

CONTENTS

- 1
Chief of Staff Comments
- 2
Hospice – A Tough Call to Make
- 3
Update on Colon Cancer
and Screening
- 4 & 5
Making the IV-to-PO
Antimicrobial Switch
- 6
Look for New Physician
Engagement Survey
Faster, Easier, Confidential
- 7
Single-Port Surgery = Big Benefits
- 8
Fighting AF-Related Strokes:
Recent Findings
- 9
Osteopathic Medicine:
Structure + Function
- 10 & 11
Adult Stem Cell Therapy
*A Viable Option in the
Foreseeable Future*
- 12 & 13
Infected Total Joint Replacements
Better and Less Costly Treatments
- 14 & 15
Psychodermatology Gaining
Momentum



Leadership Means Getting Involved

Dr. Kristin M. Nelsen, Chief of Staff

It is our responsibility to save lives and improve public health; it's a role we accepted when we took the Hippocratic Oath. This responsibility, however, should go beyond treating patients to exploring non-traditional ways to make a difference too, such as influencing public policy, hosting free clinics or raising money to fund new cures and technologies.

Why? Because we live in a world of healthcare that seems to be getting more complicated by the minute. People are living longer, but often not healthier. Healthcare benefits are covering less. Unemployment is still high and the number of uninsured people continues to grow. Government policies seem out of touch with reality. Possible cures are often blocked by regulations or lack of funding. The list goes on.

As physicians, we have a voice – one that can affect the future course of healthcare and our professional lives more than we think. But first, we need to step up as leaders and exercise that voice – each and every one of us because the louder we are, the more we are heard.

How? Well, there are many definitions of leadership and lots of proven approaches to match, but I like what organizational experts Paul Hersey and Kenneth Blanchard have to say. They define leadership as “working with and through others to achieve objectives.” In other words, leadership is all about getting involved and building relationships.

Getting Involved

Right now, you may be involved in leading change a lot, a little or not at all. Perhaps you don't know where to start or how to shift gears. Here are tips that can guide your leadership activities in a way that is both productive and rewarding.

- First, take a minute to review and understand your goals as an individual; what issues are you passionate about addressing?
- Second, understand your goals and beliefs as a collective team and organization; how can you support the greater cause?
- Third, prioritize activities by importance and doability.
- Fourth, ask your colleagues about opportunities and take action on three different levels to maximize your impact:

Continued on page 16





Hospice – A Tough Call to Make

GUEST AUTHOR

Dr. Edward Jackson, Medical Director, VNA Hospice

Chief and Program Director of Family Medicine, Synergy Medical Education Alliance

Physicians are trained to fight disease and to never give up. We live in an age of innovation where virtually anything is possible. New cures always seem to be right around the corner. But what if they don't come soon enough for the patient? When all treatment options are exhausted and the patient is not responding, is it fair to prolong pain and suffering?

At some point, physicians may need to step back and reassess. If there is nothing we can do to make the patient better, despite repeated efforts, it might be time to shift the focus from finding a cure to providing comfort and relief. It might be time for hospice.

Think Quality of Life versus Quantity

If you ever referred a patient to hospice, you know it was a tough call to make but that it was also the right thing to do. It's not about admitting defeat or giving up; it's about making a change in what we can accomplish for the patient. Instead of extending the *quantity* of life with possible cures, we are improving the *quality* of life with hospice.

Hospice restores dignity and control. It gives patients the right to die from incurable illnesses with pain control and symptom management, surrounded by their loved ones at home or in a care facility. They have choices about the level and type of treatment they receive. They get constant care from a team of compassionate healthcare professionals. And while pain control may often be the primary focus, hospice also helps patients and their families cope with many end-of-life issues, from physical symptoms such as nausea, vomiting or shortness of breath to financial, emotional and spiritual concerns.

Did You Know?

- Medicare covers hospice care for patients beyond six months without penalty if guidelines are met.
- Most other insurance policies also cover hospice care.
- About 60% of patients in hospice have terminal cancer; 40% suffer from other chronic diseases.
- Hospice collaborates closely with referring physicians who want to remain a part of the team.
- Some patients recover enough to graduate out of hospice and into palliative care.

Start Sooner Rather than Later

For patients who have a terminal prognosis, physicians should consider hospice as soon as possible because the earlier hospice gets involved, the more your patients will benefit. Patients:

- Get a continuum of care, pain control and intervention at every stage of the terminal illness.
- Have more time to get their affairs in order, resolve conflicts, receive counseling and say their goodbyes.
- Are secure in the knowledge that family needs will be met too.
- Are more prepared to die peacefully.

“My dad and twin brother both had terminal cancer. As a doctor, and as a son and brother, I had to face the hard fact that there was no cure and I could not fix the problem. I did have a choice, however, that could make them more comfortable. That's what hospice is all about – alleviating the pain and anxiety and allowing for a death filled with dignity and with family surrounding them.”

– Dr. Edward Jackson

While physicians do not have a crystal ball in terms of predicting life expectancy, they should ask themselves:

- Will continuing the current course of treatment make a difference?
- Can the patient be cured with other available technologies?
- Is the patient fit for any clinical trials?
- Is palliative care an option instead?
- If it was me or a family member, would I pursue this course of therapy?

If the answers are “no,” then it's probably time to discuss end-of-life care options, including hospice, with the patient. While it's a difficult conversation to have, please don't delay. Respect the patient's need for information and choices; hospice might be the right choice.

The hospice team at Covenant HealthCare is ready and able to meet with your patients and their families to discuss services and support. All it takes is one phone call for the process to begin (see below). Consider it an important part of your toolkit for helping patients navigate a terminal illness.

For more information about hospice and the Cartwright Care Center, contact VNA Hospice Care at 989.799.6020 or 1.800.VNA.4.YOU.



Update on Colon Cancer and Screening

GUEST AUTHOR

Dr. Robert McNier, Gastroenterologist

Fast Facts

Did you know that in the United States alone, more than 140,000 cases of colo-rectal cancer were diagnosed in 2011 for an average of 2,800 cases per state per year? That is a lot, especially since most were preventable and more than one-third (49,000) led to an average of 1,000 deaths in each state, including Michigan.

At current rates, the chance of a U.S. citizen getting colo-rectal cancer in their lifetime is greater than 5% or one in 20 lives. Colo-rectal cancer is, in fact, needlessly the second leading cause of cancer death in the U.S., making it one of the most common yet most preventable forms of cancer.

The good news is that we've seen the death rate from colo-rectal cancer decline over the past 20 years, largely due to public and physician awareness of screening examinations. By rededicating ourselves to this effort, we can hopefully move colo-rectal cancer down on the list of common cancers.

Symptoms and Screening

Unfortunately, colon cancer is a disease that doesn't have glaring symptoms in the early stages. In the later stages, though, symptoms can include thin or bloody stools, cramping and unexplained weight loss. Most people who are eventually diagnosed with colon cancer are 50 or older, with most being around 64. Research shows that by age 50, one in four people have polyps – the colon cancer precursor.

Physicians should always remind patients that diet, exercise and lifestyle are critical preventive measures, and that a family history of colon cancer requires extra vigilance.

The most critical measure of prevention is colo-rectal screening. A variety of colon cancer screening examinations are available, and each has its pros and cons. That said, any form of screening is better than none at all, but not all are equal. Below is a summary:

- **Occult blood stool testing.** This is a non-invasive procedure in which the patient collects a small amount of stool for three days and delivers it to the laboratory. If this screen is chosen, it should be done annually because it is less accurate and reliable in diagnosis and if positive, must be followed by a colonoscopy. Furthermore, a negative study does not exclude the diagnosis of colon cancer.
- **CT colonography.** This is an X-ray of the colon; it requires a colon cleansing and air to be insufflated into the colon. The procedure is done without sedation. If a polyp or tumor is detected, a colonoscopy is required as the next step.
- **Sigmoidoscopy.** This procedure visualizes only about

one-third of the colon; it requires a colon cleansing as well and is done without sedation. One must ask, however, if a "partial" colon exam is fair: would it be any better than a mammogram where only one breast is screened? The answer would be no; it is an incomplete exam.

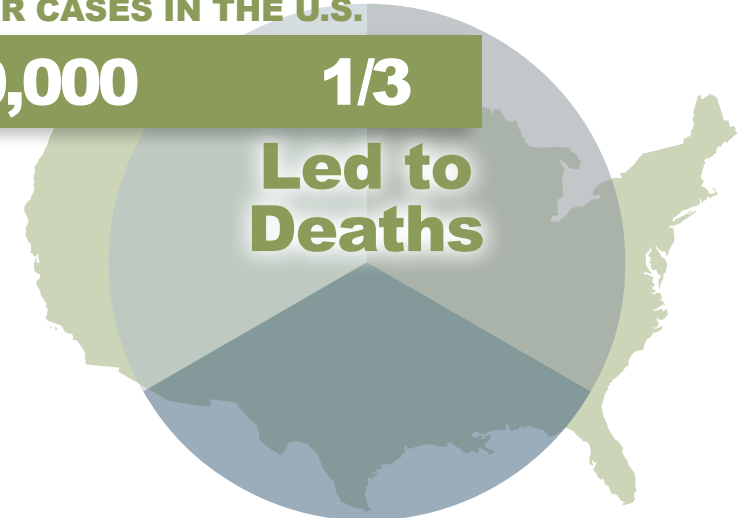
- **Colonoscopy.** The benefit of this procedure is that it examines the entire colon. It requires a colon cleansing and is done with sedation. Another benefit is that if an adenoma polyp (a pre-malignant lesion) is detected, it can be removed entirely at the time of the exam. This makes a colonoscopy not only a diagnostic procedure, but also a therapeutic and preventive procedure. Colonoscopies are now considered the "Standard of Care" for colo-rectal cancer screening. No other approach is as preventive, diagnostic and therapeutic.

2011 DIAGNOSED COLO-RECTAL CANCER CASES IN THE U.S.

140,000

1/3

Led to Deaths



Convincing Patients

Offering colo-rectal cancer screening exams is left to the discretion of the primary care physician and everything should be done to alleviate the patient's fear. Patients who are at average risk should be offered (with enthusiasm, insistence and education) a colonoscopy screening examination at age 50, and every 10 years after if they are polyp free. If they are not polyp free, then the repeat interval is every three to five years depending on the polyps found.

If the patient declines, it should be well-documented that you encouraged this exam, and you should continue to convince the patient about the importance of such an exam.

Diligence and awareness are key to moving colo-rectal cancer down on the list of most common cancers.



Making the IV-to-PO Antimicrobial Switch

Dr. Muhammad Umar Khan, General Medicine Section Chief and Infectious Diseases Physician

To improve the quality of patient care and reduce costs, there is a nationwide trend to implement intravenous (IV) to oral (PO) switch programs for a variety of medications, including antibiotics, analgesics and antipsychotics. Such programs are designed to automatically convert patients from an IV medication to a bioequivalent oral drug within a certain time period – usually 24-48 hours if the patient’s condition permits.

Many major hospitals are already implementing IV-to-PO programs with very good results, leveraging guidelines for antimicrobial stewardship from the Infectious Diseases Society of America and other institutions. Such guidelines also help improve the selection, dosing, route and duration of medications to optimize clinical outcomes.

Proven IV-to-PO benefits include:

- Improved patient safety, due to lower risk of hospital-acquired infections at the IV site.
- Shorter length of stay (LOS) since patients have fewer side effects and can be discharged faster.
- More appropriate use of antimicrobials, minimizing toxicity and resistance issues related to overuse.
- Savings to the patient and hospital since oral antimicrobials can be up to 100 times less expensive.
- Greater productivity due to reduced time required for IV management.
- Improved third-party payer reimbursement and compliance with Medicare’s Hospital-Acquired Conditions Initiative.

Success Factors

For any IV-to-PO program to work, physicians and other medical staff must first accept the value of IV-to-PO programs. Some, for example, will argue that their patient is too ill for oral medications, that it means they will need to discharge the patient, or that oral meds will disturb the patient’s rest.

Such arguments are not valid for qualifying patients. On the contrary:

- While some oral meds might not have the exact bioavailability ratios

as their IV counterpart, dosing can be adjusted using the right conversion charts.

- The need for IV meds is rarely the only reason for hospitalization as IVs can also be provided in other settings; the protocol therefore forces a more valid reason for extending LOS.
- While it may be “easier” to give IV meds, patient safety should always outweigh ease. In fact, the IV equipment itself (size, shape and sounds) hinders the patient both physically and emotionally.

Other key factors of success range from creating a multidisciplinary team approach for IV-to-PO programs to ensuring well-defined protocols, goals, measurements, automated systems and buy-in across the organization.

Proactive Policy and Protocols

While Covenant HealthCare has been encouraging physicians to support the IV-to-PO program, the hospital has also approved a more proactive policy to increase conversion rates for a select set of antimicrobials (see sidebar), incorporating many of the success factors mentioned above.

As a back-up, pharmacists will now automatically switch patients from IV-to-PO antimicrobials after 48 hours of IV therapy when there are no contraindications, collaborating with the physician to make a safe switch.

Patient safety and positive outcomes are always a top priority. Clear protocols, complete with criteria and dosing recommendations, have been developed based on national guidelines, ensuring safe and effective IV-to-PO switches. Pharmacists will access electronic workbench reports daily for IV orders that have been active for at least 48 hours. They will carefully review patient information, along with the following indications and contraindications, to screen patients.



Patient safety and positive outcomes are always a top priority.

INDICATIONS

- Tolerating enteral diet
- Taking other oral medications
- Afebrile or maximum temperature of <math><100.4^{\circ}</math> F in the previous 24 hours
- A white cell count (WBC) trending downward (with possible exceptions of leukocytosis with steroid use)

CONTRAINDICATIONS

- Nothing Per Orem (NPO)
- Continuous suction Nasal Gastric (NG) tube
- Severe/persistent nausea and vomiting
- Malabsorption syndrome
- Partial or total removal of stomach or small bowel
- Upper GI bleeding
- Vasopressor use
- Difficulty swallowing or no NG access
- Loss of consciousness or no NG access
- Documented ileus or gastro-intestinal obstruction
- Continuous tube feedings that can't be interrupted
- Treating infections, such as sepsis or SIRS, neutropenia, endocarditis, central nervous system infections (e.g., meningitis, brain abscess), orbital cellulitis, endophthalmitis, osteomyelitis

Making the Switch

When patients meet the criteria, the IV-to-PO process is initiated by either the prescribing physician or pharmacist, using the appropriate oral dose and schedule, and completing the proper documentation. All healthcare personnel involved in the patient's care are engaged.

IV-to-PO programs are truly a win-win for hospitals and patients in terms of lower costs and higher quality patient care. Importantly, such programs also protect public health by reducing overuse of antibiotics and the emergence of antibiotic-resistant bacteria.

For more information, contact Dr. Khan at 989.791.4100 or mukhan1@hotmail.com, or any Infectious Disease physician at Covenant HealthCare. You can also contact Jeff Laux in the Pharmacy Department at 989.583.4478 or jlaux@chs-mi.com.

Selected Antimicrobials

Antimicrobials will be switched when there is high oral bioavailability and if the patient's condition fits the criteria. Antimicrobials selected for IV-to-PO switching at Covenant HealthCare include:

- Azithromycin (Zithromax)
- Ciprofloxacin (Cipro)
- Clindamycin (Cleocin)
- Doxycycline (Doryx)
- Fluconazole (Diflucan)
- Linezolid (Zyvox)
- Metronidazole (Flagyl)
- Moxifloxacin (Avelox)
- Trimethoprim/sulfamethoxazole (Bactrim)
- Voriconazole (Vfend)



Look for New Physician Engagement Survey *Faster, Easier, Confidential*

Dr. John Kosanovich, Vice President of Medical Affairs and Network Development

A key goal for Covenant HealthCare is to make it the most attractive place for physicians to practice medicine. We need your feedback to make this happen. Therefore, please keep an eye out for a new Physician Engagement Survey on March 26 that will help make Covenant HealthCare a best-in-class organization for practicing medicine and receiving quality care. Your responses will show how we can improve the work environment and where we need to target our time and energy. It will also help define our strategic priorities.

A Fresh Approach

You'll notice some positive differences in the survey. For starters, we decided to change survey vendors, switching to the Healthcare Advisory Board. This Board will provide a dedicated advisor and a concrete action plan for improving engagement based on your feedback. It also compares our engagement nationally to hospitals of similar size. In addition, it tends to achieve a response rate nearly double what we normally get, which will provide an even broader perspective about how we can improve organizational success.

Other key benefits include:

- **The survey is faster:** It is completely on-line, takes about five minutes to complete, and is compatible with smartphone technology, giving you the versatility to complete it virtually anywhere.

- **The survey is easier:** It is shorter than previous surveys, the questions are more concise and relevant, and answers are provided on a simple scale of Strongly Agree to Strongly Disagree.
- **Your responses are confidential:** Results are tabulated in aggregate making it impossible to see individual responses.

A Tailored Design

The new survey recognizes that one size does not fit all. To accommodate the different needs of different physicians, this survey provides:

- A universal set of questions for all physicians that practice at Covenant HealthCare.
- A customized set of questions for employed or closely affiliated physicians.
- A customized set of questions for independent physicians and proceduralists.

Coming Up

You will be receiving email notifications and other reminders, and will have at least one month to complete the survey. Please look for the survey link and make a point to provide your opinions. If your email has changed in the last year, please let us know. The more feedback we get, the better we can create an organization that you enjoy.

For more information, contact Dr. Kosanovich at 989.583.6047 or jkosanovich@chs-mi.com.





Single-Port Surgery = Big Benefits

Dr. Sujal Patel, General Surgeon, Medical Director of Trauma Program

Editorial Note: Dr. Patel has chosen to write about general surgery, a topic unrelated to his role as Medical Director of Trauma.

Not too long ago, procedures like gall bladder surgery often involved large incisions, long hospital stays, painful recoveries and unattractive scars.

In the early 1990s, a less invasive laparoscopic surgical technique was introduced. With traditional laparoscopy, several small incisions are required to accommodate a laparoscope camera and to insert instruments designed to repair damage or remove organs. This usually resulted in fewer complications and a faster recovery.

Today, technology has evolved into a single-port procedure that takes minimally invasive surgery to a higher level. With single-port laparoscopic surgery, just one small incision can accommodate the laparoscope camera and surgical instruments. Equally important, the incision can be “hidden” in the patient’s navel in the ideal case.

More than 200 single-port surgeries have been performed at Covenant HealthCare on gallbladders, appendixes and some colons. Compared to traditional laparoscopy, patients report even less pain, better cosmesis and faster recovery.

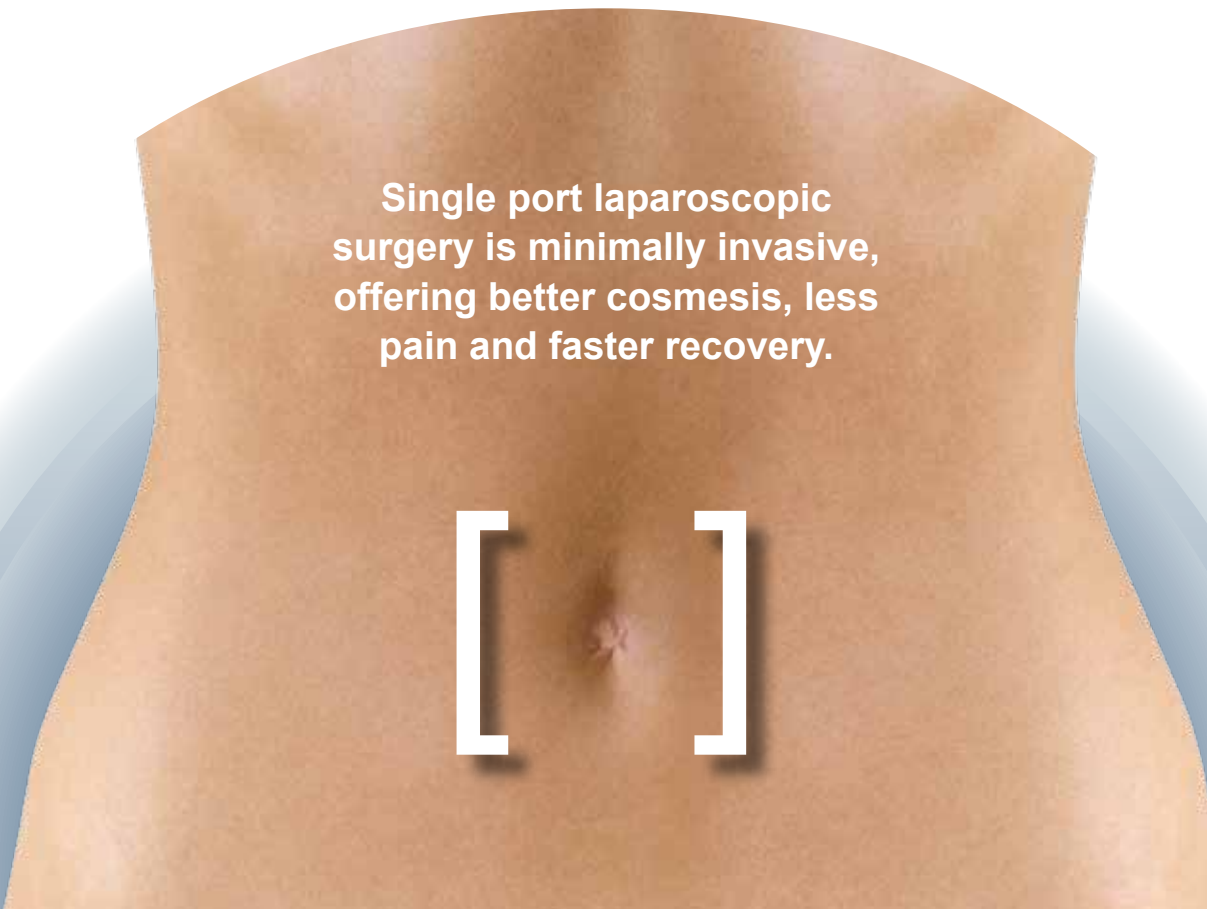
In addition, because it remains an outpatient procedure, hospital stays are usually avoided. While the procedure is more cumbersome for surgeons, specially designed flexible instruments provide more freedom.

Patients must meet certain requirements, however. They are not, for example, candidates for this technique if previous surgeries or obesity limit use of instrumentation.

In the near future, single-port **robotic** surgery will also be available. For this technology, even better instrumentation, control and 3D visualization will be available. The arms of the robot can extend across the entire abdomen enabling more complicated procedures to be performed, while retaining patient safety and normal operating procedures. The benefits are the same: less pain, better cosmesis and faster recovery. Covenant HealthCare will be a leader in the state of Michigan when this technology becomes available.

Robotic surgery is already being used at Covenant HealthCare and other hospitals for adrenal glands and esophageal surgery, but the single-port capability will expand the realm of applications to further improve patient outcomes.

For more information, contact Dr. Patel at 989.790.4855 or espnmd@att.net.



Single port laparoscopic surgery is minimally invasive, offering better cosmesis, less pain and faster recovery.



Fighting AF-Related Strokes: Recent Findings

GUEST AUTHOR

Dr. Pauline D. Watson, FACC, Cardiologist, Covenant Center for the Heart

Atrial Fibrillation (AF) is the most common sustained cardiac arrhythmia, and affects more than 2.2 million persons in the United States. AF is linked to a 1.5- to 1.9-fold higher risk of death, partly due to the relationship between AF and thromboembolic events. About 15-25% of all strokes in the United States can be attributed to AF.

AF is also strongly age-dependent, affecting 4% of people older than 60 years and 8% of people older than 80 years, with most incidences occurring in men of all age groups. In addition, the risk of ischemic stroke for non-rheumatic AF patients is between 2-7 times the rate of stroke in patients without AF.

Below are some important considerations when evaluating patients with AF strokes.

Risk Assessment

Assessing the risk of stroke from AF is critical to prevention. The simplest risk assessment scheme is the **CHADS₂ score*** system, designed to help physicians easily recall key risk factors. The CHADS₂ risk index evolved from the AF Investigators and Stroke Prevention in Atrial Fibrillation (SPAF) criteria, and is based on a point system in which two points are assigned for a history of stroke or Transient Ischemic Attack (TIA) and one point each is assigned for ages over 75, a history of hypertension, diabetes or recent cardiac failure.

The CHADS₂ stroke risk stratification scheme should be used as an initial, rapid and easy-to-remember means of assessing stroke risk. In patients with a CHADS₂ score of 2 or more, chronic Oral Anticoagulation (OAC) therapy with a Vitamin K Antagonist (VKA) is recommended in a dose-adjusted approach to achieve an International Normalized Ratio (INR) target of 2.5 (range of 2.0–3.0), unless contraindicated.

However, prognostic score systems such as CHADS₂ may underestimate the risk of embolic stroke. Recent AF guidelines recommend the **CHA₂DS₂-VASc**** scoring

system, a risk factor-based approach for patients with non-valvular AF that also uses a point system and includes additional risk factors which predispose to strokes.

Current Recommendations for Antithrombotic Therapy

In moderate- to high-risk factor AF patients, studies show that proper use of blood thinners can decrease the risk of stroke significantly. Blood thinners are also superior to anti-platelet drugs like Clopidogrel (or a combination of Clopidogrel and aspirin) to prevent embolic events in this group.

The table below shows recommendations for anti-stroke therapy in patients with nonvalvular AF for each risk group. Risk factors are designated as moderate or high. Moderate-risk factors include an age of over 75 years, hypertension, heart failure, left ventricular function less than 35% and diabetes mellitus. High-risk factors include prior stroke, TIA and systemic thromboembolism.

Anti-stroke Therapy for Patients with Nonvalvular AF

Risk Category	Recommended Therapy
No risk factors	Aspirin 81-325 mg daily
One moderate-risk factor	Aspirin 81-325 mg daily or Warfarin (INR 2-3)
Any high-risk factor or more than one moderate-risk factor	Warfarin (INR 2-3) or Dabigatran

The newer dabigatran (Pradaxa) anticoagulant appears to be at least as effective as Warfarin, with added expense but also added safety and ease of use. Unlike Warfarin, Pradaxa does not require constant blood tests and is not significantly

Continued on page 11

*CHADS₂

Cardiac failure, **H**ypertension, **A**ge, **D**iabetes, **S**troke (doubled)

**CHA₂DS₂-VASc

Congestive heart failure, **H**ypertension, **A**ge ≥75 (doubled), **D**iabetes, **S**troke (doubled), **V**ascular disease, **A**ge 65–74, and **S**ex category (female)



Osteopathic Medicine: Structure + Function

Dr. Brian Purchase, Medical Director, Emergency Care Center

Editorial Note: Dr. Purchase has chosen to write about osteopathic medicine, a topic unrelated to his role as Medical Director of Emergency Care Center.

Background

The first school of osteopathic medicine was founded in 1892 as a radical rejection of the prevailing system of medical thought, relying instead on the manipulation of the musculoskeletal system to diagnose and treat illness. Today, osteopathic medicine has evolved to where DO training in the U.S. is very similar to that of their MD counterparts. DO's are, in fact, licensed to practice medicine in all 50 states and more than 50 countries.

An additional component of training includes Osteopathic Manipulative Medicine (OMM), a modern derivation of earlier techniques. The basic premise of osteopathic medicine is the intimate relationship between structure and function. It is believed the body's function can be impaired by structural

issues. Using a variety of OMM techniques, osteopathic physicians are trained to diagnose, treat and prevent both illness and injury. By treating structural abnormalities, function can be improved.

Committee Focus

The Utilization of Osteopathic Methods and Concepts Committee was formed in 2004 when Covenant HealthCare began working with the Healthcare Facilities Accreditation Program (HFAP). HFAP, one of three accrediting organizations authorized by the Centers for Medicare and Medicaid Services (CMS) to survey hospitals for compliance with the Medicare Conditions of Participation and Coverage, is also affiliated with the American Osteopathic Association.

The Osteopathic Committee was created to foster methodologies related to osteopathic medicine. Current members include:

- Mary Lynn Arvanitis, DO
- Jim Jesko, DO
- John Kemerer, DO
- John Kosanovich, MD
- Mark Kuligowski, DO
- Brian Purchase, DO
- Michael Williams, DO

Committee Achievements

The Osteopathic Committee represents more than 60 osteopathic physicians on staff at Covenant HealthCare. They meet regularly to discuss ways in which to support and promote osteopathic medicine, and to meet HFAP standards.

One such standard includes promoting effective methods for osteopathic diagnosis and treatment for comprehensive patient care. A few key accomplishments in that area include:

- A portable osteopathic treatment table was purchased, which is also used by orthopedic specialists.
- Osteopathic-specific educational materials have been added to the medical library.
- Discussions on how to enhance the recording of osteopathic musculoskeletal findings, diagnosis and management on patient medical records. The Emergency Care Center, for example, has worked closely with Epic staff to develop documentation tools.

For more information, please contact any of the committee members.



Adult Stem Cell Therapy

A Viable Option in the Foreseeable Future

GUEST AUTHOR

Dr. Safwan Kassas, Cardiologist, Michigan CardioVascular Institute

Stem cell therapy is a form of regenerative medicine that physicians often hear about, yet there is still a great deal of ambiguity attached to it. This is because stem cell therapy has recently emerged from a basic science to a new field of clinical application. In other words, it's advancing from the lab into clinical trials, which means that it could be a viable option for your patients in the foreseeable future. Below are answers to common questions about this exciting, new-age therapy.

What Is Stem Cell Therapy?

In simple terms, a stem cell brings two unique features to medical science:

- It has the ability to differentiate and turn into virtually any kind of cell generated for the three original embryonic germ layers.
- It can renew, multiply and grow into new tissue.

Biologically, the concept is tissue-specific differentiation, which means the differentiation process is directed by the tissue where the cell is implanted. For example, if you put a stem cell into the liver, it can generate liver tissue to cure liver disease. If you put it into the pancreas, it will generate pancreatic cells and fight diabetes. If you put it into a heart muscle, it can generate cardiac cells and fight cardiomyopathy.

Non-Embryonic versus Embryonic

As you know, one of the controversies surrounding stem cell therapy is centered on the use of embryonic human stem

cells. That said, there are pros and cons to both embryonic and non-embryonic stem cell therapies:

- **Embryonic stem cells** (pluripotent) have more potential to differentiate (plasticity), are very abundant and are extremely resistant to the adverse implant environment, so their survival rate is higher. On the negative side, an immunologic mismatch can result since the patient is not receiving his/her own cells, and teratomas tumors can also form. Plus there is the ethical issue attached to embryonic research.
- **Non-embryonic adult stem cells** (somatic or multipotent) present no immunologic mismatch or ethical worries, but their ability to differentiate and survive is more limited as is their availability. Increasing the plasticity of adult stem cells is a key area of focus. They are primarily found in bone marrow, peripheral blood or umbilical cord blood in addition to many other tissues.

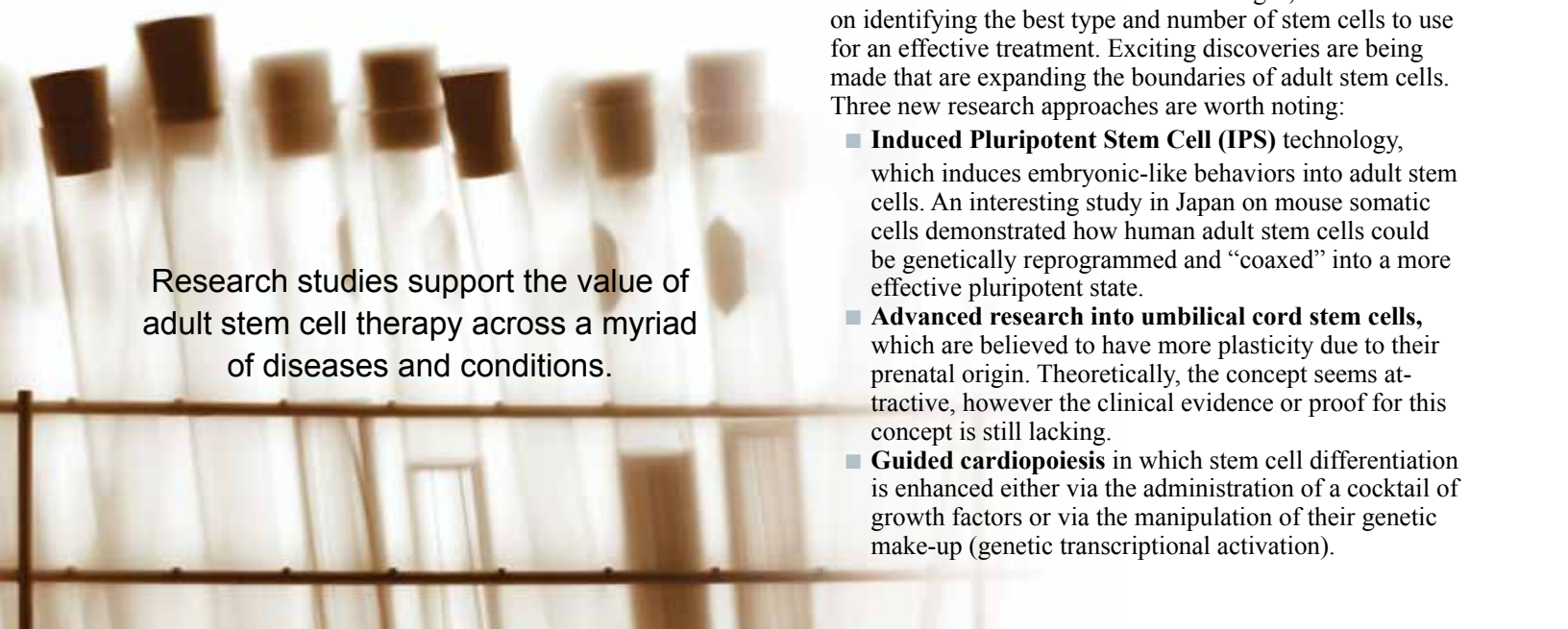
Where is Adult Stem Cell Research Headed?

Many research studies support the value of adult stem cell therapy across a myriad of diseases and conditions, such as Parkinson's, Alzheimer's, diabetes, spinal cord injuries, heart disease, arthritis, cancer and burns. Such studies typically have four stages before they can be reviewed for FDA approval:

- 1 – Safety
- 2 – Safety and Dose Selection
- 3 – Safety and Outcomes
- 4 – Large Randomized Clinical Trials

Most studies are in the Phase 2 and 3 stages, and are focused on identifying the best type and number of stem cells to use for an effective treatment. Exciting discoveries are being made that are expanding the boundaries of adult stem cells. Three new research approaches are worth noting:

- **Induced Pluripotent Stem Cell (IPS)** technology, which induces embryonic-like behaviors into adult stem cells. An interesting study in Japan on mouse somatic cells demonstrated how human adult stem cells could be genetically reprogrammed and “coaxed” into a more effective pluripotent state.
- **Advanced research into umbilical cord stem cells**, which are believed to have more plasticity due to their prenatal origin. Theoretically, the concept seems attractive, however the clinical evidence or proof for this concept is still lacking.
- **Guided cardiopoiesis** in which stem cell differentiation is enhanced either via the administration of a cocktail of growth factors or via the manipulation of their genetic make-up (genetic transcriptional activation).

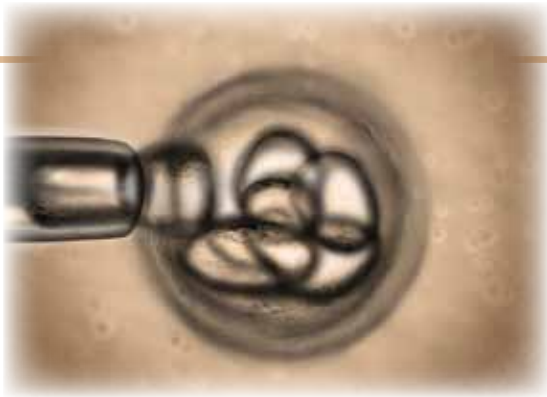


Research studies support the value of adult stem cell therapy across a myriad of diseases and conditions.

What are Some Promising Clinical Applications?

In the cardiovascular arena, it is hoped that adult stem cell therapy will yield a new frontier of treatment and results. Most work is occurring in four key applications:

- **Ischemic and non-ischemic cardiomyopathy.** Delivery of the stem cell would require direct injection into heart muscle surgically or by catheter. Phase 2 and early Phase 3 studies are showing promising results.
- **Acute myocardial infarction.** Small but encouraging trials with stem cell therapy show improvement at least equal to the primary angioplasty. Covenant HealthCare just completed a trial (OSIRIS) and results are pending.
- **Refractory angina.** No-option patients are those who can't have a bypass or angioplasty and are failing medical therapy. Administering stem cells to areas of ischemia in the cardiac muscle could achieve angiogenesis (the formation of new blood vessels) and thus reduce ischemic symptoms.
- **Critical limb ischemia.** One million people in the U.S. have this condition and there are 160,000 amputations per year. Treatment would apply to no-option patients who have peripheral vascular disease and ischemic ulcers. The resulting angiogenesis could reduce amputations and improve wound healing. Covenant HealthCare will be starting a clinical trial soon called REVIVE.



What Does the Future Hold?

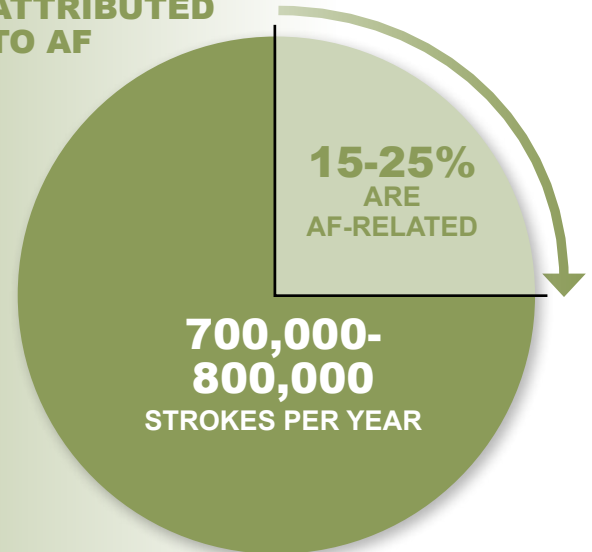
Many serious medical conditions, such as deformities and cancer, are caused by abnormal cell division. By increasing our understanding of stem cells, we can start to unlock the cause of many diseases while creating safe therapies that both prevent and cure.

Much work must be done, but the hope is that one of the three newer research approaches – IPS, umbilical cord or guided cardiopoiesis – will mature into a mainstream treatment that restores hope and quality of life to millions.

For more information, contact Dr. Kassas at 989.754.3000 or skkassas@aol.com.

affected by almost any medication or vitamin. However, there have been some concerns with increased risk of bleeding in patients 75 years and older. Consequently, a dose of 75 mg twice a day instead of 150 mg twice/day is used. Pradaxa should not be used in patients with severe renal failure or advanced liver disease.

U.S. STROKES ATTRIBUTED TO AF



Summary

Strokes caused by AF can often be avoided. Patients with AF should be first assessed for their level of risk for stroke. Those in the moderate- to high-risk category should receive anticoagulation therapy unless there are contraindications and lifestyle concerns. If Pradaxa is used, it should be used at the reduced recommended dose, but is considered just as effective and more convenient.

For more information, contact Dr. Watson at 989.583.4700 or pwatson@chs-mi.com.

Source: Published guidelines from an ACC/AHA/ESC committee of American and European experts; Framingham heart study; Atrial Fibrillation article by Dr. L. Rosenthal; www.medscape.com; www.acc.org.



Infected Total Joint Replacements Better and Less Costly New Treatments

GUEST AUTHOR

Dr. Brian de Beaubien, Covenant Center for Orthopedics

The projected demand for Total Joint Arthroplasty (TJA) is staggering. By 2016, Total Hip Arthroplasty (THA) in the U.S. is expected to reach 427,500 and Total Knee Arthroplasty (TKA) should exceed 1 million. Medicare data over the past 10 years shows an incidence of infection of between 1.6 and 1.9% for TJA. This projects out to approximately 27,500 newly diagnosed infections per year in the U.S. Due to our aging population, by 2030 TKA is expected to increase by 673% and THA by 174%. This is roughly 4 million joint replacements per year in our country alone which translates to more than 70,000 joint infections per year. At the estimated cost of roughly \$100,000 per infection, this is a staggering cost (\$7 billion dollars) to the U.S. healthcare system, not to mention pain and suffering for patients.

Traditional Two-Stage Treatments

Traditional treatments for PJI consist of a two-stage reimplantation procedure. The first two-stage reimplantation was performed in 1983 by Dr. John Insall, and has not changed significantly since then.

1 The first stage involves surgical removal of infected components and all foreign material with extensive debridement, typically followed by placement of a temporary antibiotic-laden acrylic bone cement spacer which eludes antibiotic into the local tissues rapidly over the first few days, then at a very low rate over the next few weeks to months. This is typically combined with IV antibiotic therapy for six weeks. If the patient is doing well clinically, and laboratory values such as erythrocyte sedimentation rate and C-reactive protein are normalized, then patients are felt to be suitable for the second-stage reimplantation.

2 The second stage typically occurs between 8–12 weeks after the first stage. This is a fairly difficult procedure because scar tissue, tissue edema, soft tissue contractures of ligaments, joint capsule and other factors make surgical exposure risky and tedious. Also, during the interval between stages when the antibiotic-laden bone cement is in place, there is no control over the amount or rate of antibiotic released. This poses

Terms

- PJI** *Periprosthetic Joint Infection*
- TJA** *Total Joint Arthroplasty*
- THA** *Total Hip Arthroplasty*
- TKA** *Total Knee Arthroplasty*
- NPWT** *Negative Pressure Wound Therapy*

possible toxic levels of antibiotic which can result in nephrotoxicity and ototoxicity, just to name a few concerns. Also, during this period between stages, the morbidity of the patient is significant. Activity restrictions, non-weightbearing requirements, reduced joint mobility and pain are common.

New and Improved Technique

With regard to the traditional two-stage reimplantation, controversies continue over the optimal duration or time between stages, and the duration and route of antibiotic delivery. To improve the two-stage technique, it made sense to try to shorten the interval between stages. This would:

- Reduce the overall amount of morbidity for the patient.
- Make a faster and significantly easier second-stage procedure for the surgeon.
- Eliminate a second hospitalization for positive economic implications.

Physicians at Covenant HealthCare explored the possibility of combining the traditional principles of aggressive surgical debridement along with two additional surgical concepts:

- The first concept is direct intra-articular infusion of antibiotics into the joint cavity itself, as opposed to relying



Knee after removal of infected components and one week of direct antibiotic infusion and NPWT.

on traditional IV antibiotic therapy and uncontrollable elution of antibiotics locally from a cement spacer. Such an approach would allow for the antibiotic level both within the joint and also systemically to be titratable and therefore controllable. This would hopefully achieve extremely high levels of intra-articular antibiotic than previously possible through traditional means, as well as potentially avoiding systemic toxicity. The potential for these extremely high levels of antibiotic within the joint could also allow for a much shorter interval between stages.

- The second concept was to introduce Negative Pressure Wound Therapy (NPWT) into the treatment protocol. NPWT has been around for more than a decade, and has been used extensively to treat traumatic wounds and chronic non-healing wounds. It relies on removal of surrounding tissue edema to relieve hydrostatic pressure around capillaries, thus increasing local blood flow and increased oxygen levels to the area, as well as stimulating granulation tissue through direct mechanical tension effects applied at the cellular level.

IRB-Approved Study

These concepts led to development of the seven-day abbreviated two-stage reimplantation technique for the treatment of PJI. This IRB-approved study was initiated in May 2005 and concluded in May 2009.

All patients who were candidates for traditional two-stage reimplantation were included in the study. A consecutive cohort of 73 patients with chronic PJI was included. Ten patients were eventually excluded from the study or lost to follow-up, leaving 63 patients and 64 joints (one patient had bilateral knee infections) to evaluate.

There was a minimum two-year and maximum six-year follow up (average 4.0 years). Results are as follows:

- The overall success rate was 89%, which is equal to other reports in the literature using traditional techniques.
- The remaining 11% translates to seven failures requiring further surgical treatment, and fortunately all of those patients were eventually deemed infection-free.
- One patient required eventual amputation due to the inability to eradicate infection.
- No major complications of treatment, such as pulmonary embolism, myocardial infarction, cerebral vascular accident, vascular injury or permanent renal failure, were noted.

Conclusions

Treatment with the seven-day abbreviated two-stage reimplantation technique has shown short- to mid-term results comparable to traditional two-stage methods of treating PJI. Advantages of the new technique include:

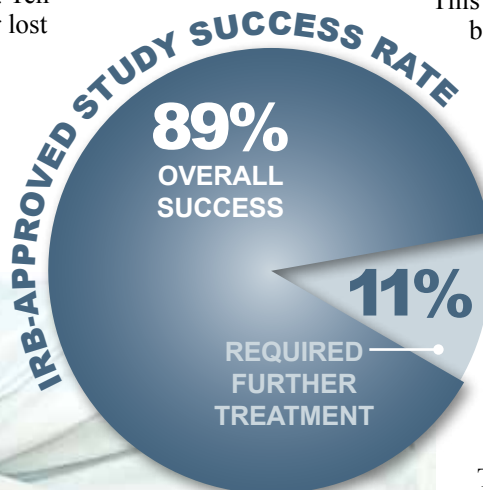
- It has significantly shortened the time between stages from 8-12 weeks to one week, resulting in reduced morbidity for patients and improved patient satisfaction.
- The new second-stage procedure is easier and therefore faster for the surgeon, which has implications for better functional outcomes (although this was not one of the factors examined in our study).
- The procedure also has the ability to add significantly better control of antibiotic levels during the treatment phase, potentially increasing efficacy of treatment as well as decreasing systemic side effects or toxicity.
- Because a second hospitalization is avoided, there is the potential for significant economic savings.

This is an intuitive observation and will be a focus of further studies.

Details of the study were reported at the American Association of Hip and Knee Surgeons in Dallas, Texas, last November. An abstract can be viewed on page 78 of the final program at: <http://www.aahks.org/meetings/anmeet/pastanmeets/AM11FinalProgram.pdf>. A full report will be published in a peer-reviewed publication in 2012.

This novel protocol for chronic PJI is profound with the potential to revolutionize on a national level the way two-stage reimplantation is performed, reducing costs while improving quality and patient outcomes.

For more information, contact Dr. de Beaubien at 989.295.3093 or bdebeaubien@chs-mi.com.



Same knee during second stage showing clean wound with no clinical sign of persistent infection.



Psychodermatology Gaining Momentum

GUEST AUTHOR

Dr. Mohammad Jafferany, Jafferany Psychiatric Services

Psychodermatology is a relatively new discipline in psychosomatic medicine. It is the interaction between mind and skin and examines how the psychiatric condition can create or exacerbate skin disorders, which are also known as psychocutaneous disorders.

Interest in psychodermatology is rapidly gaining momentum and is already well-established in Europe with good results. Research shows that stimuli received in the skin can influence the immune, endocrine and nervous systems at both the local and central levels. Various studies, in fact, estimate the prevalence of psychological factors that affect skin disease to be 25-33%.

The Role of Psychoneuroimmunology

To better understand the pathogenesis, course and treatment planning of psychocutaneous disorders, a basic understanding of psychoneuroimmunology is important.

Stress activates two major neuronal pathways: the hypothalamic-pituitary-adrenal axis and the sympathetic nervous system. When the brain identifies external stress, it activates the paraventricular nucleus of the hypothalamus and locus ceruleus. Corticotropin-releasing factor is secreted and transported to the pituitary, where it induces the release of adrenocorticotrophic hormone from the anterior pituitary, followed by secretion of glucocorticoids and catecholamines from the adrenal gland.

Cortisol acts as negative feedback on the hypothalamus and inhibits the further release of corticotropin-releasing factor. The cells of the locus ceruleus activate the sympathetic system, which results in the secretion of epinephrine and norepinephrine.

Both catecholamines and cortisol have potent effects on the immune system. They modulate antigen-presenting cells and macrophages and inhibit their activity and the production of interleukin (IL)-12 and IL-18. They also mediate the differentiation of naive T-Helper (TH) cells toward TH2, to the detriment of the development of TH1. This tilts the balance toward humoral immunity and activates B cells, mast cells, and eosinophils, **with a consequent increase in allergic inflammatory response** (see visual at right). Nerve terminals in cutaneous sensory nerves release neuropeptides, such as calcitonin gene-related peptide and substance P, which have a variety of effects on local inflammatory response. These affect several psychocutaneous disorders discussed below.

Classifications of Disorders

Psychocutaneous disorders can be classified into the following groups:

- **Psychophysiological disorders:** Skin diseases are precipitated or exacerbated by psychological stress, such as acne and psoriasis.
- **Psychiatric disorders with dermatological symptoms:** There is no skin condition and everything seen on the skin is self-inflicted, such as artefacta and body dysmorphic disorder.
- **Dermatological disorders with psychiatric symptoms:** Emotional problems and psychological consequences are more severe as a result of having skin disease, such as vitiligo and alopecia areata.
- **Miscellaneous:** Other conditions that do not fit in the above classifications, such as cutaneous sensory syndrome including vulvodinia, glossodynia and cutaneous paresthesia.



Various studies estimate the prevalence

Common Psychocutaneous Diseases

A variety of psychiatric disorders are manifested in skin lesions and conversely, many skin diseases have psychiatric manifestations. Examples include atopic dermatitis, psoriasis, acne vulgaris, alopecia areata, seborrheic dermatitis, aphthous ulcers, rosacea, urticaria, hyperhidrosis, dermatitis artefacta, trichotillomania, body dysmorphic disorder, neurotic excoriations, delusions of parasitosis, obsessive compulsive disorder, onychotillomania, acne excoriee, vitiligo and more.

Diagnosis

Diagnosing the underlying psychiatric component in a patient who has skin disease involves several dimensions:

- Establishing a good physician-patient relationship.
- Evaluating the patient's level of functioning as well as physical and psychosocial stressors that may influence the level of functioning.
- Evaluating concurrent affective components that influence the level of functioning.
- Weighing the presence of secondary gain as some patients may pretend their condition is worse than it is in order to miss work, earn sympathy and so on.

Medication Alert

Various psychotropics can cause dermatological adverse effects. In some patients, the use of antipsychotics, anti-anxiety medications, antidepressants, anticonvulsants, barbiturates and lithium can trigger a range of conditions from contact dermatitis, acne, erythema and various lesions to hyperpigmentation, petechiae, purpura and urticaria.

Therefore, a sound and current knowledge of psychiatric medications and their cutaneous adverse effects is important in the management of psychiatric conditions, and patients should be advised.

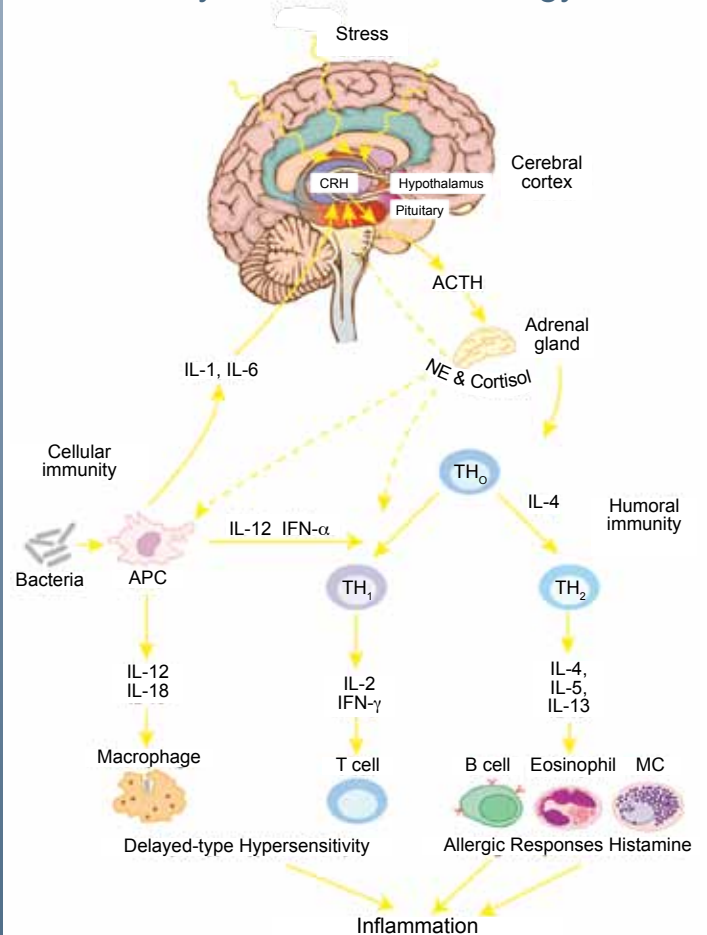
Treatment Approaches

Treatment should include a strong physician-patient relationship and a team approach with psychiatrists, dermatologists, therapists and social services. The treatment goal is to improve functioning while managing psychiatric symptoms.

Both pharmacological and nonpharmacological treatments are used to manage cutaneous disorders. Medications span a range of antidepressants, anti-anxiety medications, antipsychotics and topical skin preparations.

The choice of a psychopharmacological agent depends on the nature of the underlying psychopathology. Nonpharmacological treatments include supportive psychotherapy, Cognitive Behavioral Therapy (CBT), hypnosis, relaxation training, biofeedback, stress management, and guided imagery – all of which have been applied with success.

Psychoneuroimmunology



CRH, corticotropin-releasing hormone; ACTH, adrenocorticotropic hormone; IL, interleukin; NE, norepinephrine; T_H , T-Helper cells; APC, antigen-presenting cell; IFN, interferon; MC, mast cells.

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Awareness and Training

Skin diseases are not just a cosmetic issue; they are associated with a variety of psychological reactions that affect patients' level of functioning and can produce agony for the patient and family.

An increased awareness about psychocutaneous disorders and a team approach to treatment can significantly improve patient outcomes. Separate psychodermatology clinics, training opportunities for physicians, psychiatry and dermatology residency programs, and family education will all improve the understanding and management of psychocutaneous disorders.

For more information, contact Dr. Jafferany at 989.790.5990 or mjafferany@yahoo.com. You can also refer to the full article by Jafferany on www.psychiatrictimes.com, December 8, 2011, Volume 28, No. 12.

Extraordinary Care for Every Generation

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Leadership Means Getting Involved — continued from page 1

- 1) Self improvement in terms of building your leadership skills.
- 2) Internal engagement with colleagues in your work environment.
- 3) External engagement with members of the community, either as an individual or as part of a larger group.

The Rewards

So why get involved in this way? Because it expands your network of people, base of understanding, scope of knowledge and sphere of influence. This, in turn, can drive results and personal satisfaction.

For example:

- Participating in leadership awareness sessions can teach you new and useful skills, from conflict management to more effective communications.
- Joining hospital committees can help you strengthen professional relationships and understand the big picture of hospital issues and opportunities.
- Volunteering in the community can provide a more personal perspective about healthcare needs while enhancing your reputation as someone who truly cares.
- Getting involved in community healthcare projects can promote prevention and better health habits, and improve local healthcare services.

- Joining advocacy groups can enable you to influence healthcare policies at the local, regional and national level and proactively adapt to change.
- Mentoring young physicians can help instill skills and values in the next generation that can't be obtained from a textbook.

Opportunities

Community groups like United Way and the Saginaw Community Foundation offer many opportunities to get involved, as do groups like the Chamber of Commerce, Rotary, Kiwanis and more.

Covenant HealthCare also offers opportunities that may be of interest to you. For example, volunteering for the Covenant HealthCare Foundation helps raise funds to support quality care, and several openings are available on various hospital committees.

Physician involvement is the key to unlocking the future of healthcare. Together, our leadership can go a long way in driving positive change.

Sincerely,



Dr. Kristin M. Nelsen, Chief of Staff