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We know children.
We have all been watching and waiting for some type of movement on health care reform promised by the new administration. As of this writing, the bill is being developed in the Senate. I recently read a thought-provoking essay on health care reform written by Dr. Joseph Zuckerman and Dr. Alex Jahangir. Dr. Zuckerman is a past president of the American Academy of Orthopedic Surgeons and practices in New York City. The essay is entitled, “What’s Important: Rational Health-Care Reform.” I would like to share their ideas with you.

Over the past 100 years, attempts have been made by both Democrats and Republicans to develop some type of universal health coverage. Those attempts have included some common characteristics:

1. Employer mandate;
2. Individual mandate to share the risk of insurance;
3. Cost sharing to provide individual responsibility;
4. Defined benefits for “minimum” benefits;
5. Subsidizing the poor for insurance coverage; and
6. Employer tax deductibility for employee coverage.

The authors ask the question “whether health care is a right or a privilege.”

Entitlement or Benefit
Drs. Zuckerman and Jahangir define an entitlement as “a government program that guarantees access to a benefit based upon established rights or legislation.” Social Security and Medicare are two examples of entitlement programs. They ask the question “Is health care an entitlement or a benefit?” The authors feel that health care coverage in our country should be an entitlement for all, but it should be means-tested. There would be means-tested subsidies for the purchase of health coverage. This would allow for a basic coverage package that could be expanded by using your own resources.

For true health care reform, five important changes should be done:

1. Means Testing for Medicare
Currently, all Medicare patients receive the same benefits, regardless of their net worth. If means-testing was done, those with more financial resources would contribute more for their health care. This would also affect the overall cost curve of Medicare expenses.

2. Increasing Individual Accountability for Good Health
Healthy lifestyle choices would be encouraged; patients could be rewarded for not smoking, maintaining a normal weight and using preventive care options. This could be encouraged by lowering premiums or deductibles and lowering co-insurance costs. Currently, many self-insured companies do encourage this behavior.

3. Ensure that a Large Share of Insurance Revenue is Spent on Health Care
The Affordable Care Act (ACA) requires commercial insurers to spend at least 80 percent of their premium revenues in clinical benefits for insured patient (“medical loss ratio requirements”). This has translated into rebates of $1 billion for policyholders in 2011 and 2012.

4. Medical Liability Reform
Unfortunately, the ACA did not address medical liability. The estimated yearly cost of defensive medicine in orthopedic surgery alone is $2 billion. In 2010, the annual cost of the U.S. medical liability system, including defensive medicine, was $55.6 billion. Medical liability reform would decrease the cost of care and practice expenses (the average liability premium for an orthopedic surgeon is $34,920).

5. Restructuring the Costs of Medical School Education
We all know of the nationwide shortage of primary care physicians. In 2014, medical school debt averaged $176,348 per graduate. This is one of the reasons that students don’t choose the lower paid primary care specialties. Without access to primary care providers, patients will use more expensive sources of care (i.e., emergency departments). One alternative would be free tuition for medical students attending a U.S. medical school. Following completion of their training, the physicians would serve in an underserved area for a period of time. The average annual tuition for medical school is $44,000. The yearly cost of tuition free education for 20,000 medical students would be less than $1 billion per year, which is less than 0.2 percent of the 2014 annual Medicare outlay.

Conclusion
Universal coverage is both a moral and ethical approach in a country known for taking care of its citizens. To accomplish this, all key players in the health-care delivery system, including patients, will need to compromise and innovate. Time will determine if this goal can be achieved.

REFERENCES
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Busy clinicians throughout South Dakota spend little time thinking about their early years of medical education and how their medical school prepared them for practice. As one of those charged to ensure that our medical school, the University of South Dakota Sanford School of Medicine (SSOM), produces good doctors, I oversee the school’s maintenance of accreditation. This brief communication is an update on the school’s upcoming LCME accreditation visit.

Why accreditation? The short answer is medical schools need to be accredited in order for their graduates to enter accredited residency programs, and the goal of accreditation is to ensure that the education provided by a medical school meets acceptable levels of quality.

What is accreditation? Medical schools in the U.S. and Canada are accredited by the Liaison Committee on Medical Education (LCME). The process of accreditation occurs every eight years – more often for new schools or schools with quality issues. It begins with a year-long self-study, includes the writing of numerous documents, and ends with a site visit. Schools are measured against a set of 12 standards, each of which contains a list of elements. Wherever a deficiency is identified schools are cited for that element as “unsatisfactory” or “satisfactory requiring monitoring.” The site visit team writes up its findings in a report and submits it to the LCME, which renders the ultimate decision about accreditation or continuing accreditation for the school. SSOM has maintained full accreditation throughout its history. SSOM has maintained its accreditation due to the hard work, enthusiasm, and dedication of our faculty members, both basic science and clinicians. Our faculty is a diverse group of individuals throughout the state of South Dakota who volunteer their busy time to educate our students.

Who does accreditation? The school site visits are done by an ad hoc team of independent peers who volunteer their time to come from similar roles at other schools. The decision-making LCME is similarly an appointed committee of medical school deans and associate deans who meet three times yearly to review reports on schools. The late Dr. Robert Talley served and I am currently serving on this committee.

When is our accreditation? Our site visit is scheduled for Sept. 24-28, 2017. Following a Sunday evening meeting with Dean Mary Nettlemann, the team will be visiting several of our campuses and sites over several days to meet with faculty and students. The final decision will be rendered in February 2018.

Overall, this substantial process serves the school and its students by assuring an excellent education program.

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Pharmacogenetics of PPIs: Lessons Learned

By Chencheng Xie, MD; and Russell A. Wilke, MD, PhD

Introduction
In January 2017, South Dakota Medicine launched a series of monthly articles exploring the field of pharmacogenetics. In the first manuscript of this series, Drs. Larson and Miller reviewed the advantages and disadvantages of CYP2C19 genotyping for patients taking clopidogrel. Because this same enzyme, CYP2C19, also metabolizes nearly 10 percent of all prescription medications, Drs. Petry and Hines recently followed with a manuscript discussing the clinical impact of CYP2C19 gene variants on a second class of drugs, the SSRIs. This principle – that genetic variation in one enzyme influences clinical outcome for more than one class of drugs – represents an important principle in pharmacogenetics. CYP2C19 also metabolizes proton pump inhibitors (PPIs), one of the most widely prescribed classes of medications in the entire world. We therefore now discuss the impact of CYP2C19 gene variants on three clinical outcomes for the PPIs: 1) H. Pylori eradication rates, 2) gastroesophageal reflux disease, and 3) cancer risk.

Landscape
The field of pharmacogenetics is rapidly advancing. Genes influencing drug response fall into two categories: pharmacodynamic (PD) genes and pharmacokinetic (PK) genes. While PD genes are known to influence a drug’s mechanism of action (encoding receptors, G-proteins, ion channels, and other signal transduction proteins), PK genes influence the tissue distribution of drugs and their metabolites (encoding proteins like uptake transporters, efflux transporters, and drug metabolizing enzymes). Over the past decade, genetic variation in the cytochromes P450 (CYP enzymes) has been shown to alter clinical outcome for a variety of commonly used drugs.

Four CYP enzymes are responsible for the hepatic oxidation of the large majority of prescription drugs: CYP2C9 metabolizes 15-20 percent of all prescription drugs, CYP2C19 metabolizes 5-10 percent of all prescription drugs, CYP2D6 metabolizes approximately 25 percent of all prescription drugs, and CYP3A4 metabolizes approximately 40 percent of all prescription drugs. Because gene variants are relatively common for the first three of these enzymes (CYP2C9, CYP2C19, and CYP2D6), South Dakota Medicine has regularly reviewed the impact of genetic variability in these enzymes on a number of important prescription drugs throughout the year. For example, Drs. Larson and Miller reviewed the clinical impact of genetic variability in CYP2C19 on outcomes related to the use of clopidogrel in January.

The CYP2C19 gene encodes an enzyme that activates clopidogrel in vivo, and loss of function places patients at risk for therapeutic failure. Because CYP2C19 gene variants are quite common in the general population, this drug-gene relationship is clinically actionable. Although each patient inherits two copies of CYP2C19 (one from their mother, and one from their father), a single abnormal copy of the CYP2C19 gene is enough to lead to therapeutic failure for clopidogrel. Patients with one abnormal copy of the CYP2C19 gene have a threefold increase in risk for coronary artery stent thrombosis on clopidogrel after PCI (compared to patients with two normal copies of CYP2C19 given the same medication). This drug-gene interaction (DGI) is consistent with our current knowledge about drug-drug interaction (DDI). When patients on copidogrel are given another CYP2C19 substrate (e.g., a proton pump inhibitor), even a modest reduction in the enzymatic bioactivation of clopidogrel is associated with a measurable increase in risk for major adverse cardiovascular events [O.R. = 1.42, 95 percent C.I. 1.30-1.55]. Interestingly, this effect size is greater for some CYP2C19 substrates (omeprazole) than others (rabeprazole).

GI Outcomes
Although the frequency of CYP2C19 gene variants varies by geographic race, loss of function variants are fairly common in all populations tested to date: nearly one in five patients of European ancestry has an abnormal copy
of the CYP2C19 gene, as do one in four patients of African ancestry and one in three patients of Asian ancestry. Because these gene variants are so common, and because CYP2C19 metabolizes nearly 10 percent of all prescription drugs, medical centers in South Dakota have started deploying automated decision support for some drugs metabolized by CYP2C19. While published guidelines are available for antiplatelet agents, no such guideline exists for the proton pump inhibitors (PPIs). Yet PPIs are among the most commonly prescribed drugs metabolized by this enzyme.

It is clear that CYP2C19 loss of function variants are associated with PPI efficacy in the context of mucosal ulcers within A) the esophagus, B) the stomach, and C) the duodenum. It is also clear that CYP2C19 genotype influences H. Pylori eradication rates based on biopsy and/or breath test. A seminal study published two decades ago by Furuta and colleagues showed that H. Pylori eradication rates on combination therapy with omeprazole and amoxicillin were strongly influenced by CYP2C19 genotype (29 percent cure rate in patients with two functional copies of the gene, 60 percent cure rate in patients with one loss of function copy, and 100 percent cure rate in patients with two loss of function copies). Paradoxically, for this class of drugs, CYP2C19 loss of function is actually associated with better clinical outcome, because patients who metabolize PPIs poorly have higher circulating levels of these drugs and greater gastric acid suppression.

Although CYP2C19 metabolizes all drugs within this class, the impact of CYP2C19 genotype varies because each PPI is metabolized to a greater or lesser degree by other CYP enzymes as well (e.g., CYP3A4). Correspondingly, CYP2C19 genotype appears to impact outcome for omeprazole and lansoprazole more strongly than it impacts outcome for esomeprazole or rabeprazole. Nonetheless, a CYP2C19 genotype effect can still be observed in patients taking esomeprazole. In 2015, Saito and colleagues reported that H. Pylori eradication rates on triple therapy (esomeprazole plus amoxicillin and clarithromycin) were also influenced by CYP2C19 genotype (52 percent cure rate in patients with two functional copies of the gene, 72 percent cure rate in patients with one loss of function copy, and 85 percent cure rate in patients with two loss of function copies). Interestingly, H. Pylori eradication rates were still statistically higher when patients with one loss of function copy and two loss of function copies were grouped together. This drug-gene relationship may therefore be actionable in carriers (i.e., even in heterozygotes).

As noted, the impact of CYP2C19 on PPI efficacy is not limited to H. pylori eradication and mucosal ulcers in the stomach and the duodenum. CYP2C19 genotype also influences the degree to which PPIs can attenuate clinical signs and symptoms attributable to gastroesophageal reflux disease (GERD). In a large meta-analysis, investigators in Japan recently observed a CYP2C19 genotype effect on the resolution of reflux esophagitis and non-erosive reflux disease – across 15 separate study populations – despite patients being exposed to different doses of different PPIs. Extensive metabolizers (patients with two functional copies of CYP2C19) have a higher risk of being refractory to PPI therapy than poor metabolizers [O.R. = 1.66, 95% CI. 1.02-2.66]. While the impact of CYP2C19 genotype on the healing rate for Barrett’s esophagus remains less clear, emerging data show an association between CYP2C19 genotype and risk of esophageal cancer.

Given the importance of this class of drugs, and the weight of the evidence, it is surprising that a gene-based dosing guideline has not yet been published for the PPIs. While genetic differences in CYP2C19 activity vary according to race, these gene variants are found in all populations. Genetic information is therefore now included on the drug label (i.e., within the package insert) for all PPIs. The U.S. Food and Drug Administration (FDA) guidance for omeprazole is shown in the box.

**Box 1. FDA Label Guidance Based on Genotype**

| “The systemic exposure to omeprazole varies with a patient’s metabolism status: poor metabolizers > intermediate metabolizers > extensive metabolizers.” |
| Poor metabolizer = 2 abnormal copies of CYP2C19 |
| Intermediate metabolizer = 1 abnormal copy |
| Extensive metabolizer = 0 abnormal copies |

“Approximately 3% of Caucasians and 15 to 20% of Asians are CYP2C19 poor metabolizers [2 abnormal copies of CYP2C19]. In a pharmacokinetic study of single 20 mg omeprazole dose, the AUC of omeprazole in Asian subjects was approximately four-fold of that in Caucasians.”

The FDA currently requires genetic information in the labels (package inserts) for almost 200 prescription medications. The Clinical Pharmacogenetics Implementation Consortium (CPIC) publishes guidelines to help clinicians...
use genetic information to dose dozens of medications. Several of these guidelines outline decision support for clinicians to act on CYP2C19 gene variants in the context of antiplatelet agents or antidepressants. However, they do not specify when patients should be genotyped, and they do not provide decision support for additional drugs metabolized by this enzyme, like the PPIs. Because gene variants in CYP2C19 are very common in the general population, and because they clearly impact clinical outcome for the PPIs, efforts are needed to deploy automated best practice advisories (BPAs) for this important class of drugs.

Key unanswered questions include the following: Should we use genotype to select which PPI (omeprazole is impacted more than rabeprazole)? Or should we simply use genotype to adjust the dose? Prospective longitudinal studies are also needed to quantify the magnitude of event reduction (e.g., Barrett’s esophagus, and cancer) when gene-based drug dosing is utilized.

Acknowledgments: The authors would like to thank Toni LeVasseur for assistance with the preparation of this manuscript, and Wenjie Jessie Lu, PhD, for helpful comments regarding FDA label changes.

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REFERENCES


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E-cigarettes. Talk to your young patients.

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Patient: It’s not smoke, it’s just water vapor.

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Patient: E-cigarettes help people quit smoking.

When an E-cigarette heats up the e-liquid, the aerosol that is created is not just water vapor and it’s not harmless for the user or those who are exposed to it secondhand.

The jury is still out on whether E-cigarettes are a safe way for people to quit smoking, but we do know that they pose a health risk for young people.

Patient: E-cigarettes don’t have nicotine in them.

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WARNING: E-cigarette use among young people has risen significantly over the last 5 years. Use among middle and high school students has now surpassed use of regular cigarettes.

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West Nile Review: 15 Years of Human Disease in South Dakota, 2002-2016

By Lon Kightlinger, MSPH, PhD

Abstract
During the past 15 years, 2002-2016, West Nile virus (WNV) has emerged in South Dakota resulting in 509 neuroinvasive disease (NID) cases, 745 hospitalizations and 38 deaths. Culex tarsalis is the state’s primary mosquito vector. South Dakota’s average annual incidence of WNV-NID and death rate are the highest of any state in the U.S. WNV cases have been reported from all counties in the state. All age groups have been infected with cases peaking in the 40-44 year age group, but deaths peaking in cases 70 years and older. Although South Dakota’s WNV season lasts six months, May-October, the first week of August has been the peak week of WNV disease onsets. West Nile is now enzootic in South Dakota. Every citizen, local mosquito control programs, medical and public health infrastructures must continue to prevent and respond to annual WNV outbreaks, and prepare for the next arboviral disease to emerge.

In 2002 an African arbovirus emerged in South Dakota. During the subsequent 15 years, 2,359 South Dakotans have been reported with West Nile disease, including 745 hospitalized and 38 deaths. There have also been 206 donated blood units discarded due to contamination with West Nile virus (WNV) in South Dakota. Assumedly, tens of thousands of other unreported South Dakotans have also been infected.

WNV is a mosquito-borne flavivirus first described in Uganda, East Africa, in 1937. Sixty-two years later the virus was first detected in the Western Hemisphere during the summer of 1999 in New York. During the next three years, WNV swarmed across North America, reaching South Dakota in 2002. South Dakota’s first WNV detection was in a Brown County crow on July 22, 2002, followed by a human case onset on July 23, 2002. South Dakota’s first WNV death was the following year in July 2003. By 2006 WNV had spread to all contiguous 48 United States and four Canadian provinces. WNV is now enzootic in most of temperate North America and is expected to persist as a public health threat to South Dakota into the foreseeable future.

The primary vector of WNV in South Dakota is the night-biting Culex tarsalis mosquito. Although birds are the primary reservoir of WNV, humans are among the incidental mammalian hosts. Human infection is generally asymptomatic or mild, with approximately 20 percent of human WNV infections provoking acute self-limited febrile illness (non-neuroinvasive) characterized by fever, headache, fatigue and myalgia, and less than 1 percent of patients developing more severe neuroinvasive disease (NID) syndromes including meningitis, encephalitis and acute flaccid paralysis or poliomyelitis. Long-term sequelae include cognitive lapses, functional difficulties and neurologic dysfunction. Approximately 9 percent of WNV-NID cases are fatal. WNV neuroinvasive and non-neuroinvasive cases are mandatory reportable disease events in South Dakota and the U.S.

Since 1999 there have been 45,975 human WNV disease cases and 2,005 WNV-associated deaths reported in the U.S. (Table 1). In South Dakota 2,359 human WNV disease cases, including 509 WNV-NID cases and 38 WNV-associated deaths, have been reported since 2002 when the virus was first detected in the state. The peak epidemic year in South Dakota was 2003 when 1,039 human WNV cases and 14 deaths were reported, accounting for 44 percent of all cases and 37 percent of South Dakota deaths historically. The fewest WNV cases were reported in 2011 (n=2).

South Dakota has experienced a disproportionate WNV morbidity and mortality burden with 0.3 percent of the U.S.’ population, but 2.1 percent of the WNV neuroinvasive
cases and 1.9 percent of deaths. The annualized incidence for WNV-NID in the U.S. has been 0.4 cases per 100,000 population per year (Table 2). Upper Great Plains states have had the highest average annual incidence of WNV-NID. The five highest WNV-NID incidence states include South Dakota 3.1, North Dakota 2.6, Nebraska 1.8, Wyoming 1.6 and Colorado 1.3 cases per 100,000 population per year. The high rate of WNV-NID is graphically evident in the national incidence map showing county-level incidence (Figure 1). The dark swath of high incidence counties runs from north Texas up the Great Plains concentrating in the Dakotas and Nebraska. The annualized incidence for total WNV cases (neuroinvasive and non-neuroinvasive) also ranks South Dakota with the highest incidence in the country, 15.1 cases per 100,000 population per year, and the other above-mentioned states also ranking as top incidence states. The overall national WNV death rate (non-annualized) was 0.62 deaths per 100,000 population from 1999 to 2016. South Dakota has had the highest WNV death rate with 3.93 deaths per 100,000 during those years. Other states with high WNV death rates again include our neighboring states Nebraska, Wyoming and North Dakota.

Human WNV cases have been reported in all 66 South Dakota counties and in at least 320 communities over the 15 years (Figure 2 and Table 3). Counties with the highest incidence of WNV illness include Marshall 74.5 cases per 100,000 per year, Sanborn 67.9, Potter 63, Sully 58.3 and Perkins 58.1; whereas counties with the most cases reported are among the state's most populated counties, Brown 292 cases, Pennington 197, Minnehaha 150, Hughes 87 and Davison 85 cases. Counties with the lowest WNV annualized incidence include Union 8.8, Yankton 8.3, Lincoln 7.4, Minnehaha 5.9 and Custer 5.7 cases per 100,000 population per year.

People of all races, sexes and ages have been infected and sickened by WNV in South Dakota. South Dakota males have been disproportionately affected by WNV with 56 percent of the 2,359 WNV cases having been male and 44 percent female. Race stratification shows WNV disease rates at 90.5 percent White, 8 percent American Indian,
Journal

Table 2. West Nile virus neuroinvasive disease (NID), total cases, deaths and rates reported to CDC, 1999-2015 (rates calculated with 2010 census).

<table>
<thead>
<tr>
<th>State</th>
<th>NID cases</th>
<th>NID annualized rate*</th>
<th>Total cases</th>
<th>Total annualized rate*</th>
<th>Deaths</th>
<th>Death rate** (non-annualized)</th>
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*Cases per 100,000 population per year.

**Deaths per 100,000 population.

0.4 percent other race, and 1.1 percent unknown race, which is proportionately similar to the state’s population race percentages. The elderly are at highest risk of developing WNV-NID disease. The median age of South Dakota WNV-NID cases was 52 years, while the WNV non-neuroinvasive case median age was 44 years, and the death median age was 80 years. Both case numbers and incidence peaked in the 40-44 year age group (Figure 3). However, 24 percent of NID cases and 85 percent of deaths were among individuals 70 years of age and older.

The WNV human disease season runs from May to October in South Dakota (Figure 4). The peak week of illness onset has been during the second week of August; however, if the 2003 WNV epidemic cases are removed, the remaining year’s cases peak during the first week of August. The most case onsets during a single week were during the second week of August during the 2003 epidemic with 213 cases. During the other years the most case onsets were during the first week of August 2012 (n=49). Ninety percent of South Dakota’s human WNV cases occurred during the nine-week period from the second week of July through the second week of September. South Dakota’s six-month WNV season starts with 0.4 percent of patient illness onsets during the month of May, 2.0 percent in June, 19.7 percent in July, 59.8 percent in August, 17.4 percent in September and 0.7 percent of illness onsets during October. Since the infectious mosquito bite occurs two days to two weeks prior to onset of disease symptoms, mosquito control and bite prevention should take place before and during the peak disease onset periods.

Over the past 15 years, human WNV infection has caused extensive disease and death in South Dakota and is likely to threaten the public’s health into the future. South Dakota health care providers should be alert for patients with WNV neuroinvasive and non-neuroinvasive symptoms, use appropriate laboratory testing, and report cases to the South Dakota Department of Health.
Figure 1. Average annual incidence of West Nile virus neuroinvasive disease reported to CDC by county, 1999-2015.

Table 3. Human WNV cases and annualized incidence (cases per 100,000 population per year) in South Dakota counties, 2002-2016.

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Help Shape the Future of Medicine in South Dakota

The South Dakota State Medical Association Foundation, the philanthropic arm of the South Dakota State Medical Association, is a tax-exempt 501(C)(3) non-profit corporation, was established to assist and support medical research, medical teaching and medical education at the Sanford School of Medicine.

On average, medical students graduate with $130,000 in debt. Contributions to the South Dakota State Medical Association Foundation provide financial assistance to students at the Sanford School of Medicine and are all designated for scholarships, grants and low-interest loans for students.

Any amount can be donated at any time throughout the year. If you have questions or want more information, please call Laura Olson at 605.336.1965.

Send Your Contributions Today To:
South Dakota State Medical Association Foundation
PO Box 7406, Sioux Falls, SD 57117-7406
www.sdsma.org

SOUTH DAKOTA State Medical Association Foundation
Shaping the Future of Medicine in South Dakota
WNV vaccine is available. City, tribal and county officials should assure appropriate mosquito control for their communities, and all citizens should protect themselves and their families from mosquito bites. The unpredicted emergence of WNV in South Dakota demonstrates that an exotic, tropical virus can become enzootic in a temperate Great Plains state. We must stand prepared to detect and combat other mosquito and tick transmitted diseases, such as Zika, St. Louis encephalitis and Ross River fever, by maintaining local mosquito control competence, insect surveillance, climate monitoring and laboratory testing capacity.

Figure 2. Distribution of human West Nile cases, South Dakota 2002-2016. Each dot represents one case randomly distributed within counties.

Figure 3. West Nile human cases and deaths by five-year age groups, South Dakota 2002-2016.

Figure 4. West Nile human cases by week of WNV season, South Dakota 2002-2016.

REFERENCES


About the Author:
Lon Kightlinger, MSPH, PhD, State Epidemiologist, South Dakota Department of Health
Suicide Prevention

Warning Signs
- Threatening to hurt or kill oneself
- Seeking access to means to harm self
- Talking, writing, or posting on social media about death, dying, or suicide
- Feeling hopeless
- Feeling worthless or feeling a lack of purpose
- Acting recklessly or engaging in risky activities
- Feeling trapped
- Increasing alcohol or drug use
- Withdrawing from family, friends, or society
- Demonstrating rage and anger, or seeking revenge
- Dramatic changes in mood

If you feel someone may be suicidal...
- Let the person know you are concerned and willing to help
- Discuss your observations with the person
- Ask question(s) without dread
- Do not express a negative judgment
- Appear confident, as this can be reassuring
- Be comfortable with asking, “Are you having thoughts of suicide?”
  “Are you thinking about killing yourself?”

If you or someone you know is experiencing suicidal ideation, there is help. The National Suicide Prevention Lifeline is available 24 hours a day, 7 days a week to provide professional support. In South Dakota, The Helpline Center answers calls made to the National Prevention Lifeline.

1-800-273-8255

Suicide Prevention Coalitions
- Sisseton—Aliive-Roberts County
- Mitchell—Mitchell Area Suicide Prevention
- Hot Springs—EMPOWER
- Spearfish—YouthWise
- Rapid City—Front Porch
- White River—Michael Glynn Memorial
- Watertown—Watertown Healthy Youth
- Sioux Falls—Sioux Falls Suicide Prevention Task Force
- Aberdeen—Northern State University
- Vermillion—University of South Dakota

Suicide is the 9th leading cause of death in South Dakota

DSS
Strong Families - South Dakota’s Foundation and Our Future

Please contact the Division of Behavioral Health for more information at 605-773-3123 or http://dss.sd.gov/behavioralhealth/community/prevention.aspx
South Dakota Suicide Facts

Did You Know...

- Suicide is the 9th leading cause of death in SD, but is the 2nd leading cause in the 15-34 age group.
- SD had the 7th highest suicide rate in United States in 2015.
  - SD = 20.2 per 100,000 population
  - US = 13.9 per 100,000 population
- There were 173 suicides in 2015 in SD, the most ever reported for the state.
- 80% of suicides were male and 20% were female.
- SD American Indian suicide rate is 1.8 times higher than SD White suicide rate.
- SD suicide methods: firearm 51%, hanging 32%, poisoning 14%, and other 3%.
- 697 self-inflicted injury hospitalizations are teenagers.
- 16.1% of SD high school students considered suicide (2015, Youth Risk Behavior Surveillance System).
- 8.4% of SD high school students attempted suicide (2015, Youth Risk Behavior Surveillance System).

South Dakota Statistics

Suicides, South Dakota, 2007-2016

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SD suicides by county, 2004-2015

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A Case of an Acute Myocardial Infarction Post Thrombolytic Treatment of Ischemic Stroke – A Management Dilemma

By Kalyan Wagle, MD; Jimmy Yee, MD; Vishesh Kumar, MD; Amornpol Anuwatworn, MD; Tomasz Stys, MD; Adam Stys, MD; and Christopher Stanton, MD

Abstract

Acute ischemic stroke and myocardial infarction are emergency clinical events that require prompt intervention. Concurrent occurrence of both events magnifies the complexity of the clinical management. We present a case of a patient who presented with acute ischemic stroke, complicated by acute myocardial infarction shortly after thrombolytic was administered. This case highlights the importance of individualization of management especially in complex cases where there are no clear specific guidelines to follow.

Introduction

Concurrent incidence of acute ischemic stroke and acute myocardial infarction are relatively common. Approximately 9 percent of patients presenting with acute ischemic stroke have a myocardial infarction at the same time or within a few days following the event.1 Atherosclerosis is a global phenomenon affecting major arterial system including cerebral vascular system, coronary arteries, and carotid arteries. Simultaneous occurrence of ischemic stroke and myocardial infarction are inherently linked by the same pathogenesis of atherosclerosis. However, presentation of acute myocardial infarction post thrombolytic treatment of an acute ischemic stroke is an uncommon presentation as thrombolytic treatment is one of the management modalities in the treatment of acute myocardial infarction when timely percutaneous coronary intervention is not feasible. This manuscript will highlight the importance of individualization of care in an atypical presentation. Taking into account current guidelines of acute coronary syndrome and acute ischemic stroke, our goals were to determine the clinical course of action that will give our patient the best chance of favorable clinical outcome in the absence of specific guidelines.

Case Presentation

A 68-year-old male with a past medical history of uncontrolled diabetes, hypertension, and obesity presented to the emergency department with sudden onset of slurred speech and right facial droop. The initial diagnosis was an acute ischemic stroke. Computed tomography (CT) of the head and CT angiography of the head and neck did not reveal any intracranial hemorrhage. Tissue plasminogen activator (TPA) was administered as the window of presentation was within the allotted 4.5 hours since the onset of symptoms. Dysarthria improved slightly thereafter, but persisted. The patient was admitted to the neurology critical care unit for further observation.

Electrocardiogram (EKG) repeated two hours after the onset of thrombolytic therapy revealed 1 mm ST elevation in the inferior leads (II, III, aVF). This was a new finding compared to baseline, suggestive of acute early infarction (Figure 1). The patient was asymptomatic without any prior history of cardiac disease and did not have any cardiac complaints of chest pain or chest pressure. Initial troponin at the time of admission was within normal limits. Subsequent troponin was 0.03 ng/mL (normal is less than 0.02 ng/mL) three hours later, and 0.10 ng/mL six hours later. Echocardiography (ECHO) revealed reduced left ventricular ejection fraction of 40-45 percent with a large area of apical akinesis suggestive of stress cardiomyopathy (Figure 2). Due to the lack of cardiac symptoms and presentation of acute ischemic stroke with thrombolytic therapy administered, the decision was to treat conservatively without early invasive angiography.
given the high likelihood of stress cardiomyopathy. Antiplatelet and anticoagulant therapies were held due to recently administered thrombolytic therapy and concern of possible hemorrhagic transformation of acute ischemic stroke. Troponin continued to trend upwards and increased to 2.09 ng/mL approximately since hours since initial presentation. The patient continued to remain asymptomatic from a cardiac perspective. Repeat EKG after eight hours showed resolution of the inferior ST elevation. Magnetic resonance imaging (MRI) of the brain revealed a 2.5 cm acute infarct in the left frontal parietal region.
After discussion with the neurology team, they felt that it was permissible to start intravenous heparin drip 24 hours post thrombolytic administration. At this time, the patient was being treated for non ST-elevation myocardial infarction (NSTEMI). In addition to intravenous heparin, a full dose aspirin was given, but clopidogrel was held due to a possibility that the patient may need coronary artery bypass surgery and the patient being considered a high risk for intra-cerebral hemorrhage. Troponin peaked at 12.73 ng/mL on the third day since admission, and the decision was to proceed with coronary angiography to evaluate for coronary artery disease. Coronary angiography showed a thrombotic total occlusion of the postero-lateral branch of the left circumflex artery. There was a chronic total
occlusion of the proximal left anterior descending artery, 99 percent occlusion of mid right coronary artery with 100 percent occlusion of the distal right coronary artery, which appeared to be chronically occluded. Balloon angioplasty was performed on the posterolateral branch of the left circumflex with suboptimal result. A coronary stent was not placed due to the small caliber of the vessel and extremely small distal runoff disease. Cardiac thallium viability scan showed myocardial infarction in the mid, apical, apex and inferior region involving the septum that had minimal or no viability. Cardiotoracic surgery was consulted for possible coronary artery bypass surgery for his coronary artery disease. Due to undetected viability on the cardiac thallium viability test, the patient was deemed to be a poor surgical candidate for coronary artery bypass surgery at this time. The patient had significant improvement in neurological deficit and was discharged home in stable condition and on optimal medical therapy (beta blockers, statins, angiotensin converting enzyme inhibitor, and aspirin). Cloniprodrol was started one month later as outpatient due to concerns of intracranial bleeding. The patient continues to do well from a cardiac perspective during his one month follow up after discharge, and no further plan for revascularization was indicated.

Discussion

The occurrence of two major vascular events simultaneously, (i.e., acute ischemic stroke and acute myocardial infarction) carries a worse prognosis than with either alone. Treatment modality of one entity could be a relative contraindication for the other. The line of treatment is usually guided by the severity of either events and to the individualized judgment of the physician. Our patient presented with acute symptoms of stroke, and thrombolytic was administered appropriately. Unfortunately, he developed an acute myocardial infarction manifesting as inferior ST elevation on EKG despite being asymptomatic from a cardiac perspective. In the setting of synchronous events, both must be addressed simultaneously, as treating myocardial infarction with percutaneous coronary intervention would delay potential thrombolytic therapy for acute stroke and may result in significant neurological impairment.2

Acute myocardial infarction or prior myocardial infarction in the presence of a large akinetic segment of myocardium with or without left ventricular thrombus itself is an important cardio-embolic phenomenon that can lead to stroke. The risk of cerebral vascular accident is highest the first five days after a myocardial infarction.3 Approximately 50 percent of cerebral vascular accident occurring in the first month after a myocardial infarction are preceded by a large anterior wall infarct.3 Our patient’s initial EKG showed inferior Q waves indicating that he had inferior infarct in the past. This was corroborated by the coronary angiogram finding of chronic total occlusion of the left anterior descending artery and distal right coronary artery. ECHO revealed apical akinesis and mid ventricular hypokinesis, which increases his risk of left ventricular thrombus formation and stroke due to stagnation of blood flow in the left ventricle. Acute myocardial infarction within the previous three months is considered a relatively contraindication for therapy with thrombolytic according to the American Heart Association/American Stroke Association stroke guidelines.4,5 In one study, however, that duration can be shortened to seven weeks as it takes the myocardium approximately seven weeks to recover from a myocardial infarction.6 The reason is due to increased risk of cardiac rupture, secondary to breakdown of the existing fibrin clot within the necrotic myocardium and/or degradation of collagen. It is reasonable to assume that our patient had a silent myocardial infarction in the past. Since it is unclear timeframe of when it occurred, thrombolytic administration could have been detrimental to the patient if he had myocardial infarction within the last three months.

Our patient had increased risk of atherosclerosis related vascular complications, (i.e., stroke, myocardial infarction, peripheral vascular disease) secondary to his uncontrolled diabetes mellitus. Vascular insult in one territory increases systemic inflammation, sympathetic response and instability of the vulnerable atherosclerotic plaque in other vascular territories resulting in increased tendency for thrombosis.6 This may also explain the increased incidence of acute stroke following myocardial infarction or vice versa. In one study, it was found that patients with significant carotid artery disease who underwent coronary angiogram had an approximately 47 percent chance of significant coronary artery disease.7 This supports the practice of a thorough cardiovascular evaluation in patients presenting with cerebral vascular accident, in order to reduce future risks of myocardial infarction.4

Stress cardiomyopathy, also known as broken heart syndrome, or Takotsubo cardiomyopathy, is associated with transient regional systolic dysfunction of the left ventricle involving territories of more than one epicardial vessels. Typically, there is dyskinesis, akinesis or hypokinesis of
mid and apical segments of the left ventricle, similar to our patient’s imaging. In the absence of chest pain and in the presence of a new stressor (recent stroke), our patient was thought to have stress cardiomyopathy induced ST changes and troponin elevation; however, coronary angiography proved this diagnosis wrong. Stress cardiomyopathy occurs in approximately 1-2 percent of patients presenting with troponin positive suspected acute coronary syndrome (ACS) or suspected ST elevation myocardial infarction (STEMI). In one study, stress cardiomyopathy was associated with troponin elevation as high as 15 ng/ml. If troponin elevation is markedly elevated, stress cardiomyopathy is less likely, and consideration of acute coronary syndrome should be in the primary differential.

Common complications of thrombolytic administration are hemorrhage, anaphylaxis, or arterial re-occlusion. One of the plausible explanations in our case could be disruption of intra-cardiac thrombus and coronary embolism after use of thrombolytic therapy, leading to myocardial infarction in view of wall motion abnormality seen on ECHO. There have been few cases reported of intra-cardiac thrombus dislodgement after administration of thrombolytic. If this were the case, a visible apical thrombus may not be visualized due to dislodgement.

Conclusion

Simultaneous occurrence of major vascular events such as myocardial infarction, acute ischemic stroke creates a management dilemma. In the absence of definitive guidelines, the treatment will have to be individualized. A multispecialty approach is the best scenario that will give patients their best chance of recovery that likely will lead to improved prognosis. While treating one vascular event, one should always keep in mind the possibility of another vascular bed event. In patients who present with an acute ischemic stroke, we recommend a thorough cardiovascular evaluation in order to reduce or prevent future cardiovascular events.

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REFERENCES


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A Case of Incisional Endometrioma that Presented as an Abdominal Mass

By Kelly Landeen, MSIV; Kristin Wempe, MD; and Robert Miller, MD

Abstract
Although endometriosis is a common condition in women of reproductive age, the incidence of endometrioma in prior surgical incision sites is rare. We present a case of an abdominal wall mass in a female patient with a history of obstetrical surgery. The mass was visualized with ultrasound and computerized tomography, removed by wide excision, and identified via frozen section. This case demonstrates the importance of a thorough surgical and obstetrical history in any woman who presents with an abdominal wall mass.

Introduction
Incisional endometriosis is a rare complication of abdominopelvic surgeries, particularly obstetrical surgeries, in premenopausal women. Although not fatal, the associated symptoms can cause severe pain and discomfort, and proper identification and treatment is necessary.

Case Presentation
A 45-year-old gravida 4, para 4 female presented for surgical evaluation of an abdominal wall mass in the left inguinal area. She reported having the mass for approximately three years, with increasing pain and discomfort over the previous 12 months. She denied further symptoms or changes in mass size during this time. She described no cyclic changes in her discomfort or the mass itself. Surgical history included a low transverse caesarean section with tubal ligation in 2011 and a total laparoscopic hysterectomy in 2015 with trocar incisions in the left lower quadrant, suprapubic region, and the umbilicus.

Upon physical examination, a firm lesion was palpated in the left groin superior to the inguinal ligament. It was located at the lateral aspect of the low transverse incision from the patient’s prior caesarean. The mass was solid with no fluctuance, and there was no warmth or erythema. Mild tenderness was noted. The lesion was not freely mobile nor firmly fixed. No skin changes or palpable adenopathy were noted. The physical exam did not help to narrow down the differential diagnosis in this patient.

Differential diagnoses of an abdominal wall mass include desmoid tumor, lipoma, hematoma, injection granuloma, suture granuloma, abdominal wall hernia, abscess, endometriosis, metastatic disease, lymphoma, sarcomas, and mesenchymal tumors.

Abdominal imaging completed prior to this patient’s appointment included an ultrasound and computerized tomography (CT) scan. Abdominal ultrasound demonstrated a left lower quadrant subcutaneous hypoechoic mass measuring 2 x 1.6 cm with irregular borders, and a 7 mm surrounding hyperechoic area extending to the skin (Figure 1).

Figure 1. Left lower quadrant abdominal ultrasound. Arrows point to irregular borders of 2 x 1.6 cm hypoechoic mass.
Figure 2. Transverse abdominal CT demonstrating a 2.2 x 1.7 x 2.7 cm subcutaneous soft tissue density (arrow) found in left lower quadrant.

Figure 3. Microscopic view of pathology specimen. Endometrial glands (arrow) surrounded by fibroadipose tissue of the abdominal wall.
Abdominal CT scan revealed an ill defined 2.2 x 1.7 x 2.7 cm subcutaneous soft tissue density of the left lower quadrant abdominal wall (Figure 2). Margins were somewhat indistinct with some stranding in the adjacent adipose.

The patient underwent excision of the abdominal wall mass. Intra-operatively, she was found to have a darkly pigmented soft tissue mass that adhered to and included the anterior rectus sheath. The mass and surrounding fascia were excised completely and sent to pathology for frozen section. Pathology reported a central firm gritty grey pink to tan purple nodular tissue with greatest margins 3.5 x 2.2 x 2 cm (Figure 3). Intraoperative frozen sections and final pathology were consistent with benign endometriosis. No malignancy was identified. The fascia was repaired primarily without mesh, and closed with non-absorbable monofilament suture. Postoperative recovery was uneventful.

Discussion

Endometriosis is the presence of hormone-responsive extraterine endometrial tissue, and can manifest as an endometrioma, a well-circumscribed mass of endometrial tissue. It is common in the female population, with varied prevalence depending on age, reproductive history, and gynecologic history. Approximately 50 percent of teenagers with intractable dysmenorrhea have endometriosis.1 It is also found in asymptomatic women, with a 4 percent incidence in asymptomatic patients undergoing tubal ligation, and an estimated prevalence of 11 percent in the general, undiagnosed population.1-4

The pathogenesis of endometriosis has been explored extensively, with various existing theories including outflow obstruction, retrograde menstruation, endometrial metaplasia, or immune dysfunction. Common symptoms associated with endometriosis include dysmenorrhea, cyclic pain, and infertility. It is unclear if there is a causal mechanism to these symptoms due to their multifactorial nature and to the unclear pathogenesis of this condition.5

The incidence of endometriosis in the abdominal wall is far less common than traditional endometriosis. Approximately 0.1 percent of women undergoing caesarean section or other obstetric surgery will develop endometriosis in surgical scars due to inadvertent direct implantation of endometrial tissue at the time of surgery. In a retrograde study of 15 patients with abdominal wall endometriosis, symptoms included a palpable and/or painful mass, similar to the patient presented in this case study.1

The recurrence of incisional endometrioma is rare but can occur if misdiagnosed at the first operation, where it is typically mistaken for an incisional hernia.6 This misdiagnosis is most often a result of the scarce cases of endometriomas encountered by general surgeons.

Incisinal endometriomas are best diagnosed with thorough gynecological history and imaging of the mass, typically by ultrasound and CT or magnetic resonance imaging. Wide surgical excision is the most effective treatment; medical management with progestin, oral contraceptives, and gonadotropin agonists are less effective and only provide partial symptomatic relief.7

Conclusion

Thorough gynecologic history taking is necessary for recognition of incisional endometriosis. For correct identification and treatment, it is important that general surgeons and primary care providers, in addition to obstetricians, be aware of this condition. Although the incidence is rare, it is important to consider incisional endometrioma in any female with an abdominal wall mass and a history of obstetrical surgery.

References


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Combined Melanocytic Nevus, Superficial Congenital and Deep Penetrating Types with Fibroepithelioma of Pinkus, Collision Tumor – A Case Report

By Ashwyna Sunassee, MD; Amy M. Kerkvliet, MD; and Ali D. Jassim, MD, PhD

Abstract
We present a case of collision tumor composed of a combined melanocytic nevus with superficial congenital and deep penetrating components and a fibroepithelioma of Pinkus on the left lumbar back of a 21-year-old male. He presented to the dermatologist for evaluation of numerous moles, and the lesion in question was described as a brown variegated papule with slightly irregular shape and irregular borders. This case is being reported as it is very unusual to see a fibroepithelioma of Pinkus in conjunction with a melanocytic lesion.

Case Report
A 21-year-old white male presented to the dermatology clinic for evaluation of moles. The specific lesions of concern included nevi that were raised, growing, itchy and painful at times. He had a history of significant actinic damage with blistering, peeling sunburns and chronic sun exposure. Examination revealed at least 60 pigmented macules and papules scattered over the trunk and extremities, which were generally symmetric, with homogenous color and regular borders. The lesions of specific note included lesions of the right axilla, right midline, right proximal lower leg, left mid lower leg and left lumbar back (Figure 1) which were described as brown papules with slightly irregular shape, color variation and irregular borders.

On microscopic examination, two of the lesions were found to be compound nevi. Two other lesions were called dysplastic nevi with moderate atypia. The left lumbar lesion showed a proliferation of melanocytes with two separate cellular components, and an epithelial proliferation (Figure 2). In the central part of the lesion, there were melanocytes with abundant, pale cytoplasm, “dusty” appearing melanin and moderately enlarged nuclei, arranged as small nests, with many interposed melanophages and fibrotic stroma (Figure 3). Around and beneath them, were nests, cords and strands of plump, oval to small round melanocytes that matured with descent from the junction, and were positioned adjacent to small vessels and epithelial adnexal structures in the superficial reticular dermis (Figure 4). Above the melanocytic proliferation, was a proliferation of epithelial cells in which there were lace-like interconnecting strands of squamous keratinocytes and nests of basaloid cells, with intervening fibrocyte-rich stroma (Figure 5).
The left lumbar lesion as described had three distinct parts; fibroepithelioma of Pinkus, conventional nevus and an atypical nodular nevocellular proliferation versus blue nevus versus proliferating center in a congenital nevus. MART-1 highlighted the melanocytic proliferation; however, no pagetoid pattern was seen. MIB-1 (Ki-67) showed increased proliferative index. HMB-45 showed focal staining at the superficial part of the melanocytic proliferation; however, the deeper part did not stain, though the small atypical nodule of melanocytic proliferation showed HMB-45 positivity. The p16 stain showed positive staining within the melanocytes including the focal atypical nodular proliferation.

Discussion

Fibroepithelioma of Pinkus (FeP) is a rare subtype of basal cell carcinoma (BCC) that may clinically mimic a variety of benign skin tumors. It was first described in 1953 by Hermann Pinkus as a premalignant fibroepithelial tumor. More recently, FeP has been described to more closely resemble a trichoblastoma than BCC. Another school of thought is that FeP is not premalignant, but a malignant neoplasm made up of trichoblasts whose fenestrated design makes it distinctive among the various morphological types of basal cell carcinoma. FeP manifests clinically as a solitary, and sometimes multiple flesh-colored or slightly brown-gray, well-demarcated plaque. It is typically found on the trunk with a predilection for the lumbosacral area. It is most commonly seen in persons aged 40-60 years with a slight female predilection. The differential diagnoses include dermal melanocytic nevus, pedunculated fibroma, acrochordon, and seborrheic keratosis. Histopathologically, FeP is characterized by tumor islands...
and anastomosing strands of basaloid, usually palisading at the periphery, surrounding a fibrous stroma. These features are thought to be created by tumor strands spreading down eccrine ducts. Congenital melanocytic nevi histopathologically show cords, strands, nests, and single units of melanocytes spreading between collagen bundles in the dermis and may have deep components. The final diagnosis of this case was of a combined melanocytic nevus, with superficial congenital and deep penetrating nevus components. The FeP and deep penetrating nevus-like component appeared fully excised with the area of congenital nevus extending to the margin. The deep penetrating nevus-like component had small and monomorphic nuclei, with retention of p16 staining, and relatively low proliferation rate, which were reassuring findings. Complete excision is adequate treatment of FeP, and due to its non-aggressive clinical behavior, it has a good prognosis. Despite a rare documented case report of a metastatic basal cell carcinoma with FeP features, no special follow-up is recommended in most cases. This makes a very interesting and atypical case as collision between FeP and melanocytic proliferation has not been previously documented.

REFERENCES


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Alkaptonuria: A Case Report With Diagnostic Challenge

By Vasantha L. Gali, MD; Amy M. Kerkvliet, MD; Jacob M. Kusmak, MD, PharmD; and Jana K. Elwood, PA

Abstract
Alkaptonuria is a rare autosomal recessive metabolic disorder caused by deficiency of homogentisic acid (HGA) oxidase, the only enzyme capable of catabolizing HGA. Deficiency of this enzyme leads to excess HGA which deposits in the connective tissue. We present a case of a 64-year-old woman who was referred to the dermatology clinic for a full body mole check and skin cancer screening. Clinically she had blue/gray pigmentation of the external ear and sclera. Also she had a domed papule on the left cheek with punctate gray pigmentation which was biopsied. Histopathological examination showed a benign dermal nevus and nonpolarizable, yellow-brown, irregular shaped fibers. Subsequent organic acid screen showed markedly elevated urinary HGA, diagnostic of alkaptonuria. On specific inquiry, the patient revealed she had a history of bilateral Achilles tendon rupture, black urine, arthritis, and external ear discoloration for many years. The pigmented material was then considered to be HGA deposition within the dermal collagen fibers. However, without the appropriate clinical data and confirmatory lab findings, the pigmented fragments on skin biopsy represent a diagnostic challenge. Measures like low protein diet and ascorbic acid supplementation will slow down the disease progression and potential complications later in life; however, there is no definitive treatment for the disease. We emphasize the prompt recognition of the clinical signs and symptoms as well as the importance of the microscopic findings.

Introduction
Alkaptonuria is a rare autosomal recessive inherited metabolic disorder caused by mutation of the homogentisic acid oxidase (HGD) gene which codes for the homogentisate oxidase enzyme. This enzyme helps in breakdown of the amino acids phenylalanine and tyrosine, which are important building blocks of proteins. As a result, a substance called homogentisic acid (HGA) accumulates in the body. Excess HGA and related compounds are deposited in connective tissues and cause darkening of the cartilage and skin. When excreted in the urine, oxidation of HGA turns urine black over time. The presence of any of these findings should prompt confirmatory biochemical testing.

Case Summary
A 64-year-old woman was referred to the dermatology clinic for a full body mole check. On clinical examination the lesions of concern were a 5 mm flesh-colored papule with gray punctate pigmentation on the left cheek, and a 7 mm erythematous palpable scale on left lower leg suspicious for actinic keratosis. It was also noted that she had bluish discoloration of her sclera and in the ears for several years. Past medical history consisted of arthritis of larger joints (primarily in the right hip and bilateral knees), diffuse myalgias, bilateral Achilles tendon rupture, and status post lumpectomy for stage I invasive ductal carcinoma of the breast, with no active disease. Histopathological examination of the left cheek lesion showed a benign dermal nevus and non-polarizable, yellow-brown, irregular shaped fibers (Figures 1 and 2). Subsequent organic acid screen showed urinary HGA of 5940 nmol/mol creatinine; reference values: <11, diagnostic of alkaptonuria. The pigmented material in the biopsy was then considered to be HGA deposition within the dermal collagen fibers. Subsequent genetic testing confirmed that
she has mutations in both copies of HGD gene and both of her children are carriers.

Cardiology evaluation revealed premature coronary calcifications and mild aortic valve sclerosis without significant stenosis. She continues to have stable to slightly worsening arthritis and is followed by orthopedics and cardiology. She is not taking any medication for the alkaptonuria and no medication is proven to stop the progression of the disease.

Discussion

Alkaptonuria is a rare inborn error of phenylalanine and tyrosine metabolism. It has an estimated incidence of one in 250,000 to one in 1 million live births in the U.S. A deficiency of the hepatic enzyme HGD leads to accumulation of HGA. Oxidized HGA imparts darkening of the body fluids, especially urine, which is the only pathognomonic sign present at birth. Gradual deposition of the oxidized HGA in connective tissue leads to pigmentation of skin (ochronosis), sclerae, and cartilage. The pigmentation typically appears after the third decade of life. Other manifestations include musculoskeletal pain, tendon rupture, and degenerative arthropathies. Rare presentations include premature coronary calcifications or calcific valvular disease of the heart secondary to the deposition of HGA. Diagnosis of alkaptonuria primarily depends on thorough clinical evaluation and is confirmed by elevated urinary HGA levels.

Medications such as quinolones have been reported to cause cutaneous hyperpigmentation that appears similar on histologic examination. Urine HGA levels, in conjunction with the clinical history, would help in arriving at a correct diagnosis.

To date, no curative treatment is available. Dietary management of protein intake and vitamin C supplemen-
nation have both been advocated as measures to decrease formation of HGA; however, this has not been systematically proven to alter the underlying metabolic defect. National Institute of Health trials have reported that the experimental drug nitisinone, a 4-hydroxyphenylpyruvate dioxygenase enzyme inhibitor (Figure 3), has shown to reduce HGA production as much as 95 percent. These results suggest that early treatment with nitisinone may prove beneficial in young patients who have not yet developed joint or cardiac complications. In the event that this therapy proves useful, it makes the timeliness of diagnosis even more critical.

Our patient demonstrated the typical alkaptonuria triad: ochronotic dermal pigmentation, severe degenerative arthritis, and darkening of urine upon oxidation. Despite these clear signs, a diagnosis of alkaptonuria was not established until a dermatology consultation was obtained for a skin lesion. Indeed, literature searches reveal the challenges in diagnosing alkaptonuria due to its multisystem involvement. Rare cases like these emphasize how crucial it is to take a detailed history, review the patient’s entire medical record and maintain open communication with our fellow consultants.

Conclusions and Relevance
This case is presented for its rarity, and because of possible treatment advances, our article emphasizes the importance of early diagnosis.

REFERENCES

Please note: Due to limited space, we are unable to list all references. You may contact South Dakota Medicine at 605.336.1965 for a complete listing.
Laparoscopic Treatment of a Pyogenic Hepatic Abscess Caused by Transmural Duodenal Perforation of a Toothpick

By Hassan Turaihi, MD; Jed Assam, MD; Justin Zanfes, MS IV; and Thavam Thambi-Pillai, MD

Abstract
The development of pyogenic hepatic abscess resulting from perforation of the gastrointestinal tract is a rare pathologic finding. It is a condition that can be fatal making early detection and subsequent removal of the inciting foreign body critical to avoid more deleterious sequela. Yet, its initial presentation tends to be nonspecific and typically is only discovered once surgical investigation into the cause of persisting abscess formation is performed. In this study, laparoscopic treatment of a 52-year-old male with a non-resolving hepatic abscess due to transmural gastrointestinal perforation of a toothpick is presented. Although a rare finding, reports of foreign body induced hepatic abscess have recently increased in the world literature, allowing some preliminary efforts in proposing diagnostic characterization. Yet, more case studies will be required to permit validation of these findings making continued reporting of this pathologic process critical.

Background
The majority of ingested foreign bodies pass unremarkably through the gastrointestinal tract, with less than 1 percent of patients experiencing perforation.1 The development of pyogenic hepatic abscess (PHA) secondary to perforation of a foreign body through the gastrointestinal tract is even more unusual. Recently there has been an increase in the number of these cases reported.2 PHA is a condition that can be fatal, making early detection and subsequent removal of any inciting foreign body critical to avoiding more deleterious sequela.1 Initial presentation tends to be non-specific, including symptoms such as fever, vomiting, anorexia, and weight loss therefore requiring a high index of clinical suspicion, as these patients can pose a challenging diagnostic evaluation.4 In this case we present the laparoscopic treatment of a 52-year-old male with a non-resolving hepatic abscess due to transmural gastrointestinal perforation of a toothpick.

Case
A 52-year-old male presented to the emergency department with a two week history of worsening abdominal pain, localizing to the right upper quadrant (RUQ). Associated symptoms included fevers, headaches, chills, night sweats, and diminished appetite. The patient's past medical history was significant for two recent emergency department visits for more generalized complaints of diffuse abdominal pain, nausea, and diarrhea. There was no prior history of liver biopsy or surgery and no history of recent travel or trauma. The patient had a 27-pack year smoking history. Physical examination revealed notable tenderness of the epigastrium, no abdominal distention or organomegaly were appreciated, and there was no evidence of jaundice. Laboratory studies demonstrated an elevated WBC count (15.9 K/□L, Ref: 4-11 □L), CRP (85.5 mg/L Ref: < 3.0 mg/L), and lipase (114 U/L Ref: 20-100 U/L). A CEA and CA 19-9 as well as AST, ALT, and bilirubin were all within normal limits. Stool culture for clostridium difficile was negative.

Imaging studies included an abdominal ultrasound of the right upper quadrant which showed evidence of a linear echogenic opacity approximately 5 cm in the left medial lobe of the liver (Figure 1). A CT scan with oral and intravenous contrast demonstrated an ovoid hepatic lesion 6.1 x 2.4 x 2.7cm (Figure 2) notable for a central area of linear hypodensity (Figure 3). Magnetic resonance imaging (MRI) further defined the lesion as a non-enhancing central lobular T2 hyperintensity with a thick rim of hyperenhancing tissue suggestive for a reactive abscess surrounding a foreign body.
The patient was referred to interventional radiology (IR) for percutaneous drainage of the abscess and drain placement. A collection of 5 cc of purulent fluid was drained demonstrating negative results on gram staining and no culture growth. Upon completion of an unremarkable three day hospital stay the patient was discharged on a course of amoxicillin-clavulanate and oxycodone-acetaminophen. During his three week follow-up, blood work revealed a normal WBC count with no evidence of anemia, unfortunately the patient continued to suffer from persistent right upper quadrant pain. A CT of the abdomen and pelvis performed both with and without contrast revealed a persistent 5.7 x 2.4 cm area of mixed density with adjacent duodenal inflammatory changes and evidence of a linear hyperintensity extending from the left medial lobe of the liver through to the adjacent descending duodenal segment.

The patient was scheduled for diagnostic laparoscopy. Laparoscopy revealed an extensive amount of adhesions in the upper abdomen consequential to the combination of a retained foreign body, liver abscess, and previous IR drainage (Image 1). Laparoscopic lysis of adhesions was performed, along with the adherent duodenum being carefully peeled away from the liver using sharp and blunt dissection. Resulting ingress revealed the presence of a toothpick extending from the second part of the duodenum into the left medial segment of the liver (Images 2 and 3). The toothpick was removed and an intraoperative ultrasound identified no further drainable abscess. Repair of the duodenal perforation was performed, cholecystectomy was also undertaken in a standard fashion due to interference of the gallbladder with duodenal repair through its involvement in the inflamed tissue (Image 4). Good hemostasis was achieved using a fibrin sealant.

Patient had an uneventful postoperative course, he was discharged home on a two week regimen of amoxicillin-clavulanate and oxycodone-acetaminophen.
clavulonate. At two weeks follow up, the patient was allowed to return to normal activity without restrictions.

Discussion

Foreign body induced PHA from gastrointestinal perforation is a rare event.\(^1,3,7\) Fish bones, toothpicks, and chicken bones represent the most commonly ingested objects causing such pathology.\(^3\) The most frequent sites of perforation with resulting liver abscess are the duodenum and stomach.\(^3,7\) For all gastrointestinal perforations by a foreign body, the ileocecal and rectosigmoid region are noted as being more susceptible.\(^1,6\) While foreign bodies are becoming more recognized as a prominent cause of non-resolving hepatic abscesses, an absence of definitive diagnostic characteristics makes early detection and treatment of this pathology a complex challenge.\(^1,4\) A preliminary effort in elucidating diagnostic criteria has been performed by Leggieri et al. who have proposed an algorithm to evaluate PHA for the presence of a foreign body.\(^2\)

Commonly, initial patient history is non-specific in identifying PHA from a foreign body, as the symptoms are often generalized with signs of abscess formation delayed weeks or months after the inciting event.\(^1,5\) For imaging studies, ultrasound and CT are the most sensitive and preferred for initial screening.\(^3\) Yet, given the diverse size and composition characteristics of inciting foreign bodies reports on imaging efficacy has been variable between studies.\(^3,6\) As a result, definitive diagnosis is often made through surgical exploration.\(^6\)

The current recommended and definitive treatment for a foreign body induced hepatic abscess is laparoscopic removal of the foreign body with ensuing abscess drainage and perforation repair as applicable.\(^1,5\) Other methods that have been successfully employed range from radiological-guided percutaneous extraction to hepatic lobe resection.\(^1,5,7\) Endoscopic retrieval has also been described in instances where the foreign body’s migration is caught in earlier stages.\(^3,6\)

Although a rare finding, the reporting of foreign body induced hepatic abscesses has recently increased in the world literature. The majority of these cases tend to be found in studies from Eastern nations, with the pathology more unlikely in Western nations.\(^7\) At this time there have been no studies identified by the authors that have sought to evaluate possible causes for this disparity. Preliminary efforts have been made to develop a diagnostic characterization for a foreign body induced PHA.\(^3\) Yet, the ability to more broadly apply this information will require substantially more cases that will be only be attainable through continued reporting of this rare process.

REFERENCES


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Differences in the Manifestation of Multiple Sclerosis in African American Patients

By Chamika Hawkins-Taylor, MHA, PhD

Introduction

Multiple sclerosis (MS) is a disease of the central nervous system that is characterized by deteriorating myelin or gray matter (GM) loss, evidenced by spots or lesions on the brain, as illustrated by magnetic resonance imaging (MRI). Although each case is unique, certain symptoms commonly appear in affected patients. Early characterizations include double vision, extreme fatigue, memory loss and temporary numbness or tingling in the lower extremities.1

The ways in which MS disability manifests vary significantly. Some are stricken by vision impairment, permanent loss of limb function and are confined to a wheelchair. Others suffer tremendous fatigue and memory loss. A vast array of treatments are available to ameliorate symptoms and slow progression of the disease, whose detection and diagnosis hinges on diagnostic criteria first described by Poser and colleagues in 1983.1 First diagnosed in the late 1800s, MS diagnosis and treatment guidelines have been available only for the last 50 years.

Of the over 400,000 sufferers in the U.S., MS is most commonly diagnosed in White American patients and often female. Further, early studies of African American and White American veterans had suggested that MS occurrence in African American patients was small; owing such low incidence to factors such as African ancestry, genetic factors, and socioeconomic predictors which are yet to be uncovered.2 One population study by Langer-Gould, however, contradicts the idea of rates of MS between White Americans and African Americans as low as two to one, respectively.3 In this study of 496 MS patients with just over 21 percent of those identifying as African American patients, a higher incidence of MS was found among African American patients.3 This study was the first of its kind and began to challenge the long held belief that MS is a rare disease for African Americans, domestic or abroad.

Differences in occurrence and progression of MS between African American and White American patients was first acknowledged in the 1970s.4 It has long been debated whether the differences in MS outcomes for African American and White American patients represent clinical differences. Research still questioning the notion, suggests that African American patients have not been studied enough to draw such conclusions. To the contrary, studies supporting the idea claim greater gray matter degeneration in a broader portion of the brain as defining proof of a clinical difference among the two racial groups.5 In this article, the overall variations in disease profile for African Americans with MS – symptoms, severity and therapeutic outcomes – are highlighted in an attempt to shed light on this disparity and encourage more focused studies on African Americans suffering with MS.

MS Prevalence and Symptom Profile for the African American Patient

African Americans have a lower overall prevalence of MS than White American patients.2,5 However, the precise population of African American patients with MS is unknown. It is debated whether affected, African American patients are more likely to receive a diagnosis at an older age or younger age.2,6 However, African Americans are known to experience more severe disability, are more prone to a secondary progressive MS diagnosis (the last and most debilitating stage of MS), have a diagnosis of transverse myelitis, suffer decreased motor function, and suffer optic nerve damage.2,6 These differences are suspected to be due to both genetic and socio-cultural influences. Socioeconomic status, later diagnosis, sampling bias and genetic predisposition are all likely culprits for the more aggressive symptoms and exacerbations in African American patients.1 Whatever the individual manifestations of the disease, advances in treatment promote greater quality of life for all patients. Still, treatment differences between African American and White American MS patients persist and encourage more
African Americans treated with interferon beta 1a (Avonex or Rebif) had more exacerbated conditions after six-month and 12-month treatment response measures. African American patients also had an increased number of lesions following the two treatment timeframes. Dimethyl fumarate (DMF) is among treatments demonstrating positive outcomes in African American patients.

References


Conclusion

Progress in the understanding and treatment of MS is apparent in the general population but less so among African American patients. Of the studies reviewed for this article, all but one purported to include a representative sample of African American patients (African Americans in the U.S. population represent just under 14 percent, according to U.S. Census reports). However, of these, six studies included less than 100 African Americans and two were based on a retrospective analysis of data from the same large study. No study was a report of a randomized, clinical trial. Such evidence supports the need for more population-based studies with an increasing number of African American subjects to understand the physiology of the disease progression and also to uncover the true differences in clinical manifestations and treatment responses. Taking these positive steps works toward alleviating negative disparities and enhancing the understanding and management of MS in African American patients.
Healthcare systems able to effectively leverage their data in the application of advanced analytics are uniquely positioned to innovate the way they provide health care. Health care data, however, is often highly unstructured, requiring a unique skillset to manage and analyze it for innovative application. This becomes a barrier as well-trained data scientists are often difficult to recruit and to date haven’t had a direct pipeline for their expertise within the health care sector. Fortunately, the upper Midwest is uniquely positioned at an intersection of academic institutions with nationally recognized data programs, opening the door for collaboration with researchers leading their fields in advanced analytics. Thus, programs such as the Sanford Data Collaborative, a first of its kind data sharing initiative that places real-life, timely health care data in the hands of leading researchers with the ultimate goal of driving health care delivery to transform community health, are well positioned for success.

The success and growth of data sharing initiatives like this hinge on expertise found both internal and external to an institution. Internally, appropriate legal provisions and review processes are of utmost importance prior to data distribution to ensure the highest level of patient privacy. Infrastructure must be in place to protect the release of all datasets including an ironclad data usage agreement with provisions to safeguard data transfers and use. Externally, public expertise should be sought in the creation of a privacy board, or a body designed to review projects with the privacy of the community in mind.

Partnering with external academic institutions who have an existing structure to uphold research integrity (for instance, through institutional review boards) is further crucial to providing the necessary foundation for successful data sharing. The Sanford Data Collaborative looked to foster lasting partnerships across regional academic institutions and sought guidance from academic leaders to serve on an advisory board and help identify population health topics that would be beneficial to researchers and communities alike. By further serving on an advisory board, academic leaders have the ability to provide crucial expertise on the potential impact of data sharing for their institutions as well as for their communities and region. Additionally, direct meetings with academic researchers provide an opportunity to discuss project ideas and available data elements. These meetings also presented an opportunity to reiterate the need for truly multidisciplinary teams that can bring diverse expertise (i.e., data science, pharmacy, nursing, business, health informatics, etc.) both in advanced data analytics but also in translating its impact for innovative healthcare delivery. As such, teams with multidisciplinary expertise willing to identify novel approaches to population-level data sets are most likely to be successful as a data sharing partner.

Equally important to building collaborative relationships externally is the need to build a collaborative internal infrastructure. For the Sanford Data Collaborative, key leadership from across the enterprise, spanning research, data analytics, health plan, and health care delivery, were brought together to identify priorities and to create a process that could push past research for research sake and work to translate innovative advanced analytics solutions into clinical application and ultimately positive community health impact. As such, along with an analytics phase there is a need to move towards validation (see Figure 1), where researchers have the opportunity to confirm findings within a healthcare system, providing evidence for future studies and data to further pioneer improvements in health care delivery.

It is evident that data sharing with the appropriate structures in place can bring healthcare systems to the forefront of health care innovation. Advanced analytic modeling focused on predictive risk stratification, chronic disease management, diagnostic testing strategies, or
technology utilization, for example, has the potential to sharpen data-driven provider practices, applying algorithms that can offer increasingly robust evidence upon which care decisions can be made – more precisely and efficiently. The ability to predict and prescribe health care at the population level through the application of existing big data further opens a new door for health care delivery and its impact on community health outcomes. As such, success for the Sanford Data Collaborative is in bringing together multidisciplinary teams of researchers and clinicians to leverage population-based data, driving an integrated vision to further understand and impact of the larger healthcare environment within our communities.

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David A. Pearce, PhD, Executive Vice President, Innovation and Research, Sanford Health; Senior Scientist, Children’s Health Research Center, Sioux Falls, South Dakota; Associate Professor, Department of Pediatrics, University of South Dakota Sanford School of Medicine.
As a gung-ho football guard for the De Smet Bulldogs back in the ‘60s, I had the “do or die” mentality for my team. That type of attitude can make winning teams, but can also be a formula for serious injury. Now, as a physician with over 32 years of experience, I have a better understanding of how while some sports activities can be helpful, others can be extremely harmful.

Let us look at concussions, for example, or really any type of head injuries that often occur in football or other contact sports. These players need to avoid further head trauma for a defined period of time or it can cause permanent brain damage. They must also avoid repeated head injury, as that can also lead to serious long-term consequences. The 2015 film Concussion, starring Will Smith, is based on a true story and highlights the dangerous results of repeated head injuries in professional football players.

However, it is not just head injuries that can cause serious or permanent damage. In wrestling or dance, athletes are under pressure to “make weight”, often taking extreme measures to do so. This results in the promotion of malnutrition and even life-threatening eating disorders like anorexia and bulimia. Problems can also arise from trauma to young immature bones, like knee injuries in soccer players and ankle injuries in basketball players. Also, running around outside on a hot day can bring on problems from overheating and under hydrating. There can be wounds to the psyche of little leaguers being pressured by over-competitive parents; head and back injuries from dropped cheerleaders; neck trauma from gymnastics; and any kind of injury from the worst of all injury makers: college rodeo.

This is not to deny all the good that comes from learning how great it is to be in condition, or the value that comes from friendships and camaraderie associated with team sports. Hey, ask me anytime about the fabulous football team DeSmet had in ‘66, and you will know how important that was to me. With proper training, coaching, and a healthy respect for the dangers of any sport, most injuries can be avoided. Also, correctly identifying, addressing, and treating injuries that do occur can significantly reduce the risk of permanent disabilities later in life.

I believe the emphasis in sports should be to start children on a lifetime plan of exercise, taken with every safety precaution, so that sports and good health can be enjoyed throughout their life.
The decision-making process for adult immunization can be complex in how it affects both providers and patients. Multiple social, psychologic and economic factors influence vaccination rates and the goal to improve those numbers. While the value of vaccination has evidence-based support, the spectrum of vaccine decision-making covers a broad range of factors. Cost, available access, health literacy and social media all play a role in delivering vaccine in a timely and efficient manner.

From their initial inception to the present, vaccines have always raised a safety and effectiveness concern. Though not perfectly safe or completely effective, data is clear that their public health benefit is very strong and overwhelmingly safe. For patients who are hesitant or against vaccines, there are numerous communication strategies to help educate and motivate them to receive vaccination.

Providers, regardless of their specialty or location, should strongly recommend and encourage immunization. Most important is the direct influence of the provider to remind the patient to keep updated on vaccinations. This should include all levels of clinic staff from the front desk to administration. If appropriate, the use of posters, flyers and information sheets along with social media can remind and incentivize patients to obtain the needed vaccines. Clinic work flow and electronic medical records need to remind and emphasize updated vaccination status. Often, nurses and medical assistants are leading efforts to make sure immunization status is timely.

Collaborating with pharmacies in reference to vaccine administration is another tool to improve rates and assist with efficient payment of herpes zoster vaccine. Other sources to utilize include the State Department of Health, county and public health nurses, home health agencies and neighboring physician offices. Multiple professional associations and advocacy groups along with the Centers for Disease Control and Prevention (CDC) can provide resources and advice while also acknowledging and celebrating success in reaching immunization goals.

Immunization Information System (IIS) is a database to help clinical systems communicate with one another regarding patient immunization status. This registry allows providers to partner in delivering appropriate and timely immunizations by providing comprehensive and up-to-date vaccination records to all health care facilities. Also, the Medicare Quality Payment Program (QPP) has initiatives that allow providers to use immunization registry reporting as a tool to achieve quality payment measures.

FluFIT is another program that promotes vaccination by combining yearly influenza vaccine with fecal immunochemical tests (FIT) for colorectal cancer. Providing two important health maintenance elements as a bundle is an efficient use of patient time. The impact of underserved and minority populations as well as diminished patient health literacy can lower rates and require ongoing efforts to encourage health maintenance including immunization.

The Great Plains QIN is working with providers and patients to increase immunization rates for influenza, pneumonia and herpes zoster. The challenge of infectious disease prevention lies in increasing the percentage receiving timely administration of these extremely important agents.

Please contact me at Stephan.schroeder@area-a.hcqis.org or Katy Burket, RN, at katy.burket@area-a.hcqis.org for further information on tools and technical assistance for increasing immunizations.
What is a confidential monitoring program?
When an applicant or a licensee has been determined by an evaluation to be impaired in a manner where the individual demonstrates the inability to practice in their health-related profession with reasonable skill and safety due to mental health issues, physical issues, or substance use related disorders (alcohol or drug abuse, dependency, or addiction), the applicant or licensee is enrolled in a confidential monitoring program. The confidential monitoring program is an agreement between the participant (applicant or licensee) and the BMOE staff review panel to defer any recommendation for discipline on a license as long as the participant can be monitored to ensure their ability to safely practice. See the flowchart graphic for the process.

What is the purpose of the BMOE staff review panel?
The review panel administers the program for the individual. The participant’s case stays at the staff level and does not go to the full BMOE unless the participant is unable to comply with the MBMP. The review panel consists of the BMOE executive director and one BMOE board member who will, in effect, “be considered one of the staff” in order to make the recommendation as to whether the individual is eligible for the MBMP.

What are the eligibility requirements for the MBMP?
The MBMP monitors impaired healthcare providers. The potential participant will have undergone an evaluation that demonstrates their inability to practice in one’s health-related profession with reasonable skill and safety due to mental health issues, physical issues, or substance use related disorders (alcohol or drug abuse, dependency, or addiction).

Do I need to enroll in the MBMP if I already participate in a monitoring program administered by my employment or other entity?
You can continue in your current monitoring program without enrolling in the MBMP. However, you must report your participation in any and all monitoring/wellness programs, other than the MBMP, on or before you submit your annual license renewal application. You also need to be aware that the MBMP is the only state BMOE approved confidentially protected program for South Dakota licensees.

I am licensed in another state and am enrolled in that state’s monitoring program. Now I am also licensed in South Dakota where I currently practice. Do I have to enroll in the MBMP, and how do I keep my previous monitoring program informed that I am in compliance?
Yes, you do need enroll in the MBMP as it is the only state BMOE approved monitoring program. The MBMP will then contact your previous monitoring program and send reports regarding your compliance.

Do the BMOE members know who is in the MBMP?
The MBMP participation list is only known to designated BMOE staff and the BMOE investigative review panel. The BMOE members do not know who is in the MBMP except for the one board member who is assigned to the BMOE.
investigative review panel. All monitoring will remain confidential to the BMOE board members as long as the participant is compliant and doing well in the monitoring program.

**Does the public know who is in the MBMP?**
An individual’s participation in the MBMP is confidential to the public as long as the participant is in compliance with program requirements. The public does not have access to information that would identify participants in the program, except in rare cases where the BMOE staff files formal disciplinary charges against a participant which may include noncompliance with an MBMP contract.

**Who administers the MBMP?**
The MBMP is administered by BMOE staff and the established review panel pursuant to authority granted by administrative rules promulgated by the BMOE.

**What happens when a licensee or applicant self-reports?**
The MBMP monitors participants struggling with impairment issues related to substance abuse, mental health issues, or physical disability, and is not a disciplinary program. The MBMP considers a licensee’s or applicant’s self-report to be a positive first step toward bringing a potentially harmful situation under control before their professional reputation is damaged.

The MBMP will gather information and make referrals for evaluation as needed. The MBMP then works with the licensee or applicant to put the required supports in place to ensure the participant is able to continue to practice safely. The majority of individuals participating in the program are actively practicing.

**Who evaluates the potential participants?**
Potential participants are evaluated depending upon the case history of each individual. Some individuals may self-report or apply to the MBMP after having been involved in the judicial system; for example, a DUI or other incident where evaluations are already available. In other cases, there may be questions as to whether a diagnosis indicative of impairment exists. That individual would be referred to the appropriate evaluator or evaluation team prior to entering the confidential MBMP.

**Who treats the participants?**
Once a determination of impairment is made and the participant enters the MBMP, the participant chooses a medical and support team. The MBMP participant is an active participant with their medical and support team. As determined by the previously mentioned evaluation recommendations, this team is comprised of a monitoring physician or other healthcare provider; a monitoring therapist, psychologist, or counselor; a work-site monitor, and an aftercare monitor. The medical and support team will be approved by the MBMP.

**Is it a good idea to have the licensing board administer the program?**
The BMOE has a legal obligation and mission to ensure safe medical practice for the protection of the public who seek professional medical services within the State. The BMOE has promulgated administrative rules that provide a transparent process for the investigation and regulation of medical practice while providing due process rights to applicants and licensees. While the process is transparent, participation remains confidential. Healthcare facilities have immunity when reporting employees to the BMOE staff.

**Who is the contact person?**
For the convenience of the licensee or applicant, one person on the BMOE staff is designated for contact purposes. Separate and dedicated phones, both mobile and land-line with a toll-free phone number option, are available. A separate and dedicated email is also accessible. A separate and dedicated website is being developed. Please contact:

- **Randi Sterling**
  Medical Board Monitoring Program (MBMP)
  Phone: 605-367-7700 | Toll free: 888-340-4371 |
  Cell: 605-400-4542
  Email: mbmp@state.sd.us

**Who answers general questions?**
Any general questions should be directed to the BMOE executive director, Margaret Hansen.

**Summary**
The BMOE has a long history of monitoring its licensees. The BMOE has agreements in place with the monitoring companies, Affinity eHealth and Soberlink to serve the MBMP. The BMOE is continuing to research other regional and national monitoring programs including protocols, processes, budgets, and program services, to identify best practices.
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- Mike Alley
- Allison Alvine, MD
- Gregory Alvine, MD
- Angela Kay Anderson, MD
- Michelle L. Baack, MD
- Todd Baack

- Douglas G. Bell, MD
- Gaye Bell
- Kay Berg
- Tony L. Berg, MD
- Kevin L. Bjordahl, MD
- Mary Bjordahl
- Brook M. Eide, MD
- Erin L. Eide
- Alicia Farmer
- Joel D. Farmer, MD
- Gail Fuller
- William C. Fuller, MD
- Patricia Kay Giebink, MD
- Lu Yu Huber, MD
- James Keil, MD
- Lavina Keil
- Deborah Ann Kullerd, MD
- Kaye Lawler
- Patrick J. Lawler, MD
- Claudette Margallo
- Lucio N. Margallo, II, MD
- Christiane R. Maroun, MD
- Karen McPherson
- Scott A. McPherson, MD
- Marlys Porter
- Richard I. Porter, MD
- Claire Reilly Allen
- Herbert A. Saloun, MD
- Connie Schroeder
- Stephan D. Schroeder, MD
- J. Geoffrey Slingsby, MD
- Jacalyn Slingsby
- Raed A. Sulaiman, MD
- Thavam C. Thambi-Pillai, MD
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- Gena Timmerman
- Marilyn Van Demark
- Robert E. Van Demark, Jr., MD
- Jaclyn Vollstedt
- Keith A. Vollstedt, MD

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- Priscilla F. Bade, MD
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- Michael Eide, MD
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- Michael Paul Fee, MD
- Stephen T. Foley, MD
- John R. Fritz, MD
- Stephen H. Gehring, MD
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- Lycia C. Scott-Thornburg, MD
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- Anne Grady Healy, MD
- Sarah Jen Smith, MD

**Student Member**

- Broderick T. Allen
- Sigurd Edward Hartnett

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Your SDSMA PAC membership is very important in order to elect political candidates who understand the practice of organized medicine in South Dakota. To donate to SDSMA PAC, please visit www.sdsma.org.
Get Involved in the SDSMA

Thank you for your membership in the SDSMA. As a member, you have several direct opportunities to become more involved in the important work of the SDSMA:

• Doctor of the Day – serve as the physician for the South Dakota State Legislature for one day during session;
• Physician lobbyist – serve as a volunteer lobbyist during the legislative session;
• SDSMA PAC – help friends of medicine become elected officials and lawmakers;
• SDSMA committees and task forces – serve the organization and yourself;
• SDSMA appointments to state boards, committees and commissions – the SDSMA is asked to nominate and recommend physicians to fill positions to numerous vacancies every year;
• Membership sections for medical students and residents – we need leaders at each stage of a physician’s career; and
• Districts and specialty societies – for local involvement.

If you’d like to get involved, give us a call at 605.336.1965 or visit www.sdsm.org for more information.

“For Your Benefit” is the SDSMA’s monthly update on programs and services available to members.

Legal Brief Highlight: Advanced Practice Nurses

In 2017, the South Dakota legislature granted certified nurse practitioners (CNP) and certified nurse midwives (CNM) the authority to provide certain direct patient care services independently, provided they have completed 1,040 hours of patient care under the collaboration of a physician, certified nurse practitioner, or certified nurse midwife.

The CNP and CNM’s direct patient care practice must be within their personal abilities and skills. SDSMA advises that the collaboration should also be consistent with the nature of the physician’s practice and area of expertise. Collaborating physicians may expose themselves to potential liability for the acts or omissions of the collaborating professional; therefore, care should be taken to provide appropriate collaboration and to provide for appropriate insurance coverage.

More information is available in the SDSMA legal brief Advanced Practice Nurses: Scope of Practice and Collaboration Requirements at www.sdsm.org. Through the SDSMA Center for Physician Resources, the SDSMA has developed more than 50 legal briefs that are available to members. In addition, the Center develops and delivers programs for members in the areas of practice management, leadership and health and wellness.

Medical Students Hosting Third Annual Physician’s Cup Golf Tournament for Charity

The first-year American Medical Association representatives at the University of South Dakota Sanford School of Medicine have announced the third annual Physician’s Cup Golf Tournament. The tournament will be held on Aug. 12 at Prairie Green Golf Course in Sioux Falls. All proceeds will benefit LifeScape, which provides education, care, and medical services for adults and children with mental and/or physical disabilities.

The tournament will be a four person scramble with a shotgun start at 10 a.m. Registration is $100 per participate, which includes a golf towel, two drinks and a meal following the round. To register, call Michael Blankespoor at 712.470.6819 or email usdssom.ama@gmail.com.
AMA Delegate Report – 2017 Annual Meeting

Members of the South Dakota State Medical Association (SDSMA) and the SDSMA Medical Student Section attended the American Medical Association (AMA) Annual Meeting in Chicago in June with hundreds of others from across the country. The gathering was filled with activities and policy debate that will help shape the future of health care in the nation. Some policies adopted by the AMA House of Delegates (HOD) include the following:

The Health Threat of Psychoactive Substances
New psychoactive substances (NPS) are quickly emerging, transient and difficult to track. While some coordinated public health responses have been used to combat NPS outbreaks, most strategies and solutions remain disconnected, lacking necessary information and data sharing capability. With the eruption of both illicit and synthetic drugs, as well as a lack of regulation, physicians are also searching for further education to aid in treating patients. Delegates voted to support multifaceted, multiagency approaches to combat NPS. Delegates also supported increased NPS surveillance and early warning systems for more actionable information that can quickly aid law enforcement, public health officials, emergency physicians and vulnerable populations in mitigating the growing NPS problem.

Pain Care and Opioid-Use Disorder
While reversing the opioid epidemic remains a vital focus, AMA delegates adopted resolutions to seek strategies and education to help the millions who live with chronic pain. Chronic pain affects 100 million Americans. With such a high burden on the American public, the HOD took actions aimed at improving pain care while expanding access to buprenorphine for patients with opioid-use disorder and encouraging the safe storage and disposal of controlled substances.

Veterans’ Access to Care
The AMA will continue working with the U.S. Department of Veterans Affairs (VA) to provide quality of care to veterans and advocate new funding for the Veterans Choice Program (VCP). The HOD also adopted new policy that includes encouraging the VA to continue developing and enhancing alternative pathways for veterans to seek care outside the VA system if it cannot provide them with adequate or timely care, supporting the consolidation of VA community care programs, and making the VCP permanent.

Support for Transgender Patients
The HOD adopted policies in an attempt to enhance care for the thousands of Americans who identify as transgender, as well as for many others who do not identify with one particular gender. Delegates directed the AMA to work with other appropriate organizations to “inform and educate the medical community and the public on the medical spectrum of gender identity.” The authors of the adopted resolution wrote that gender is “incompletely understood as a binary selection” because gender, gender identity, sexual orientation, and genotypic and phenotypic sex are not always aligned. The HOD also adopted policy opposing any efforts that would prevent a transgender person from “accessing basic human services and public facilities in line with one’s gender identity.”

Access to Care for Refugees and Detained Immigrants
Delegates adopted a series of resolutions that affirmed the AMA’s commitment to patients’ health and well-being, regardless of their immigration status. They also voted to support a ban on law-enforcement officials’ use of information contained in patient medical records as part of immigration enforcement actions against people living in the U.S. illegally. The new policy reinforces the AMA’s longtime opposition to any federal legislation requiring physicians to establish the immigration status of their patients or collect and report data regarding an individual patient’s legal resident status. The HOD took several other actions touching on the health and well-being of refugee patients and patients held in immigration detention facilities. One such action focuses on supporting programs to promote education about available low-cost health care plans to refugees. This policy is part of AMA delegates’ efforts to increase access to health care for immigrants, who are at higher risk for chronic health and mental health conditions.

Mitigating Sexual Exploitation and Sex Trafficking of Minors
The resolution adopted requests that AMA advocate for the development of laws and policies that utilize a public health framework to address the commercial sexual exploitation and sex trafficking of minors by promoting care and services for victims instead of arrest and prosecution. Testimony was in unanimous support of the resolution. Some delegates spoke of their professional experience in working with survivors of human trafficking, and relayed the trauma experienced by these survivors. Others discussed the need to address human trafficking as an important goal of public health.

Promoting the AMA Model Medical Staff Code of Conduct and its Application to Employed Physicians
Delegates adopted a resolution that requests that the AMA actively educate state and specialty medical societies about the AMA Medical
Staff Code of Conduct and promote its use. In addition, the resolution requests that the AMA advocate for employed physicians to be afforded the same right of review as non-employed physicians in accusations where conduct is characterized as “disruptive, intimidating or inappropriate.” The resolution received unanimous support. Testimony focused on the distinction between employed and non-employed physicians, and how the rights of both categories of physicians should be treated equally with respect to medical staff privileges. The Reference Committee heard lengthy testimony about the distinction between contract rights and medical privilege credentialing, and how the credentialing of medical staff should remain separate from the rights employed physicians obtain/lose through employment contracts.

**Efforts to Improve Access to Diabetes Self-Management Training Services**

This resolution asks that the AMA actively support regulatory and legislative actions that will mitigate barriers to diabetes self-management training utilization; and support outreach efforts to foster increased reliance on diabetes self-management training by physician practices in order to improve the quality of diabetes care.

**Native American Medical School Enrollment**

A resolution concerning the declining Native American medical school enrollment asks that the AMA partner with key stakeholders to study why enrollment is declining in spite of an overall substantial increase in medical school enrollment. The reference committee heard testimony on the need for increased diversity of the physician workforce.

**Physician and Medical Staff Member Bill of Rights**

Delegates adopted a series of fundamental medical staff rights and responsibilities based on existing AMA policy. New language affirms that the AMA recognizes the right of medical staff to determine which non-physician health care professionals may be members of the medical staff.

Respectfully submitted,

Mary S. Carpenter, MD  
SDSMA Delegate to the AMA

Robert L. Allison, MD  
SDSMA Alternate Delegate to the AMA

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**Keep Your Information Up-to-Date: Log on Today**

In order for the SDSMA office to provide members with timely information, it is important that members regularly review their contact information on file with the SDSMA. Have you changed practice locations? Is your email correct? Is your mail going to the right place?

All SDSMA members have an existing online profile. Visit www.sdsm.org and log into your secure online account. Next, access your profile by clicking the “Update my Profile” link at the top of the page.

Please take a few minutes to review your profile and make any necessary updates. Updating your secure account keeps your information up to date and notifies the SDSMA of any changes so you are accurately listed in the member directory and ensures that your membership materials, emails and renewal notices are sent to the appropriate mailing and email addresses.

Do you have a new photo? Updated photos can be uploaded to your user account or emailed to membership@sdsm.org.

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**The Issue Is…**

**CMS Raises Awareness of Chronic Care Management**

The Centers for Medicare and Medicaid Services (CMS) has introduced Connected Care, a public education campaign to raise awareness of the benefits of chronic care management services for Medicare beneficiaries living with multiple chronic conditions and to provide health care professionals with support to implement chronic care management.

Learn more about the Connected Care campaign by visiting go.cms.gov/CCM, which has additional resources, including webinars and campaign toolkits for health professionals and partners.

“The Issue Is” is the SDSMA’s monthly update on key policy issues of importance to physicians.
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