Disease Society of America recommend empiric use of narrow-spectrum agents ampicillin or penicillin G for children hospitalized with uncomplicated CAP. The author stated that at her institution, an antibiotic stewardship program had greatly improved compliance with the new guideline recommendations. They suggest that if the new CAP guidelines have not yet been implemented, this study should help to get the message across. Broad-spectrum antibiotics are not required for the management of children with uncomplicated CAP.

Continuing on the antibiotic topic, the next study discusses the age old question of treatment for acute otitis media (AOM),[11] which leads to more antibiotic prescriptions than any other syndrome. In 2013 The American Academy of Pediatrics released updated clinical practice guidelines for the diagnosis and management of acute otitis media. Although many episodes are self-limited, more than 3 out of 4 visits for AOM result in an antibiotic prescription. Three principles of judicious antibiotic use are urged:

Principle 1. Determine the likelihood of bacterial infection. This requires either of the following two conditions: Evidence of middle-ear effusion, as demonstrated by moderate to severe bulging of the tympanic membrane (TM), or new onset of otorrrhea that is not caused by otitis externa. AOM may also be diagnosed when the child presents with only mild bulging of the TM but with additional symptoms of recent onset of ear pain or intense erythema of the TM. If the patient does not have these findings, antibiotics are not indicated.

Principle 2. For patients who meet diagnostic criteria for AOM but may not need antibiotic treatment, weigh the benefits vs the harms of antibiotics. (Obviously this should be done every time antibiotics are thought to be needed.) Antibiotic-related adverse drug effects are the

most frequent causes of drug-related emergency room visits among children in the United States. Although symptoms may improve more rapidly with antibiotics, each time a patient receives an antibiotic, there is a risk for adverse events, including diarrhea, dermatitis, C difficile colitis, and subsequent development of antibiotic resistance. Children who benefit most from antibiotics are less than 2 years of age, have severe disease, or have bilateral infection. Observation may be considered an alternative for AOM for children at least 6 months of age without severe symptoms.

Principle 3. If your patient has a diagnosis of AOM and the benefits outweigh the harms, implement judicious prescribing strategies. Select the recommended antibiotic that treats the most likely pathogens: amoxicillin or amoxicillin/clavulanate. Give the appropriate dose for the shortest duration required commensurate with the patient age and disease severity. For children 2 years or younger with severe symptoms, a ten day course is recommended. For children 2-5 years old with mild - moderate disease, a 7 day course is recommended. For children 6 years or older with mild - moderate disease, the recommended treatment course is 5-7 days.

If parents demand antibiotics when they are not indicated, the AAP recommends sharing the treatment rules above and highlighting the potential adverse effects of antibiotics as well as creating a treatment plan directed at relief of symptoms. The CDC has created resources for patients and providers such as symptomatic prescriptions pads to encourage appropriate antibiotic use. These have been popular and useful as a communication tool. They can be obtained online.[12]

The final article on this topic is one that outlined bronchiolitis guidelines that resulted in significant reductions in the use of emergency room resources by reducing unnecessary utilization.[13] Bronchiolitis is a major cause of infant morbidity and contributes to millions of dollars in healthcare costs. The investigators studied nearly 3,000 patient visits with bronchiolitis in children aged 1 month to 12 months old. Primary outcomes were the frequency of chest X-rays or respiratory syncytial virus (RSV) testing, use of albuterol or administration of an antibiotic, and the total cost of care. After the implementation of guidelines, there was an absolute reduction of 23% in chest X-rays, 11% in RSV testing, 7% in albuterol use, and 41 minutes in the length of stay in the emergency room. Mean cost was reduced by $197.00 per patient. Total cost savings were a bit less than $200,000 over the 2 bronchiolitis seasons after the guideline implementation. There were no significant differences in antibiotic use, admission rates, or returns resulting in admission within 72 hours of discharge. The main recommendations for emergency room management included no routine use of viral testing, chest X-rays, albuterol, or antibiotics. They do, however, endorse the supportive use of oxygen as well as hydration when needed. There have been other studies focused on hospitalized infants rather than infants managed in the emergency room department and these came up with similar findings.

REFERENCES

1. Berry SD, et al. Repeat Bone Mineral Density Screening and Prediction of Hip and Major Osteoporotic Fracture. JAMA 2013;310(12):1256-1262.
2. Gourlay ML, et al. NEJM 2012;366(3):222-233.
3. Cass AR, et al. Validation of Male Osteoporosis Risk Estimation Score (MORES) In a Primary Care Setting. J Am Board Fam Med 2013;26(4):436-444.
4. Maturitas. Published online June 17, 2013.
5. Rodrigo C, et al. British Thoracic Society. Single Versus Combination Antibiotic Therapy in Adults Hospitalized With Community Acquired Pneumonia. Thorax 2013;68(5):493-495.
6. Leuppi JD, et al. Short-term vs Conventional vs Glucocorticoid Therapy in Acute Exacerbations of Chronic Obstructive Pulmonary Disease. The REDUCE Randomized Clinical Trial. JAMA 2013; 309(21):2223-2231.
7. Miravitlles M, et al. Chest. 2013;144(5):On line.
8. Anthonisen NR et al. Antibiotic therapy in exacerbations of COPD. Ann Intern Med 106.(2):196-204,1987."
9. Pediatrics 2013;132(6):1146-1154.
10. Pediatrics 2014;113:1 e23-e29.
11. Antibiotics for Acute Otitis Media in Children. Medscape. Nov 19, 2013.
12. www.cdc.gov/getsmart/campaign-materials/print-materials.html."
13. Akenroye, AT, et al. Pediatrics 2014;133:1 e227-e234.

Alan S. Peterson, MD
Associate Director, Family and Community Medicine
Walter L. Aument Family Health Center
Quarryville, PA 17566
aspeters@lghealth.org