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Number 5

2024 SDSMA Annual Leadership Conference

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Contents

May 2024

Volume 77 | Number 5

South Dakota medicine

The Journal of the South Dakota
State Medical Association

Editorial

- 195** Do the Hard Things – Lessons from Dr. Susan Anderson
– Jason J. Kemnitz, EdD

Letters to the Editor

- 196** Medical Students Deserve Our Admiration – Henry Travers, MD

President's Comments

- 198** SDSMA Keeps Passion For Medicine Alive – Denise Hanisch, MD

The Journal

- 200** Emotional Pre-Occupation And Variations in Stress Scores During Chronic Hemodialysis Management – Saira Akhlaq, DHED; Candace Ayars, PhD; Lynda Konecny, DHED, DHSc; Monica J. Mitchell, PhD, MBA; Mohammad Zeeshan Qamar, MD
- 207** Gluten Ataxia and mGluR1 Autoimmune Encephalitis Presenting as Acute Cerebellar Ataxia: A Case Report – Cole D. Tessendorf, MS III, Jared F. Hueser, MS III; Brendan Wechsler, MD; Nessim N. Amin, MD
- 213** Antithrombotic Therapy for Heart Failure in Sinus Rhythm – A Concise Review – Rakshya Sharma, MD; Ananta Subedi, MD

Primers in Medicine

- 220** Measurement-Based Care for Pediatric and Adolescent Mental Health Disorders as a Decision-Making Support Paradigm for Clinical Practice: A Review – Cole Edwards, MS IV; Vivek Anand, MD

Images in Medicine

- 231** Inability to Advance Pulmonary Artery Catheter Unmasking Anomalous Infra-Cardiac Right Pulmonary Venous Return in a Middle-Aged Adult – Muhammad Hamza Saad Shaukat, MBBS; Jaswanth Jasti, MD; Melissa Pham, MS II; Adam Stys, MD; Tomasz Stys, MD
- 232** Diphyllbothriasis in a Teenage Male – David Jensen, MS IV; Peter Paul Lim, MD

Special Features

- 233** Take the Survey – Why Did You Pursue a Career in Healthcare? – Fran Rice
- 235** Member News
- 240** SDBMOE Board News – Margaret B. Hansen, PA, MPAS

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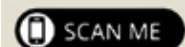
Making a list of things you hope for is often the most challenging. Things on this list are typically not items we've given ourselves permission to think about. It may be a far-off dream of what you would do without having to worry about money. It could be something like hoping for good health. You could hope that your children or grandchildren make wise choices in the future. Or, maybe, there's a financial gift you've wondered about but never thought you'd be able to do. Whatever it is, we enjoy hearing about it. In addition to getting to know you better, I've found we can often create a plan that helps you realize a hope that you never thought was possible.

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Do the Hard Things – Lessons from Dr. Susan Anderson

Jason J. Kemnitz, EdD

I've lived in academia my entire life. I have been a student, a teacher, a coach, and an administrator. In that time, I would guess that I have probably met thousands, if not tens of thousands of different people. Truth be told, many of those people have blurred in the memories of being a teacher, coach student, and administrator, packed away neatly to conserve space in what I imagine is a semi-full mind. Sometimes, some spend a great deal of time in your life that you will always remember as a pleasant work acquaintance. Rarely, some touch you so deeply they leave an indelible mark on your soul. For me, Dr. Susan Anderson was one of those people.

Unfortunately, Susan lost her battle with lymphoma in March and has left a hole in the medical school and community that words cannot express. While it has been almost two months, I am still processing this loss. But as a consummate, teacher, mentor, colleague, and most importantly friend, I know she wouldn't want me to linger, but find some way to make this loss productive. So, to be productive I offer the following 3 "lessons" I have learned from Susan along the way that perhaps we all could use.

Do the hard things well. This should probably say do all things well. Susan always did, but it is the hard things that stand out to me. Have multiple children while in medical school and residency, no problem. When asked to find a way to address the need to expose more students to rural family medicine in the hope they would return to practice in rural South Dakota she created a multi-campus, multi-system program known as the Frontier and Rural Medicine program (F.A.R.M.), which was no easy feat. I recall talking to her one day after embarking upon a project together and asking her why she always attacked hard things with such vigor. She informed me that if you did the hard things well, the rest could be fun! It is this perspective that set her apart.

Love your family. Susan loved her family fiercely. I have only met her family in passing, but I do know that she would move heaven and earth for them. In a world in which we strive for "balance," she gracefully succeeded in finding it. A fierce supporter of her children in all their endeavors, she appeared to rarely miss an event with Matt, her husband, at her side. A proud grandmother, she beamed with joy relating tales of her children and grandchild. But her family was more, it was the students that she taught, often going out of her way to

help them out, the friends that she went to residency with, posting pictures of the reunions, and the colleagues that she worked with. Susan always had the best advice that I needed to hear, whether I wanted to hear it or not. We worked well as a team because she challenged and encouraged us. If you know me, you'll know that I'm not a social party type of guy, but the Family Medicine Departmental Christmas parties were a must-attend event in our house. Not because it was my department and it was the thing to do, but because it was an intersection of her worlds, and we all felt like family. It was home.

Be Proud of where you are from. Like many of us at the medical school, Susan was a proud South Dakotan, and she showed it. In 2017, the USD SSOM won the Spencer Foreman Award for Outstanding Community Engagement. This award was a culmination of Dr. Mary Nettleman and Dr. Anderson's hard work. Part of the award included a site visit and Susan devised the "South Dakota Road Show." She packed a mostly urban visit team into a van and toured them down the country roads of South Dakota between Vermillion and Sioux Falls to show the team who we are and whom we serve. She provided South Dakota snacks, trivia, and important information about the school and our service. While many contributed to the securing of this award, I truly believe that without the roadshow we may not have received it. I have no doubt that Susan could have gone anywhere and probably could have done whatever she wanted, but her pride for South Dakota kept her here and we are better for it.

I could offer more lessons (always be teaching, don't forget to party, find a creative solution to difficult problems) but some I choose to keep personal, locked away to use at an appropriate time when I can give proper credit for what will be sage advice. Indeed, I am limited by both time and space, and I know that if you had the pleasure of interacting with Dr. Susan Anderson, you too have your own lessons.

There is a Native American proverb that states "The soul would have no rainbows if the eyes do not have tears." Thank you, Susan, for adding rainbows to my soul. I will miss you, my friend, may you be at peace.

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Medical Students Deserve Our Admiration

Henry Travers, MD

To the Editor:

While T.S. Eliot wrote that April was the cruelest month, it was Frank Sinatra's *I'll remember April and smile* that came to mind with the arrival of the April issue of *South Dakota Medicine*.

Bravo to Pillar One students Limburg, Kendall and Owen on their well-written article about the humanities in medicine!¹ Their expressions of the importance of the humanities in the care of the patient mirror those taught at the Pennsylvania State University College of Medicine's Department of Humanities, beginning in 1967 as one of the first in the nation, led by Episcopal minister Al Vastyan, together with historian Edward Lurie and ethicists David Messner and K. Danner Clouser. The dean, George T. Harrell, was a founding member of the American Osler Society, an organization dedicated to carrying on the ideals of Sir William Osler, whose example Limburg, Kendall and Owen cited in their editorial. They echo, for the Sanford School of Medicine, Vastyan's description of the medical school at Penn State: "a human environment for the education of human physicians who are going to treat human beings."

Humanities contribute to physicians both directly and indirectly. One can learn about psychiatric abnormalities from portraits in literature² and other topics (ethics, history, art, music and so on) from lectures, articles and books, galleries, recordings and experience. The indirect contributions, the sum of how the humanities determine the individual physician's interaction with the individual patient, are those that seem to inspire Limburg, Kendall and Owen most. Their dedication to this aspect of medicine as a lifelong task was a singular part of their article, an inspired commitment.

Again, bravo!

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SDSMA Keeps Passion For Medicine Alive

Denise Hanisch, MD
President, South Dakota State Medical Association



This May, I celebrate my 30-year anniversary of being a physician and my last month as president of the South Dakota State Medical Association. Both events have me reminiscing. My feelings about my chosen profession have fluctuated over the years and, I can only assume, that some of you have experienced similar emotions. My passion to attend medical school was fueled by my love for science and my brother, who passed away at the age of 12 from Ewing's Sarcoma. I admit, over the past 30 years, the passion has not always been there. Some days, my career choice has felt more like a "job" and there have been many days, my emotions land somewhere else on the spectrum.

Medicine has always been part business. Hundreds of years ago, a physician would hang a sign on their office door and exchanged a service for reimbursement. But, the physician was the business. Today it seems that physicians have very little role in the business of medicine which, I think, is the contributing factor to the disenchanted sentiment I have when I ponder the course of medicine.

Being a member, board member, and president of the SDSMA has kept my passion for medicine alive. What I have experienced in the last year has proven to me that physicians still have a voice and can drive medicine to a future that is beneficial for the two most important elements, the patient and the physician. I have met courageous, hardworking, intelligent and passionate physicians in our state.

Sadly, we have lost two more physicians in the past year, who have been an inspiration to me throughout my career. They had passion, beyond measure, for improving healthcare in our state. Matt Owens, MD, family physician from Redfield, passed away Nov. 29, 2023 and will always be remembered for his contributions to our rural EMS services. He formed a partnership with Agtegra and developed the Dakota Responder Training program, which provided education to hundreds of citizens in rural communities, in the use of AEDs and Narcan. Just before his death, he was awarded the 2023 COPIC Humanitarian Award for his contributions. He was always willing, at SDSMA events, to talk about the challenges and successes of rural medicine, especially as a constant supporter of rural EMS services.

Two months ago, Susan Anderson, MD, family physician

and chair of the Department of Family Medicine at Sanford USD School of Medicine, passed away. She was a true South Dakota physician who loved and lived in her hometown of Canistota. She helped develop and support the Frontier and Rural Medicine (FARM) Program along with being active in several organizations including the SDSMA and SDAFP. You may not have known her but she supported the physicians in South Dakota with unwavering passion and dedication.

Physicians in our state saw some struggles, successes and compromises during this year's legislative session. Scope of practice expansion continues to be a difficult fight. Optometrists were successful in adding certain surgical procedures to their practices even though the SDSMA and ophthalmologists strongly opposed and provided testimony to our legislature. Pharmacists had proposed providing all vaccinations to patients from infancy to adults. The SDSMA met with the South Dakota Pharmacists Association and they did not pursue the issue further at that time. The physician assistants group did not propose legislation this year but it should be expected that they, and the pharmacists, will continue to push the boundary. We will need to stay focused and reach out to legislators throughout the coming year. I encourage you to know who your local representatives are and discuss issues with them at any time. The South Dakota Board of Medical and Osteopathic Examiners was expanded and the structure was changed, but the final outcome was a compromise that made the change more acceptable to physicians.

I cannot end my year as president without thanking the staff of the SDSMA. They have provided guidance, opportunities and support throughout the year. They are always willing to listen to new ideas and answer questions and help lead our organization. I encourage everyone to consider attending the Annual Leadership Conference which will be held in Rapid City on May 31. The focus this year will be Native American healthcare and access, and it is a great way to learn more about our organization and what you can do to be a part of the future of medicine in our state.

No matter where my feelings are on a daily basis, I am happy I have chosen this career in medicine. I will continue to advocate for my patients and am privileged to work alongside many amazing, passionate and dedicated physicians.



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Emotional Pre-Occupation And Variations in Stress Scores During Chronic Hemodialysis Management

Saira Akhlaq, DHed; Candace Ayars, PhD; Lynda Konecny, DHed, DHS; Monica J. Mitchell, PhD, MBA; and Mohammad Zeeshan Qamar, MD

Abstract

Introduction: Hemodialysis (HD) patients experience significant psychological stress related to HD. Different types of coping strategies are utilized by these patients to cope with this stress.

Methods: Variations in different types of coping strategies with the variations in HD-related stress scores and disparities by sex were assessed. HD patients aged 18 years and above who were seeking regular treatment in a specific HD-unit of a hospital in the upper Midwest, were surveyed between March 2020 and July 2020.

Results: Descriptive statistics, correlational analyses, and regression analyses were performed. Females could be expected to have emotional coping scores 8 units greater than males, as $B = 8.017$ for sex in the model, $p = .000$. Females could be expected to have coping scores 6.4 points higher than males when adjusted for stress levels, as: $B = 6.351$, $p = .001$ for sex in the model. For each 1 point increase in Stress Score, the Coping Score could be expected to: increase 6.8 points when adjusted for Sex, where $B = 6.751$ and $p = .000$.

Conclusion: Increased prevalence of emotional pre-occupation was only observed among female patients which increased with the increase in stress. Psychological interventions in female HD patients should be strongly considered in addressing emotional pre-occupation coping.

Introduction

Prevention of health deterioration in CKD is necessary¹ as it affects both physical and mental health.^{2,6} Adopting an optimal combination of coping strategies may facilitate prevention of health deterioration in CKD.⁷ Educational interventions to promote coping in patients on HD are effective for enhancing their physical, mental, and social function,⁸ yet interventions cannot be implemented without adequate knowledge of the demographics-stress, demographics-coping, and stress-coping relationships.⁹ Thus, there is a need for methodological improvements in how to study these relationships for addressing stress in kidney diseases.¹⁰

Considering the controversies about relationships between sex and coping, various researchers have emphasized the need differently. Some emphasize considering gender instead of sex to study a psychological perspective rather than a reproductive perspective,¹⁰ and some emphasize focusing on sex rather than gender when assessing coping strategies of persons on HD specific.¹¹ When considering the research focus on sex (i.e., males vs. females) and stressors, mostly research centres around reproductive health of males¹¹; or

sex has been used as mediating variable.¹² Exploring the sex difference between stress and coping provided evidence on how elderly male and female persons perceived and coped with their stress.¹² Validating the sex differences in the link between stress and coping, particularly for elderly groups and in other populations has been needed.¹²

Identifying demographic characteristics and stressors for selecting corresponding effective coping strategies has been the foundation for planning intervention that is sensitive to patients' needs.¹¹ Considering the gaps, regarding the relationships between stress and coping variables as well as stress and demographics variables a need to study how stress scores may moderate the choice of coping strategy in managing HD or how a patient's demographic profile may introduce further variation into this relationship was identified. The study design was based on the transactional model of stress and coping.¹³ This model has also been used in the development of Coping with Health Injuries and Problems (CHIP) scale and Chronic Kidney Disease Stress Inventory (CKDSI). Based on the ideology that stressors determine the coping strategies used and the corresponding appraisal of a stressful event,¹³ the study was conducted to

identify the various types of coping strategies used in response to HD-related stress scores and to identify the patterns across different groups by demographics.

Materials and Methods

A letter of cooperation was finalized and signed by the hospital administration, followed by institutional review board (IRB) approval granted through the IRBs of A. T. Still University College of Graduate Health Studies and the Sanford hospital with an IRB # STUDY00001929. Nurses on the floor were only allowed to encounter the patients as it was a period of COVID pandemic. The quantitative, non-experimental, prospective survey design was used to assess the trends of various coping strategies practiced by the targeted sample in response to differential levels of stress scores. Survey design included administration of three different types of questionnaires.

Purposeful sampling was done to recruit study participants. Participants were eligible to participate if they had been on HD for a minimum of 1 month and were currently receiving HD, with the assumption that study participants were coping with the stress of their illness, as some form of coping is common for addressing stress due to HD.¹¹ To increase recruitment without researcher bias, eligibility questions were used to define inclusion and exclusion criteria. Patients were screened for the study using two screening questions based on the eligibility criteria: "What is the type of your chronic renal disease?" and "What is the stage of your chronic kidney disease?" and "How long have you been on Hemodialysis? Patients who indicated HD for CKD were included in the study. Patients with a diagnosis of CKD but not on HD were excluded because coping strategies for HD-related stressors were being evaluated. No potential participants meeting the eligibility were excluded for any reason.

G*Power (2017),¹⁵ was used to calculate a sample size of 68 study participants by using a moderate effect size ($f = 0.15$) with alpha set at 0.05 and power at 0.80. A total of 66 participants completed the survey. Thus, the required sample size was not met; yet achieved sample size was closer to estimated sample size. Generalizability of findings may require consideration of larger sample size.

Demographic, CHIP and CKDSI questionnaires were used to collect data. Demographic variables were selected based on the literature review. The reliability scores for CHIP range in between 0.78-0.88,¹⁶ validity was assessed through a principal component analysis in addition to construct validity,¹⁷ and criterion validity as was assessed by comparing

it with the different coping measuring instruments.¹⁸ The CKDSI was used to measure the perceived stress experienced corresponding to HD-related stressors as it is a reliable and valid scale.¹⁹

Data were collected from the eligible participants after obtaining verbal informed consent. Verbal agreement to participate in the study implied voluntary informed consent to participate in the study. Nurses recorded survey data on reliable and validated questionnaires for the participants who agreed to fill the questionnaires during the visit. Data collection took about 30-45 minutes per participant and 1-2 months for the overall process. Some of the patients took the questionnaires home and brought them back at the follow-up visit, while others never brought them back.

Data accuracy was ensured by explaining each question to each study participant. All questionnaires had simple easy-to-read questions. The overall data collection process took about 1-2 months. Anonymity of the data collection process and data storage security was maintained. REDCap system was used to secure an electronic database. The researcher herself did the entry for all the data and re-read it multiple times and at multiple points to ensure the accuracy of data entry. Statistical Package for the Social Sciences (SPSS) v. 25.0¹⁴ was used for data analysis. Anonymous data was retrieved from REDCap into SPSS syntax files for analysis.

Results

Participants self-reported data. A response rate of 84.84% was observed. Majority of the participants were 60-69 years old (28.6%), male (64.3%), single (53.6%), and high school graduates or the equivalent (64.3%), on Stage 5 (65.6%) followed by stage 4 (21.9%). A few were on stages 1-3 (Table 1).

Table 1. Stages of patients on hemodialysis.

Stage	Frequency	Percentage
1	1	1.6
2	3	4.7
3	4	6.3
4	14	21.9
5	42	65.6
Total	64	100.0

The CKDSI scores for each item were added together to form a continuous variable to calculate a continuous score. To meet research objectives, a mean score for each item was first calculated and then the average mean score for each participant was calculated. As the scale is calibrated on a scale from 0-3, where 0 means not at all to 3 means very likely. Therefore, maximum mean for all the items can be 102, and 0 as minimum. For each item, the lowest possible is 0. Whereas the highest possible is 3. The stress scores were lower ($M = 0.89$, $SD = 0.51$). The participants mostly chose 0 which means no stress at all. A few of them scored 1 which means likely. Thus, the overall mean for the stress score was in between 0 and 1.

CHIP questionnaires were firsthand scored and total aggregate score for each construct within the questionnaire was calculated by adding up the raw scores. Manual scoring on the CHIP questionnaire was done by following the instructions on the CHIP scoring sheet. Each type of coping strategy denotes each construct on the instrument and there are 8 items under each construct. Each item is graded on a five-point Likert scale from 1-5 which means $8 \times 5 = 40$ is the maximum raw score possible on each construct. Whereas 8 is the minimum raw score possible for each construct. Even though palliative ($M = 24.28$, $SD = 6.57$), instrumental ($M = 23.94$, $SD = 7.32$) and then distraction ($M = 23.94$, $SD = 7.32$) coping mean scores were higher as compared to emotional pre-occupation ($M = 22.0847$, $SD = 8.09$), yet the mean scores for the positive constructs should have been much higher. Lower mean scores of emotional pre-occupations may be viewed as a positive outcome. Mean scores can be further decreased if they are adding to increased stress scores and increased if emotional pre-occupation coping is facilitative in nature. A score of less than 20 is considered a poor score. Moderate scores for positive coping range in between 20-30 and excellent scores range in between 30-40 and vice versa for emotional pre-occupation.

Sex and Emotional Pre-occupation

Sex significantly predicted variations in emotional pre-occupation, $p < 0.001$. R^2 for the overall model was 22.8%, a small to moderate size effect.²⁰ The slope coefficient (B) of sex was significantly different from 0 (zero) in the model which means there was a linear relationship between sex and emotional preoccupation coping. Females (comparison group) could be expected to have emotional coping scores 8 units greater than males (reference group), as $B = 8.017$ for sex in the model, $p < 0.001$.

Sex, Stress and Emotional Pre-occupation

Correlation values for sex were 0.477 and for total stress score were 0.509, $p < 0.001$ for both variables. RI for the overall model was 39.4%, a moderate size effect.²⁰ Sex and stress scores added significant variances to the prediction of emotional pre-occupation, $p < 0.001$, that explained 33% of the variance in the emotional pre-occupation scores. The slope coefficients (Bs) of sex and stress were significantly different to 0 (zero) in the model. It means there were linear relationships of sex and stress with emotional pre-occupation coping strategy. Females could be expected to have coping scores 6.4 points higher than males when adjusted for stress levels, as $B = 6.351$ for sex in the model, $p = .001$. For each 1-point increase in Stress Score, the Coping Score could be expected to increase 6.8 points when adjusted for Sex, where $B = 6.751$ and $p < .000$.

Discussion

Stress is a normal part of life and stress associated with chronic health conditions can be overwhelming^{9,19,21,22,23,24}. Stress in HD patients is associated with higher rates of mortality due to cardiovascular events as compared to patients not on HD²⁵. Thus, there is higher need to address stress in HD,²⁴ by learning and adopting adaptive coping strategies in some cases.²⁶ The differences persist irrespective of whether gender or sex is considered despite geographical distances.^{11,9,27} Strengths include the findings that females are at a higher risk of being emotionally pre-occupied as compared to males and this pre-occupation increases with the increase in stress scores. This is significant because coping strategies negative in nature are related to higher depression scores.²⁸ Positive reappraisal, positive in nature is related with lower depression scores²⁷ and lower levels of negative affect.²⁹ Increasing positive appraisal could be an advantage in females undergoing HD, to decrease negative affect in females and increase positive affect in males,³⁰ and to facilitate prevention of harmful effects in HD patients.²³

Increase of emotional pre-occupation with the increase of stress scores emphasizes the need to address emotional pre-occupation in patients with CKD on HD.^{11,31,32} A unique addition to literature are the observed higher scores in females as compared to males. Males experience better functional outcomes if they learn to use emotion-focused coping.³³ Upskilling males in the use of emotion-focused strategies is like providing them with an additional tool for HD-related stress management.³⁰ Thus, it may be assessed if protective effects against the HD-related stress in males can be achieved by

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increasing emotional pre-occupation coping. Interventional studies to assess the beneficial effects of promoting and decreasing the emotional pre-occupation corresponding to the sex needs in HD patients can be imperative; due to conceptual overlap with the emotion-oriented coping,³⁵ and to promote application of positive appraisal for the targeted groups that need them the most for increasing self-care in association with hope.³⁵ The findings hold implications for rural environment as the study was conducted in Sioux Falls, SD. Many of the patients who receive HD in Sanford Health Sioux Falls come from far-flung areas of South Dakota. Health care providers involved in renal care management can make collaborations with stress management personnel to implement directed interventions. Positive behaviours, HD compliance management, and quality of functional outcomes may be increased by promoting an appropriate combination of coping strategies.

Fatigue usually experienced by patients at the time of HD and inherent bias in self-reported data, may be considered as limitations. Stressors identified in CKD patients may not be exclusive to HD. The observed associations of stress scores with coping scores may be influenced by factors not within the control of the investigator, like the stress due to coronavirus pandemic.

Factors that contribute to expected increased emotional pre-occupation in females on HD may be explored. Assessing if increased use of emotional pre-occupation is associated with decreased use of distraction, or assessing if negative affects experienced due to HD-related stress may be decreased by using emotional pre-occupation as a facilitative coping, to increase palliative coping and instrumental coping in females on HD. Multi-centered assessments for consistency across larger populations, and a longitudinal study design for confirmability of findings over time may be conducted.

Conclusions

HD management requires consideration of stress-coping parameters as variations in coping styles due to HD-related stress prevail by sex. Interventions to increase emotional pre-occupation as a defensive coping in males and decreasing it in females as an avoidance coping may be implemented.

Acknowledgments – This study was originally published as a part of a dissertation thesis at the AT Still University.

Find supplemental material at sdsma.org.

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Gluten Ataxia and mGluR1 Autoimmune Encephalitis Presenting as Acute Cerebellar Ataxia: A Case Report

Cole D. Tessendorf, MS III, Jared F. Hueser, MS III; Brendan Wechsler, MD; and Nessim N. Amin, MD

Abstract

A Caucasian male in his 60s presented with acute onset of dizziness, dysarthria, and gait ataxia. Upon extensive workup, positive findings were cerebrospinal fluid (CSF) showing lymphocytic pleocytosis with oligoclonal bands, positive celiac disease autoantibodies in blood, a duodenal biopsy indicating lymphocytic infiltration, and positive anti-mGluR1 antibody titers in CSF. The patient was started on a strict gluten-free diet and intravenous immunoglobulin therapy for 5 days and showed mild consecutive improvements each day of treatment. He was discharged after 22 days, and was encouraged to continue gluten adherence, physical and speech therapy, and follow up with neuroimmunology. This report demonstrates that autoimmune encephalitis due to anti-mGluR1 antibodies and gluten ataxia are both immune-mediated disorders that should be considered in acute cerebellar ataxia cases. By broadening the differential diagnosis and a comprehensive CSF analysis, identification of gluten ataxia and autoimmune encephalitis were beneficial in the management of this particular patient.

Background

Ataxia is a neurological sign that manifests as a lack of coordination in the movement of different muscles in the body. It is a clinical finding which mainly presents as abnormalities in gait, changes in speech, and abnormal eye movements such as nystagmus. Ataxia may occur due to abnormalities in the brain, spinal cord, nerves, nerve roots, or in concurrence with other diseases or syndromes.^{1,2} This case report highlights one patient's presentation of ataxia in association with a rarely described etiology of autoimmune encephalitis, and it highlights the importance of broadening the differential diagnosis when managing patients with these manifestations.

Case Report

A Caucasian male in his 60s was transferred from a rural emergency department with progressively worsening dizziness, slurred speech, and unsteady gait. The patient reported a 3-month history of difficulty swallowing, 3-4 daily aspirations, and occasional diplopia that self-resolved after a few minutes. He also described his gait as imbalanced, but denied dizziness or vertigo. Neurological examination showed dysmetria and intention tremor on left finger-to-nose testing as well as a wide-based gait. Speech appeared normal with good naming, reading, and repetition, however the patient and his wife noted differences from his baseline

regarding speech slowing and lack of articulation. Cranial nerves were intact, however horizontal nystagmus was noted. No diplopia was appreciated on examination. There was no evidence of peripheral sensory change or sensory ataxia. Deep tendon reflexes and mental status were normal. Complete blood count with differential, comprehensive metabolic panel, and urinalysis were all unremarkable. A noncontrast head CT and a brain MRI with and without contrast were negative for acute intracranial abnormalities. A CT of chest, abdomen, and pelvis with and without contrast was ordered to determine if symptoms were due to paraneoplastic etiologies. No definitive masses were found except for small lung nodules determined to be likely benign.

The working diagnosis at the time was suspected to be cerebellar ataxia due infectious versus inflammatory etiologies. It was decided that empiric antibiotics and steroids would not be considered until a specific etiology was identified. A lumbar puncture was performed and cerebrospinal fluid (CSF) studies revealed lymphocytic pleocytosis with 16 WBCs/microL, 88% lymphocytes, elevated protein of 75.4 mg/dL, normal glucose of 61 mg/dL, and 2 oligoclonal bands. A CSF panel for *E. coli*, *H. influenzae*, *L. monocytogenes*, *N. meningitidis*, *S. agalactiae*, *S. pneumoniae*, CMV, enterovirus, HSV1, HSV2, HHV6, parechovirus, varicella zoster, and *C. neoformans* was negative. Autoimmune testing was negative for thyroid

peroxidase autoantibodies, SS-A/Ro IgG, and SS-B/La IgG. However, autoimmune testing was remarkable for a positive ANA screen with no identifiable pattern and normal ANA Titer IFA (normal = <1:40), anti-gliadin IgA (93.1 U/mL; normal = <14.6 U/mL), anti-gliadin IgG (28.0 U/mL; normal = <14.6 U/mL), tissue transglutaminase IgA (41.7 U/mL; normal = <14.6 U/mL), and positive endomysial antibody screen.

At this time cerebellar ataxia due to an autoimmune etiology was suspected, and the patient was started on intravenous methylprednisolone for 4 days with no substantial improvement. Gastroenterology was consulted for further evaluation of the abnormal gliadin and tissue transglutaminase antibodies. Upper endoscopy showed duodenal mucosal changes that were suspicious for celiac disease. Duodenal biopsy revealed preserved villous architecture and focally increased intraepithelial lymphocytes. The patient was started on strict adherence to a gluten free diet and was transferred to a rehabilitation unit for intensive physical, occupational, and speech therapy.

Days later, an autoimmune panel of the CSF returned with positive mGluR1 antibodies. It was suspected that the patient's symptoms were likely a combination of non-paraneoplastic autoimmune encephalitis and celiac disease. The patient continued his gluten free diet and was started on intravenous immunoglobulins (IVIg) therapy for 5 days and showed mild consecutive improvements each day of treatment. He was discharged after 22 days and was encouraged to continue gluten adherence, physical and speech therapy, and follow up with neuroimmunology in 8 weeks.

Outcome and Follow-Up

In his follow up with neuroimmunology 8 weeks after discharge, the patient reported that "he has been getting better, but has good and bad days." He stated while his symptoms have not been progressing, his balance, gait dysmetria, and speech has not returned to baseline. He reported being very compliant with the gluten free diet. Because chronic untreated celiac disease can be associated with increased risk of cancer like intestinal lymphomas, and mGluR1 antibodies can be seen in the paraneoplastic setting, the provider recommended additional occult malignancy screening with PET-CT. PET-CT was unremarkable for any lesions suggesting malignancy. Along with his strict gluten free diet, he started on an additional plan for IV steroids and plasma exchange, followed by treatment with rituximab. He underwent IV methylprednisolone 1g daily for 3 days,

followed by 1g weekly for 5 weeks, along with 5 plasma exchange sessions. After the completion of plasma exchange sessions, he started Rituximab 2g every 6 months with plans to continue that schedule for 3 years. At a 6-week telemedicine follow-up with labs, he reported ongoing improvement in his walking, balance, and that his speech is generally improved. He also remains compliant with the gluten free diet and is doing physical therapy twice per week. Serum tissue transglutaminase IgA had improved to 1.7 U/mL (normal = <14.6 U/mL), with the decreasing level correlating with symptomatic improvement. The physician decided that no repeat testing of CSF mGluR1 was warranted. The patient plans to follow up again in 3 months.

Discussion

Celiac disease is a chronic immune-mediated disorder primarily affecting the gastrointestinal tract that is characterized by a sensitivity to gluten. When gluten is ingested, it is broken down into several peptides including gliadin. It is believed that gliadin binds to antigen-presenting cells expressing HLA-DQ2 and HLA-DQ8, and this is facilitated by an enzyme called tissue transglutaminase. The peptides are then presented to intestinal mucosal T-lymphocytes to produce inflammatory antibodies and cytokines. Small bowel biopsy characteristically shows villous atrophy, crypt hyperplasia and inflammation.^{3,5}

The classic presentation of celiac disease includes steatorrhea, vomiting, abdominal pain, diarrhea, anemia, and nutritional deficiencies following gluten ingestion. In atypical forms, these gastrointestinal symptoms are less prominent or even absent, and extraintestinal features may be the presenting illness, including hematological disorders, liver disorders, musculoskeletal disorders, dermatological disorders, pulmonary involvement, psychological disturbances, and male and female reproductive system problems.^{1,4} Moreover, some individuals may have completely asymptomatic celiac disease, but can be diagnosed after intestinal biopsy or positive serology.^{5,6} Presently, serum IgA EMA (endomysial antibody), IgA tTG (tissue transglutaminase antibody), IgA AGA (deamidated antigliadin antibody) are the accepted serological diagnostic markers.^{3,7}

In the last few decades, there have been increasing numbers of reports describing neurological complications of celiac disease, specifically ataxia, peripheral neuropathy, and epilepsy. Association between ataxia and associated celiac disease serology markers has been reported in many studies. The first were primarily case reports and case series, followed by case-control studies. They proposed the term "gluten

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ataxia” for patients with positive IgA AGA who may not have enteropathy or other celiac disease antibodies.^{1,2} In a recent case report, a patient with underlying celiac disease and SLE presented with symptomatic intestinal disease, classic meningitis signs, and deep venous sinus thrombosis.⁸ While meningitis has been associated with celiac disease in relation to other autoimmune diseases, our patient presented with a rare case of ataxia, dysarthria, and altered sensorium, but without gastrointestinal symptoms or past history of other autoimmune diseases.

For patients with gluten ataxia, gluten-free diet with physical and occupational therapies has been shown to be effective treatment.^{9,10} Several studies suggest that a majority of gluten ataxia cases respond well with strict gluten-free diet for a minimum of one year, with a majority of patients seeing near complete symptom resolution after one year. Follow-up with serum IgA EMA, IgA tTG, IgA AGA is advised, with decreasing levels correlating with symptomatic improvement.¹⁰ Consideration of steroids, intravenous immunoglobulin (IVIg), and plasma exchange (PLEX) is acceptable if there is no improvement or worsening ataxia. These therapies are utilized to decrease immune response and systemic serum antibody levels.^{5,9,10}

Autoantibodies against mGluR1 have also been described as a rare biomarker of cerebellar ataxia. There are eight subtypes of metabotropic glutamate receptors, and the mGluR1 subtype is abundant in the mammalian brain and most highly expressed in cerebellar Purkinje cells. Evidence indicates that disturbance of the mGluR1 signaling pathway causes cerebellar dysfunction in both humans and animal models.^{11,12} The disruption of mGluR1 signaling has been implicated in a heterogeneous group of cerebellar disorders, including autoimmune, neoplastic, and genetic disorders such as certain types of spinocerebellar ataxia.¹¹⁻¹³

Autoantibodies against mGluR1 have been associated with autoimmune cerebellar ataxia with a paraneoplastic origin (usually lymphoma) or without neoplasia detected. Cerebellar ataxia associated with anti-mGluR1 with no paraneoplastic findings is a rare autoimmune-mediated cerebellar ataxia that has been reported approximately 20 times as of 2020.^{11,14,15} A previous case report described a non-paraneoplastic cerebellar ataxia associated with anti-mGluR1 antibodies in a 56-year-old female. The patient presented with cerebellar ataxia, dysarthria, tremors, and diplopia following a febrile illness. She was treated with pulse intravenous methylprednisolone, IVIg, PLEX as acute treatment. For maintenance, the patient received IVIg, PLEX, rituximab, and azathioprine over the

course of 3 years and improved to baseline and stayed in remission.¹⁴

Conclusion

We describe a unique case where the patient presented with an acute onset of cerebellar symptoms and findings consistent with co-existing celiac disease and autoimmune encephalitis with mGluR1 antibodies. Early diagnosis and initiation of therapy is necessary in cases of gluten ataxia and autoimmune encephalitis. Broadening the differential diagnosis and a comprehensive CSF analysis were beneficial in the management of this particular patient, especially to rule out occult malignancies that celiac disease and mGluR1 antibodies have been associated with.

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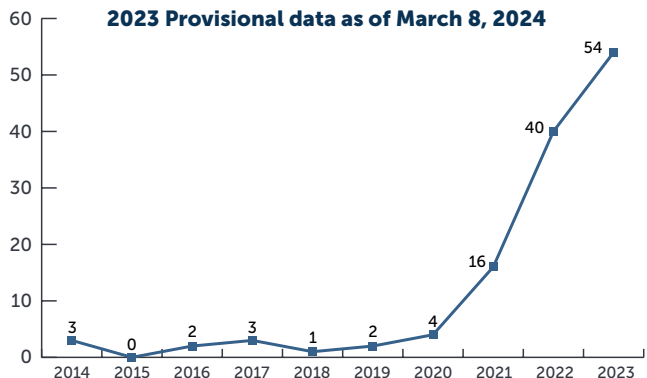
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2024 Events and Activities

- **8:00 - 8:45 am** **Physician Advocacy** – Bruce Scott, MD, President-Elect, American Medical Association
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- **9:15 - 9:45 am** **United Front: Advancing Tribal Syphilis Response with Multilevel Partnerships** – Jerilyn Church, CEO
- **9:45 - 10:15 am** **Walking Forward Research Program: Addressing Cancer Disparities Among American Indians in Western South Dakota** – Kristin Cina, Community Research Specialist
- **10:15 - 10:45 am** **Rural/Reservation Health Care in South Dakota: A Fragile Network** – Bart Pfankuch, Fellow, Center for Health Journalism; Content Director; South Dakota News Watch
- **10:45 - 11:45 am** **Panel Discussion - Improving Access to Care** – Jennifer Tinguely, MD, MPH, Moderator, SDSMA President-Elect; Panelists – Shannon Emry, MD; Kristin Cina; Bart Pfankuch
- **11:45 am - 12 pm** **Break**
- **12:00 - 1:00 pm** **SDSMA PAC Lunch – Street Medicine: New People, Old Problem** (*ticket purchase required*) – Shannon Emry, MD, Medical Director
- **1:00 pm** **SDSMA Policy Council Meeting**
University of South Dakota Sanford School of Medicine Update – Tim Ridgway, MD, Dean, University of South Dakota Sanford School of Medicine
Membership Open Forum – submit a policy issue at sdsma.org
Medical Student Poster Session
#1 Abstract Presentation: AMA and SDSMA Membership After Graduation – Sydney Payne
- **5:00 pm** **SDSMA Board of Directors Meeting**
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Antithrombotic Therapy for Heart Failure in Sinus Rhythm – A Concise Review

Rakshya Sharma, MD; and Ananta Subedi, MD

Abstract

Heart failure (HF) is a common disorder associated with significant morbidity and mortality. It can increase the risk of thromboembolic events, which subsequently lead to increased risk of stroke, ischemic heart disease, thromboembolism, and death. Antithrombotic therapy has been investigated as a potential management strategy for HF patients in sinus rhythm, but its efficacy remains uncertain. Current guidelines do not recommend the routine use of antithrombotics in patients with HF in sinus rhythm without any other indication for their use. Several randomized controlled trials have investigated the efficacy of antithrombotics in HF patients in sinus rhythm. This article provides a concise review of the existing literature to assess the evidence supporting the use of antithrombotics in HF patients in sinus rhythm. The use of warfarin or other anticoagulants has demonstrated a lower risk of stroke but an increased risk of bleeding. The studies demonstrate that anticoagulant therapy in HF patients in sinus rhythm does not provide significant benefits in terms of overall ischemic events or death.

Background

Heart failure (HF) is a syndrome characterized by typical symptoms such as shortness of breath, fatigue, and ankle swelling, along with signs like pulmonary crackles and elevated jugular venous pressure, resulting from abnormal cardiac structure or function. Approximately half of the patients with heart failure have a reduced left ventricular ejection fraction (LVEF).¹ According to the American College of Cardiology Foundation (ACCF) and the American Heart Association (AHA), heart failure with reduced ejection fraction (HFrEF) is defined as a clinical diagnosis of heart failure with left ventricular ejection fraction (LVEF) of less than 40%. The patients with a clinical diagnosis of HF with LVEF of more than 50% are classified as heart failure with preserved ejection fraction (HFpEF), and those with LVEF between 40% and 50% are classified as borderline.² The determination of LVEF and classification of heart failure into HFrEF and HFpEF hold significant importance due to difference in management as well as the variance in the prognostic factors.

A sinus rhythm (SR) refers to any cardiac rhythm in which the depolarization of the cardiac muscle initiates at the sinus node. A sinus rhythm is identified by the presence of P waves of morphology in an electrocardiogram. A normal sinus rhythm is usually regular and is considered the normal rhythm of the heart.³

According to the data obtained from National Health and Nutrition Examination Survey (NHANES) between 2013 and 2016, about 6.2 million Americans are suffering from heart failure.⁴ Moreover, at 45 years through 95 years of age, lifetime risk for heart failure is estimated to be between 20% to 45%.⁵ Heart failure is associated with a significant mortality risk, particularly following hospitalization, with a 30-day case fatality rate of 10.4% and a 5-year case fatality rate of 42.3%.⁶ This high mortality observed in HF can be attributed to an increased risk of thromboembolic events, including stroke, coronary artery disease, and venous thromboembolism.⁷ Furthermore, in addition to hypercoagulability and increased platelet activation, a significant number of patients with heart failure may also have undiagnosed paroxysmal atrial fibrillation (AF), as there is an association between AF and HF. This coexistence of undetected AF could provide a further explanation for the elevated incidence of stroke observed in individuals with HF.⁸ HF can cause arrhythmias like atrial fibrillation (AF), and vice versa.⁹ It is reported that 15% to 35% of the patients with HFrEF have concomitant AF.¹⁰ The benefits of antithrombotics in HF patients with AF are well known.¹

Despite this correlation between HF and various pathologies that may benefit from antithrombotic therapy, the actual benefit of doing so for heart failure independently is debatable. To gain a clearer understanding of the evidence

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supporting the use of antithrombotics in HF patients who are in sinus rhythm, we conducted this concise review of the published literature.

Methodology: Data Sources and Selection

We searched the existing literature in PubMed/MEDLINE using MeSH terms and keywords “heart failure” OR “HFrEF” AND “sinus rhythm” AND “antithrombotics” OR “anticoagulation.” The search included original research on adult humans, including randomized control trials (RCTs), and prospective, retrospective, cohort, case-control, and cross-sectional studies, as well as meta-analyses, published in English from January 1990 to December 2022. We excluded letters, conference abstracts, case reports, case series, irrelevant articles, abstracts without full texts, articles not published in English, articles published prior to 1990, and duplicate articles. Both co-authors independently screened the titles, abstracts, and full texts to identify eligible studies. No data were recorded. We also reviewed the references in the resulting articles to identify other relevant publications. Any disagreements were resolved through discussion to reach a logical consensus.

Pathophysiology of Thrombosis in Heart Failure

Virchow's triad outlines the three key factors contributing to thrombogenesis, which are the stasis of blood flow, damage to the endothelium of blood vessels, and a hypercoagulable state. In the case of heart failure with reduced ejection fraction (HFrEF), abnormalities in blood flow occur due to low cardiac output, poor contractility, and dilated cardiac chambers. Defective endothelial function is also observed in HFrEF, resulting from various mechanisms such as impaired release of endothelium-derived nitric oxide and platelet adhesion to the endothelium, among others.¹¹ Moreover, patients with HFrEF exhibit a hypercoagulable state, characterized by increased plasma viscosity, platelet activation, elevated levels of von Willebrand factor, fibrinogen, and D-dimer.^{12,13} Consequently, all three components of Virchow's triad are affected in HFrEF, thereby elevating the risk of thrombosis in heart failure patients. The mechanism of thrombosis in patients with heart failure with preserved ejection fraction (HFpEF) is less understood; however, there is evidence suggesting endothelial dysfunction in such patients.¹⁴

Epidemiology

The risk of stroke seems to be elevated in patients with HF, as indicated by multiple studies.^{15,16} Although the mechanism is less understood, the risk of stroke in the patients with HFpEF seems to be similar to HFrEF.¹⁷ Numerous studies have been

conducted to investigate the incidence of thromboembolism in patients with HFrEF. A study by Dries et al., published in 1997, reported an annual incidence of thromboembolic events of 1.8% and in men and 2.4% in women. Another study conducted by Loh et al. observed that 4.6% of patients with heart failure with reduced ejection fraction (HFrEF) following myocardial infarction (MI) experienced a stroke during the study period. The CORONA and GISSI-HF trials, involving 6,054 HF patients without atrial fibrillation (AF), observed that 3.4% of these patients (206 individuals) experienced a stroke. Notably, among the 206 patients, 33 reported having AF either before or after the occurrence of stroke.¹⁸ Furthermore, studies have highlighted myocardial infarction as a common cause of death among patients with HF. In the OPTIMAAL study, 81% of autopsies conducted on HF patients classified as having died from HF progression revealed evidence of myocardial infarction.¹⁹

Guidelines

Despite the abovementioned data suggesting potential benefits of anticoagulation in patients with heart failure, the current guidelines offer differing recommendations. The European Society of Cardiology (ESC) guideline from 2008 recommended oral anticoagulation for patients with HF with intracardiac thrombus or evidence of systemic thromboembolism.²⁰ The 2012 ESC guideline advised against the use of anticoagulation in heart failure patients without a history of atrial fibrillation.¹ In 2009, the American College of Cardiology (ACC) and American Heart Association (AHA) issued a joint guideline that suggested oral anticoagulation only for HF patients with a history of previous embolic events or those at an increased risk of thromboembolism, as well as patients with dilated cardiomyopathy and a family history of thromboembolism in first-degree relatives.²¹ The Heart Failure Society of America (HFSA) guideline in 2010 recommended anticoagulation for patients with systemic thrombus and suggested considering anticoagulation for patients with dilated cardiomyopathy and an LVEF of less than 35%. American Heart Association (AHA) and American College of Cardiology Foundation (ACCF) issued similar guideline in 2013.² The ESC guideline published in 2021 mentions that the use of antithrombotics in HF patients in sinus rhythm is controversial.²²

Studies on Antithrombotic Therapy In Heart Failure in Sinus Rhythm

There are several studies that have investigated the use of antithrombotic therapy in HF patients in sinus rhythm. Aspirin is the most commonly prescribed antithrombotic

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agent in these patients, particularly considering the high prevalence of coronary artery disease as a predisposing condition for HF.²³ Retrospective analyses of the Spanish REDINSCOR registry, which included 2,263 HFrEF patients, did not reveal any significant statistical difference in stroke or total mortality between patients who received anticoagulation and those who did not. However, the analysis did demonstrate a reduction in major cardiac events when assessing a combined endpoint that included hospitalization, coronary revascularization, cardiac transplantation, and death.²⁴

Another retrospective analysis utilized the Danish registry and focused on patients with heart failure but without a known history of atrial fibrillation. The study included 3,840 patients who were propensity matched into two groups: patients taking low-dose aspirin and those not taking aspirin. The rate of the composite outcome, comprising of myocardial infarction, stroke, and death, was similar between the two groups.²⁵

Randomized Controlled Trials (RCTs) on Antithrombotic Patients in Sinus Rhythm

The Warfarin/Aspirin Study in Heart Failure (WASH), published in 2004, enrolled 279 patients with heart failure with an ejection fraction of less than 35%. They were divided into three groups: no antithrombotic therapy, aspirin 300 mg/day, and warfarin with a target INR of 2.5. The follow-up period was 27 months and the primary outcome measures of the study were death, myocardial infarction (MI) and stroke. The study found that there was no statistically significant difference in the primary outcomes between the three groups. However, heart failure hospitalization was higher in the aspirin group.²⁶

The Heart Failure Long-Term Antithrombotic Study (HELAS), published in 2006, was a randomized controlled trial involving 197 patients with heart failure with an ejection fraction of less than 35% and NYHA (New York Heart Association) II-IV symptoms. The mean follow-up period was 18.5 to 21.9 months. Patients were further classified into ischemic cardiomyopathy and dilated cardiomyopathy groups with 115 and 82 patients in the respective groups. Patients in the ischemic heart disease were randomized to receive warfarin or aspirin and patients in the dilated cardiomyopathy group were randomized to receive either placebo or warfarin. The study found no statistically significant difference in the primary outcome measures, which included death, MI, stroke, peripheral or pulmonary embolism, heart failure exacerbation, and rehospitalization.

However, major bleeding events were observed only in the warfarin groups. The criticism of this study is that the sample size in this study was too small to detect any statistical difference.²⁷

The Warfarin and Antiplatelet Therapy in Chronic Heart Failure (WATCH) trial, published in 2010, enrolled 1,587 patients with heart failure with an ejection fraction of less than 35% who were in sinus rhythm and had NYHA II-IV symptoms. They were assigned to the warfarin group (target INR 2-3.5), aspirin 162mg/day group, or clopidogrel 75mg/day group. The mean follow-up period was 21 months. The primary endpoints of the study were mortality, myocardial infarction, and stroke. The study found no statistically significant difference in the overall primary outcome between the groups. However, the warfarin group had a lower incidence of stroke. Additionally, heart failure hospitalizations were lower in the warfarin group. It was concluded that neither warfarin nor clopidogrel were superior to aspirin in HF patients in sinus rhythm.²⁸

The Warfarin versus Aspirin in Reduced Ejection Fraction (WARCEF) trial, published in 2012, was a large double-blind prospective RCT that enrolled 2,305 patients with heart failure and ejection fraction of less than 35%. The mean follow-up period was 42.1 months. The patients were assigned to the warfarin group (target INR 2.5-3.5) or aspirin 325mg/day group. The primary outcomes of the study were death, ischemic stroke or intracerebral hemorrhage. The study found no significant difference in the overall primary outcome between the groups. However, the warfarin group had a lower incidence of ischemic stroke, while major bleeding events were significantly higher in the warfarin group. Additionally, the risk of hospitalization was higher in the warfarin group which was contrasting compared to the WASH and WATCH study.²⁹

A meta-analysis of the four randomized controlled trials (RCTs) involving 4,378 patients with HF in sinus rhythm revealed no statistically significant difference in terms of mortality from all causes, non-fatal myocardial infarction, or HF-related hospitalizations between the groups receiving warfarin compared to aspirin therapy. However, the group receiving warfarin showed a lower incidence of strokes. On the other hand, the warfarin group was associated with a higher incidence of significant bleeding events.³⁰

In 2018, Zannad et al. published the COMMANDER-HF trial, a double-blinded randomized trial that enrolled 5,022 patients with heart failure and no history of atrial fibrillation.



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Patients were assigned to the rivaroxaban group (rivaroxaban 2.5 mg twice daily) or the placebo group in addition to the standard of care. The median follow-up period was 21 months. The primary endpoints were death, stroke, or MI. The study found no significant difference between the two groups in terms of the composite endpoints. However, the incidence of stroke was significantly lower in the rivaroxaban group, while major bleeding events were higher.³¹

Antithrombotics in Acute Heart Failure

The risk of thromboembolism is higher during acute exacerbations of heart failure.³² In line with this, the ESC 2021 guideline recommends the use of heparin or other anticoagulants for thromboembolism prophylaxis during these episodes. The guideline recommends the use of heparin or another anticoagulant for thromboembolism prevention in such cases, unless contraindicated or unnecessary (e.g., if the patient is already receiving therapeutic anticoagulation for another indication).²² The goal is to mitigate the risk of thromboembolic events and optimize patient outcomes during acute exacerbations of heart failure.

Conclusion

Heart failure is associated with increased platelet activation, hypercoagulability, and a higher risk of thromboembolic events, which can contribute to significant morbidity and mortality. However, there is no compelling evidence to support the use of antithrombotic therapy in patients with HF who do not have any other indications for anticoagulation, such as atrial fibrillation or a history of thromboembolism.

Existing studies consistently demonstrate that anticoagulant therapy in HF patients in sinus rhythm does not provide significant benefits in terms of overall mortality or ischemic events. Although some studies have shown a lower risk of ischemic stroke in patients receiving anticoagulants, this benefit is offset by an increased risk of bleeding. Therefore, the net clinical benefit of anticoagulants remains uncertain.

Furthermore, the use of aspirin in HF patients without other indications, such as coronary artery disease, has not been shown to be beneficial. The evidence does not support routine aspirin use in the absence of specific indications.

It is important to consider individual patient characteristics, coexisting conditions, and the potential risks and benefits when making treatment decisions regarding antithrombotic therapy in HF patients.

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Please note: Due to limited space, we are unable to list all references. You may contact South Dakota Medicine at ereiss@sdsma.org for a complete listing.

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Measurement-Based Care for Pediatric and Adolescent Mental Health Disorders as a Decision-Making Support Paradigm for Clinical Practice: A Review

Cole Edwards, MS IV; and Vivek Anand, MD

Abstract

This article makes a case to encourage pediatric/adolescent care providers and healthcare systems to implement measurement-based standardized assessments of patient's baseline and longitudinal health outcomes for mental disorders to help institute evidence-based treatments. The article discusses the current underutilization, challenges, barriers, and concerns from stakeholders with measurement-based care in clinical settings while also highlighting the advantages and importance of the aforementioned care model.

Introduction

The prevalence of behavioral health disorders in youth is increasing worldwide. It is estimated that 1 out of 5 children experience a mental disorder in a given year, and hundreds of billions of dollars are spent each year on treatment and management of childhood mental disorders. It is also estimated that the majority of adult mental illness emerges during childhood or adolescence, and that almost half of the total disease burden among young people is attributed to mental illness. The delivery of effective mental health treatments based on routine measurement of symptoms should therefore become a priority given the impact of childhood mental health disorders on patients, families, caretakers, and communities. The practice of routinely using standardized measures to track symptom burden in psychiatric illness has recently gained traction and has been termed “measurement-based care” (MBC) or “outcome-based care.” In the following, we review the history of MBC in pediatric psychiatry, discuss evidence supporting its use, and explore barriers to implementing MBC in practice.

Methods

We conducted a systematic literature review to identify articles relevant to the study of measurement-based care in child and adolescent psychiatry. We began by conducting targeted searches using PubMed. The search terms included keywords such as “measurement-based care,” “psychiatry,” “pediatric,” “child and adolescent” and the names of prominent authors in this area of research, including “Krishna” and “Parikh.” We reviewed all relevant articles as a starting point, ensuring

that the selected works specifically addressed the history, development, or implementation of measurement-based care in psychiatry, specifically pediatric or child and adolescent psychiatry. Given the limited number of papers available on this topic, we adopted a broad approach to identify relevant articles that were written within the past 20 years.

After reviewing the articles, we scanned the references in each to identify additional relevant papers. Referenced article titles and abstracts were again assessed for relevance to measurement-based care in child and adolescent psychiatry, and full texts were read if deemed appropriately informative. Key qualitative and quantitative data from each paper was summarized separately for incorporation into this review. This iterative process was repeated 10-15 times, at which point we had reached a saturation point and began to encounter the same authors and articles repeatedly. At this stage we determined that we had identified the most relevant and comprehensive literature available on the subject. All selected articles were read in full by both authors. Strict inclusion and exclusion criteria could not be applied due to the relative scarcity of literature on measurement-based care in child and adolescent psychiatry. A visual summary of the article selection, review, summary, and writing process can be found in Figure 1.

What is Measurement-Based Care?

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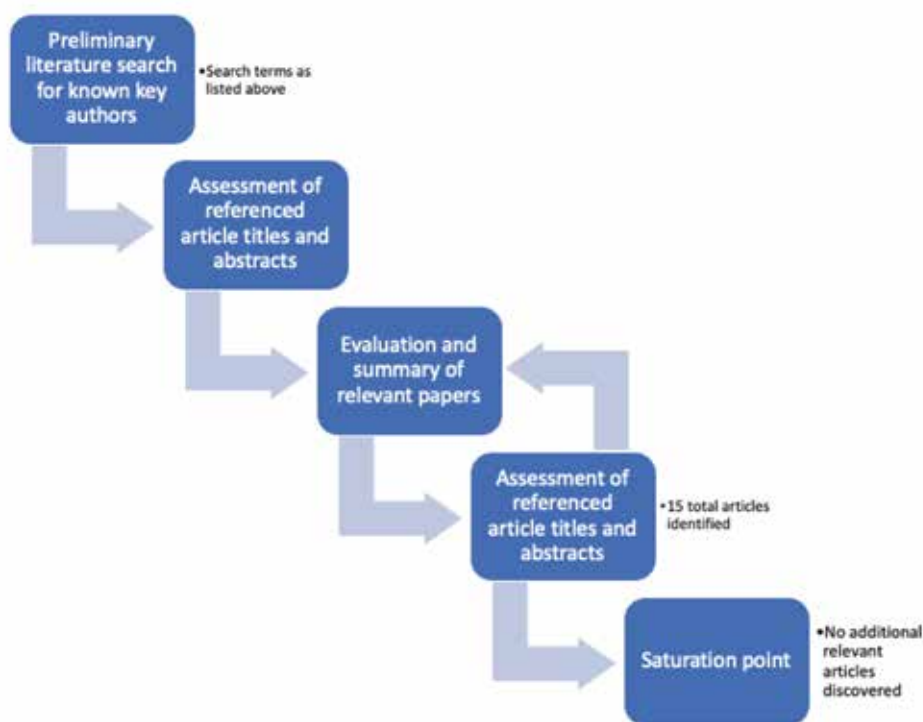
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Figure 1. Description of literature search and paper review process: Using the names of two known authors and the aforementioned keywords as a starting point, several PubMed searches were performed. All relevant articles were read, and key points were summarized to be included in this review. Referenced papers from these articles were then evaluated for relevance to the topic of MBC in child and adolescent psychiatry, and likewise read and summarized. Additional papers were repeatedly identified, read, and summarized in an iterative process until a saturation point was reached, at which time no additional relevant articles were discovered.



MBC has long been utilized by providers in all specialties who gather measurements in the form of vital signs, diagnostic laboratory tests, and imaging studies. For example, physicians routinely make decisions about how to treat hypertension by repeating blood pressure measurements and using evidence-based algorithms to aid in medication selection. In this way, MBC is an effective means of creating tailored treatment plans by using standardized and validated measures to guide treatment decisions and improve outcomes.

Rudimentary MBC in psychiatry was suggested as early as 1993 by the American Psychiatric Association (APA) in response to criticisms that the field lacked objective measures to support standardized medical decision-making. At that time, the APA published new treatment guidelines for major depression that encouraged regular check-ins and the use of standardized measures to categorize patient responses to treatment as full, partial, or no response.¹ The use of objective outcome measures was promoted more broadly over the next decade by various organizations including the Group for Advancement of Psychiatry (GAP) and the Joint

Commission, which helped gain much needed support for MBC.^{2,4}

The past two decades have seen the development of many outcome measurement tools designed to facilitate MBC for mental health disorders. Some measures such as the Generalized Anxiety Disorder-7 (GAD-7) and Patient Health Questionnaire-9 (PHQ-9) are being increasingly used as a routine component of mental health assessment in both the psychiatric and primary care settings.^{5,6} The goal of these tools is to provide baseline and follow-up measurements to help improve patient care by quantifying symptoms, monitoring response to treatment, and optimizing medical decision-making, which may translate into increased efficiency and value of care provided. Widespread implementation of measurement tools may help close the gap between clinical effectiveness and randomized clinical results. A list of screening tools approved for pediatric patients that may be used is provided in Table 1.⁷

Despite the growing availability of psychiatric outcome measurement tools, a limited number of instruments



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Table 1. List of available screening tools and individual characteristics.⁷

Instrument	Designed to measure/assess:	Patient age ranges (years)	Length, average time to complete	Cost	Additional information
Ages and Stages Questionnaire	Developmental milestones	0 – 5	30 items, 10-15 minutes	\$295 for complete kit, able to be photocopied	Completed by parent. Available in English and Spanish.
Pediatric Symptom Checklist and Youth Report (PSC & Y – PSC)	Screen for cognitive, emotional, and behavioral problems	4 - 16	35 items, 10-15 minutes	Free	Sections completed by parent and child if over 11 years old. Available in over 25 languages.
Guidelines for Adolescent Preventative Services (GAPS)	Detect at-risk behaviors and or/emotional problems	11 – 14, 15 - 21	72 items (young adolescents) 61 items (older adolescents) 15-25 minutes	Free	Completed by children or adolescents. Comprehensive medical screen.
Strengths and Difficulties Questionnaire (SDQ)	Detect changes in emotional and behavioral problems	2 – 4, 4 – 10, 11 – 17, 18+	25 items, 5-10 minutes	Free	Sections completed by child if over 11 years old. Available in over 40 languages.
Vanderbilt ADHD Diagnostic Rating Scale (VADRS)	ADHD	6 years and older	55 items, 10-25 minutes	Free	Completed by parents or teachers.
Generalized Anxiety Disorder - 7 (GAD-7)	Anxiety	13 years and older	7 items, 3-5 minutes	Free	Completed by patient if at least 13 years old.
Screen for Childhood Anxiety Related Emotional Disorders (SCARED)	Anxiety	8 - 18	41 items, 10-20 minutes	Free	Completed by child if at 6 th grade reading level.
Spence Children's Anxiety Scale (SCAS)	Anxiety	3 – 6, 7 - 18	44 items, 10-20 minutes	Free	Completed by child if at 6 th grade reading level. Available in over 30 languages.
Modified Checklist for Autism in Toddlers Revised (M-CHAT-R)	Autism	16 – 30 months	20 items, 5-7 minutes	Free	Completed by parent. Available in over 30 languages.
Childhood Autism Rating Scale, Second Edition (CARS2)	Autism	2 – 5, 6 years and older	15 items, 3-5 minutes	\$214 for 25 Standard scales, 25 High Functioning Scales, and 25 unscored Parent scales	CARS2 – High Functioning can be given to children over 6 years or with an IQ above 80.
Patient Health Questionnaire – 9A (PHQ-9A)	Depression	13 – 18 years	9 items, 3-5 minutes	Free with permission	Completed by patient if at least 13 years old. Available in English and Spanish.
Center for Epidemiological Studies Depression Scale for Children (CES - DC)	Depression	6 – 17	20 items, 5-10 minutes	Free	Completed by child and parent.
Car, Relax, Alone, Forget, Friends, Trouble (CRAFT)	Substance use	14 years and older	6 items, < 3 minutes	Free	Completed by adolescent patient. Available in 19 languages.
Screening to Brief Intervention (S2BI)	Substance use	12 years and older	7 items, < 3 minutes	Free	Completed by patient alone or with provider assistance.
Life Events Checklist (LEC-5)	Trauma/PTSD	9 – 17	16 items, 3-5 minutes	Free	Completed by patient. No formal scoring protocol.
The Children's Revised Impact of Events Scale (CRIES 13)	Trauma/PTSD	8 years and older	13 items, 3-5 minutes	Free	Completed by child if able to read independently. Available in 26 languages.
The Child Stress Disorders Checklist – Short Form (CSDC – SF)	Trauma/PTSD	6 years and older	4 items, < 3 minutes	Free	Completed by parent. Designed to assess stress reactions in injured children.

are being utilized for MBC in the child and adolescent population. At this time these population-specific tools remain uncommonly used by primary care providers and psychiatrists alike despite mental illness among children and adolescents making up 45% of this population's total disease burden.^{8,9}

The Current Status of MBC in Child and Adolescent Mental Health Care

At present there remains limited evidence about how MBC should best be utilized to improve child and adolescent psychiatric care. A recent systematic review identified at least 12 published review articles or meta-analyses summarizing evidence regarding the use of MBC in adult populations.¹⁰ Findings in adults were overall positive and suggested that MBC improves clinical outcomes, reduces patient deterioration, and improves patient-provider communication when implemented appropriately. In contrast, only 14 articles have investigated the use of MBC in children and adolescents. These studies included reports on MBC implementation trials, case studies, provider and patient surveys, and meta-analyses. Altogether, MBC was beneficial in the psychiatric care of children and adolescent patients, but results were complicated by the various methodologies used, clinical settings investigated, and measures gathered to produce the datasets. Especially noteworthy is that these studies focused mainly on the use of MBC to measure improvement in patients receiving various types of psychotherapy. Not a single study to date has investigated the use of MBC in pharmacological management among youth.

Survey data has shown that the clinical use of MBC in child and adolescent mental health care is rare. Ideally, MBC data must be implemented immediately before or during every clinical encounter, results be reviewed by providers in real time, results be shared with the patient, and thereafter used to guide treatment in consultation with the patient. However, there is scarcity of knowledge regarding usage of such comprehensive data in the long-term psychiatric care of children and adolescents. Available data comes mainly from short-course trials with limited generalizability, and rigorous outcome measures are not widely available. Some work has focused on the feasibility of implementing MBC in pediatric mental health care, but efficacy data continues to be lacking. Once available, this data may help MBC achieve widespread appeal.

Barriers to Using MBC in Child and Adolescent Mental Health Care

Common concerns persist regarding how to best implement the use of outcome measures, especially given the paucity of

evidence about the effectiveness of MBC among the pediatric population and a relative lack of knowledge on how MBC should best be used. Patients, providers, and administrators alike have voiced concerns about MBC potentially interfering with standard patient care, and systemic adoption of MBC may struggle until such barriers to implementation have been assessed and overcome. Identifying patient and parent-level barriers, provider-level barriers, organizational-level barriers, and system-level barriers is a crucial first step to their systematic resolution.¹¹

Time commitments, new and unfamiliar technology, and uncertainty regarding the potential consequences of MBC outline some of the pediatric patients' and their parents' concerns. Guardians' and patients' apprehensions about MBC are focused mainly on the uncertain time requirements needed to complete outcome measures and the potential that personal data would become available to third parties such as insurance companies.¹² The patient's and their parent's time spent in clinic is valuable, so patients unfamiliar with the use of MBC are expectedly hesitant to accept it as a core component of treatment due to perceived time burden. The routine completion of these outcome measures may be tedious, creating the potential for decreased patient or parent motivation which may affect adherence to MBC. Finally, outcome measures may be administered in a variety of ways including the use of computer software that automatically collects patient data over time and disseminates that data to relevant providers and third parties. Unless the distribution and storage of personal information is made explicitly clear to patients and their parents, there may be hesitation with MBC compliance.

Furthermore, providers may be hesitant to implement MBC given the relative paucity of available clinical evidence supporting its use, and clinician's personal reliance on subjective interviews due to their training bias despite the fact that most providers overestimate the effectiveness and accuracy of their subjective interviewing skills.¹² Providers, like patients, may also fear that the implementation of MBC could bring about negative consequences for themselves and for patients. For example, some concern exists that employers or insurance agencies may overemphasize the results of MBC data and use them as evidence of poor provider performance when patients do not demonstrate measured improvement, or that providers' MBC data may be compared to peers and utilized in hiring or promotion decision-making. Several providers also worry that aggregate MBC data may be used inappropriately to develop over-

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algorithmic treatment strategies that fail to meet the needs of individual patients or that such data might inappropriately influence reimbursement decisions. A more pressing barrier, though, is that providers may not be aware of all available patient-outcome measures and are not routinely trained in their use, disincentivizing the adoption of MBC, especially when unresolved questions about its efficiency and utility remain.

Organizational- and system-level barriers follow the same general pattern. Administrators may not have the budget required for the incorporation of outcome measures within electronic health records that often require large technological investment. Also, complex data management requirements may not be feasible or desirable in some settings, and a healthcare system's commitment to its chosen electronic medical record may also prohibit the integration of MBC into the patient-care workflow. Beyond financial and technological constraints, healthcare systems also must consider the impact that top-down decision-making has on the organizational culture. If MBC is met with resistance from providers, adherence to MBC will likely suffer and patient outcomes may deteriorate (alongside the relationship between providers and administrators).

Are Concerns About Perceived Barriers Warranted?

Patient, parent, and provider concerns about MBC creating an excessive time burden may be unwarranted. The use of internet-based outcome measurements has made it significantly easier for patients to access screening tools at their leisure as they are now often available via mobile phone and computer. These results can be securely and immediately shared with the provider via the electronic medical record (EMR) or other online software, requiring minimal administrative burden. Simple paper-and-pencil measures can also be smoothly integrated into clinic workflow by allotting time for patients to complete forms immediately prior to the visit, where some waiting room time may already be anticipated.

Effective MBC does require that patients and providers purposefully dedicate time in the clinic to discuss the results of outcome measures and monitor for changes together. Rather than being seen as invasive, though, these conversations are consistently rated as having a net positive effect on visit satisfaction. When implemented appropriately, MBC-focused discussions are likely to provide high value-per-minute care.¹³

Privacy concerns about the dissemination of personal

data to third parties can be mitigated with straightforward conversations about data collection procedures. Patients should be reassured that participation in MBC will have no negative effects on the quality or type of care provided and reminded that the purpose of MBC is to improve the care they receive. Additionally, patients should be advised that insurance companies will not use MBC data to penalize patients, and that insurance companies have actually supported the use of MBC for well over a decade.¹⁴ Furthermore, data collected and submitted online remains confidential with the use of newly available software facilitating MBC integration in the secure EMR. Patients with privacy concerns are likely to be reassured with thorough discussions about how their data will be used, shared, and stored.

As previously mentioned, physicians often report limited belief in the need for MBC given their experience and clinical interviewing skills. However, this self-confidence may not be justified in light of evidence suggesting that most practitioners overestimate their ability to measure a patient's improvement or deterioration.^{12, 15} Advocates of MBC suggest incorporating measurement of patient's baseline data and longitudinal outcomes alongside the clinical interview to enhance provider-patient discussion and joint decision-making. Anecdotal evidence demonstrates that effective use of MBC has led to the disclosure of important details, particularly trauma or adverse childhood experiences, that otherwise would not have been shared during clinical interview. Such important information may be the key to accurate diagnosis in challenging clinical situations. Therefore, MBC strategies that assist providers in optimizing medical care should be strongly considered by healthcare systems.

It is difficult to address all systems-level barriers to MBC given the great diversity of existing psychiatric healthcare organizations. As a rule, though, organization leaders should not dismiss the use of MBC prematurely due to concerns about costs or technological requirements. Older no-cost patient-outcome measures are typically affordable and may be advantageous due to provider familiarity and ease of use. No strong evidence currently shows that paper-and-pencil MBC is any more or less effective than internet-based models. Simpler, affordable MBC strategies may be especially appropriate in the child and adolescent psychiatric setting, where young patients may not have access to personal electronic devices and may need assistance completing MBC forms.

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Conclusion

The available studies indicate favorable and positive outcomes with routine standardized measurements. The face-validity of measuring patient outcomes is much higher than clinicians' subjective perceptions from the interview. Regular monitoring, assessment, and measurement of patient-oriented outcomes represents a structural change particularly with child and adolescent psychiatric practice. Inclusion of measurement-based care may significantly alter patient-physician and parent-physician interactions, improve outcomes that matter to the patients, and facilitate algorithmic care based on patient presentation at home or school. This may translate into better mental health care in the community while also effectively replicating outcomes from evidence-based treatments as sequenced in the research literature. The effects of measurement-based approaches will however need to be cost effective and acceptable to patients, parents, providers, and healthcare systems. The formation of MBC-implementation teams that include providers and patient families may be an effective strategy to promote communication and shared decision-making. Additionally, administrators or clinicians with experience in MBC will likely be great assets to providers and organizations that are interested in incorporating MBC at their respective institutions. As pediatric specialists, we urge pediatric and adolescent providers and health systems to implement standardized patient-based assessments to measure mental health outcomes for psychiatric disorders and to assist in providing evidence-based treatments from the obtained information in consultation with the patients and their parents or caretakers.

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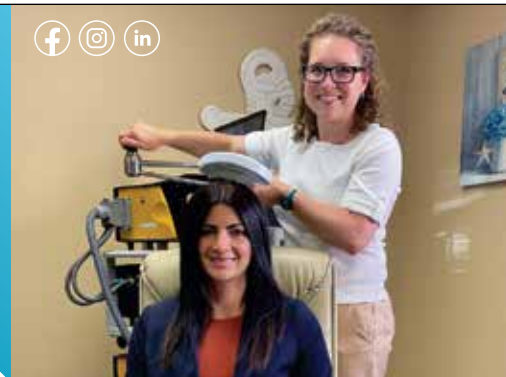
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Inability to Advance Pulmonary Artery Catheter Unmasking Anomalous Infra-Cardiac Right Pulmonary Venous Return in a Middle-Aged Adult

Muhammad Hamza Saad Shaukat, MBBS; Jaswanth Jasti, MD; Melissa Pham, MS II; Adam Stys, MD; and Tomasz Stys, MD

Introduction

After several attempts to advance a pulmonary artery catheter from the inferior vena cava (IVC) to the right atrium on routine right heart catheterization in a 57-year-old man for a new diagnosis of biventricular heart failure, IVC venogram showed a loop adjacent to the hepatic veins. CT imaging confirmed an intrahepatic IVC loop due to a herniated hepatic lobe. Right pulmonary vein was seen draining into the intrahepatic IVC. Partial anomalous pulmonary venous return is a congenital defect of which the infra-cardiac type typically manifests in infancy.¹ Infra-cardiac anomalous pulmonary venous return presenting as pulmonary hypertension and heart failure in adulthood is exceedingly rare.^{2,3}

Case Description

A 57-year-old man with paroxysmal atrial fibrillation was admitted with biventricular heart failure. To further evaluate severely depressed left ventricular ejection (LVEF 25-30%), and disproportionately severe enlargement of the right atrium and ventricle, he was referred for pulmonary artery and coronary artery catheterization. Invasive coronary angiogram showed patent coronary arteries. After several unsuccessful attempts to advance the pulmonary artery catheter from the inferior vena cava (IVC) to the right atrium, an approximately 270-degree loop proximal to the hepatic veins was seen on IVC venogram (Figure 1).

CT chest, abdomen and pelvis showed right hemidiaphragm

herniation with the intrahepatic IVC coursing posteriorly and superiorly in the herniated hepatic segment (Figure 2, panel A: consistent with the loop seen on IVC venogram) and severe narrowing of hiatal IVC (Figure 2, panel B). Anomalous drainage of the right common pulmonary vein into the herniated IVC segment was found incidentally (Figure 2, panels C & D). Enlarged azygos vein on Figure 2, panel B is suggestive of infra-hepatic venous drainage bypassing the severely narrowed hiatal IVC.

On retrospective review of initial chest X-ray, Scimitar sign was absent. There was no prior history of heart disease during childhood or adulthood.

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Please note: Due to limited space, we are unable to list all references. You may contact South Dakota Medicine at ereiss@sdsma.org for a complete listing.

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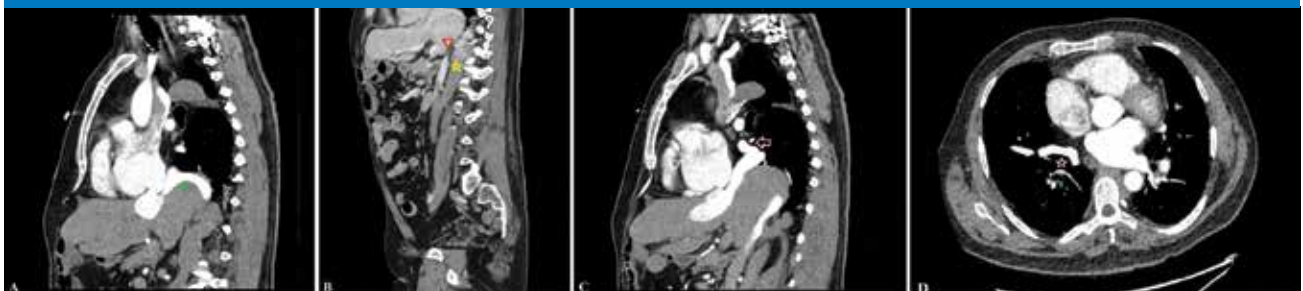
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Figure 1. Looped IVC (yellow arrow) within the herniated hepatic lobe.



Figure 2. CT chest abdomen and pelvis with contrast. Panel A: Sagittal view - IVC coursing posteriorly and superiorly (green asterisk) in the herniated hepatic lobe. Panel B: Sagittal view - Severe narrowing of the IVC (red arrowhead) at its entry into the herniated hepatic lobe. Enlarged azygos vein (yellow asterisk) is seen posterior to the IVC. Panel C: Sagittal view - Anomalous drainage of right common pulmonary vein into the IVC (pink arrow) within the herniated hepatic lobe. Panel D: Transverse view - Right pulmonary veins (pink asterisk) before coalescing into a single right pulmonary vein. Normal left inferior pulmonary venous return into the left atrium.



Diphyllobothriasis in a Teenage Male

David Jensen, MS IV; and Peter Paul Lim, MD

A 16-year-old previously healthy male presented to the urgent care with 4 days of periumbilical abdominal pain with loose, watery, non-bloody stools. Over the last two weeks, he reported losing ~ 8 lbs. He denied fevers, chills, vomiting, or close contact with similar symptoms. Physical exam was notable only for bilateral lower quadrant abdominal tenderness. He was given supportive therapy with a reassuring CBC and CMP. He returned to urgent care the following day after passing a worm (Figure 1A and B). He revealed that he works with farm animals such as cows and pigs. He does not consume raw fish or eat sushi although his family is fond of eating local sushi as well as preparing sushi at home. He goes fishing but does not consume the fish he catches. Stool microscopic examination revealed *Diphyllobothrium latum* (Figure 2A and B). Other diagnostic stool studies showed no other pathogens. He was

subsequently treated with one dose of praziquantel 600 mg per the CDC.¹ Because a common source of exposure was imminent based on social history that was presumed to have led to infection of the entire family, empiric blanket therapy with praziquantel was recommended per clinician discretion. After treatment, he demonstrated clinical improvement. Repeat stool examination the day after treatment was negative requiring no further doses of praziquantel. The patient remained asymptomatic at his follow-up appointment 19 days later. He was recommended to follow up in 6 weeks to determine cure or return if he develops symptoms. His second repeat stool exam 6 weeks after treatment was negative. He remained asymptomatic.

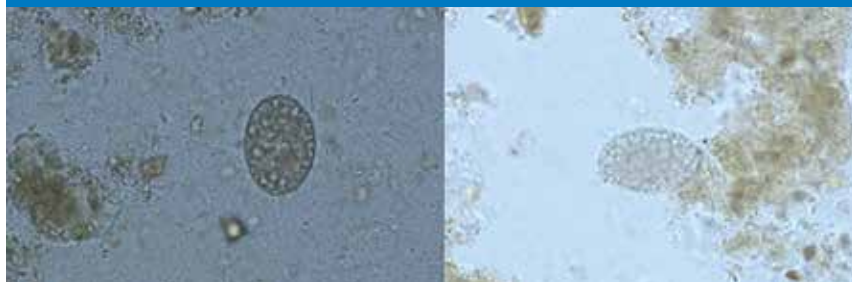
Eggs of *Diphyllobothrium latum* are usually passed unembryonated in the human feces. They will then hatch into oncospheres and coracidia. After ingestion by the first intermediate hosts, such as crustaceans, the coracidia develop into proceroid larvae in their body cavity. These larvae are then released inside small fish that feed on infected crustaceans. These small fish serve as second intermediate hosts. Bigger fish (paratenic host) eat infected smaller fish. Plerocercoid larvae develop inside the deep muscle tissues of the paratenic host. The plerocercoid is the infectious stage for the definitive host like humans. Eating infected raw or undercooked fish is the mode of infection to the human host where it will develop into a tapeworm in the small intestine. *D. latum* is not passed from person to person.²

Acknowledgement – Cory Gunderson, MLS (ACSP), Avera Microbiology Clinical Supervisor, for providing the images of the *D. latum* eggs.

Figure 1. Adult tapeworm approximately 10 feet in length with visible wide proglottids (arrows) passed on by patient after several days of abdominal pain.



Figure 2. Ellipsoidal unembryonated *Diphyllobothrium latum* eggs on microscopic examination of first stool sample provided by patient following index medical visit.



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Take the Survey – Why Did You Pursue a Career in Healthcare?

Fran Rice
Executive Director, Health Connect

Health Connect of South Dakota recently received a Beyond Idea Grant from the SD Community Foundation to bring together educators, healthcare professionals, and youth to develop a framework for developing a Healthcare Careers Exploration Program for Out of School Time Programs (HCEP-OST) for South Dakota. The catalyst for this project is recognizing that there are healthcare disparities in South Dakota. People of color and rural populations face healthcare disparities and inequity due to obstacles based on race, ethnicity, socioeconomic status, education, access and geographic location. Multiple research studies show 1) a direct correlation between the lack of diversity in healthcare, racial and ethnic healthcare disparities in accessibility, and patient experience and satisfaction, as well as 2) a steady decline in the number of rural medical students and interest in practicing in rural settings.

Rural, indigenous, and youth of color or ethnicity generally do not have access to structured opportunities to explore healthcare careers, a contributing factor for the lack of diversity in healthcare. It is well known that youth begin planning their professional pathways during their K-12 years. Career exploration opportunities are common for 6-12 grades and rare at the elementary level. Due to curricular demands, it is very challenging to provide in-depth healthcare career exploration programs in the formal classroom, especially at the elementary level. Out of school time programs are in a unique position to fill this gap. They can serve as a link to healthcare professionals and institutions that enables youth to explore healthcare careers in a safe setting. To our knowledge, there is not an evidence-based healthcare careers education program specific for OST, with a focus on grades 3-5.

Through literature review, and surveying and small group discussions with multiple populations - healthcare professionals, out-of-school time professionals, youth, and the general public - we seek to:

- 1) Learn of barriers and challenges to pursuing a healthcare career

- 2) Learn of support systems that enable youth to pursue a healthcare career
- 3) Learn what inspires individuals to pursue a healthcare career
- 4) Learn if and how South Dakota out of school time programs are integrating healthcare related activities and pathways
- 5) Learn what support is needed for out of school time programs to implement a healthcare careers exploration program

Information gathered from the focus groups, surveys, and literature review will contribute to the creation of a HCEP - OST framework. This framework will be used to evaluate existing programs, resources, curriculums, recommend adaptations for the OST setting, and identify gaps to address when developing a coordinated HCEP-OST program.

Gaining insight into what drives younger youth to choose healthcare as a career will dovetail quite nicely with other state initiatives that are mainly focused on youth in middle or high school.

From this data, we aim to have these questions answered. Where does the excitement for healthcare begin? What helps it to begin? During play time? Within school hours? After school hours? What is a great age to begin the discussion? Who will be the motivator at an OST program for youth? Can we begin a cohort of healthcare dreamers at younger ages?

As healthcare professionals your input into this research is welcomed. Please take this 3-5 minute survey and let us know about your journey into healthcare and how you are able to share your love of healthcare!

Healthcare Professionals

<https://www.surveymonkey.com/r/OSThealthprofessionals>



This page is sponsored by Health Connect via a grant from the South Dakota Community Foundation. The grant aims to develop a framework for developing a Healthcare Careers Exploration Program for Out of School Time Programs (HCEP-OST) for South Dakota.



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The 2024 SDSMA Annual Leadership Conference is Almost Here! Join us in Rapid City!

Join us for the 2024 SDSMA Annual Leadership Conference on **Friday, May 31 at the Holiday Inn Rapid City Downtown!** This conference is a benefit of your SDSMA membership – there is no registration fee for members (ticket purchase required for some events and meals). Registration, details and the full schedule are posted at sdsma.org Please register by May 21.

Join us for a day of learning and engagement as we address Native American healthcare issues and challenges. Native American communities face a complex set of issues and concerns regarding healthcare, resulting in significant disparities compared to the general population.

Events and Activities

All events and activities take place on May 31 at the Holiday Inn Rapid City Downtown

- | | |
|--------------------|---|
| • 8:00 - 8:45 am | Physician Advocacy – Bruce Scott, MD, President-Elect, American Medical Association |
| • 8:45 - 9:15 am | Syphilis & Measles in South Dakota – Melissa Magstadt, Secretary, Dept. of Health |
| • 9:15 - 9:45 am | United Front: Advancing Tribal Syphilis Response with Multilevel Partnerships – Jerilyn Church, CEO |
| • 9:45 - 10:15 am | Walking Forward Research Program: Addressing Cancer Disparities Among American Indians in Western South Dakota – Kristin Cina, Community Research Specialist |
| • 10:15 - 10:45 am | Rural/Reservation Health Care in South Dakota: A Fragile Network – Bart Pfankuch, Fellow, Center for Health Journalism; Content Director; South Dakota News Watch |
| • 10:45 - 11:45 am | Panel Discussion - Improving Access to Care – Jennifer Tinguely, MD, MPH, Moderator, SDSMA President-Elect; Panelists – Shannon Emry, MD; Kristin Cina; Bart Pfankuch |
| • 11:45 am - 12 pm | Break |
| • 12:00 - 1:00 pm | SDSMA PAC Lunch - Street Medicine: New People, Old Problem (<i>ticket purchase required</i>) – Shannon Emry, MD, Medical Director |
| • 1:00 pm | SDSMA Policy Council Meeting
University of South Dakota Sanford School of Medicine Update – Tim Ridgway, MD, Dean, University of South Dakota Sanford School of Medicine
Membership Open Forum – submit a policy issue at sdsma.org
Medical Student Poster Session
#1 Abstract Presentation: AMA and SDSMA Membership After Graduation – Sydney Payne |
| • 5:00 pm | SDSMA Board of Directors Meeting |
| • 6:30 - 7:00 pm | Membership Mixer |
| • 7:00 | Awards Banquet & Scholarship Recognition (<i>ticket purchase required</i>) |

SDSMA PAC Lunch to Highlight Midwest Street Medicine Organization

During the 2024 Annual Leadership Conference on May 31, the SDSMA PAC will welcome Shannon Emry, MD, at 12 noon (*ticket required*). Dr. Emry will speak about

Midwest Street Medicine, an organization focused on improving the health of vulnerable populations, starting with those experiencing homelessness in Sioux Falls.

Dr. Emry, co-founder and medical director, began the organization in July 2023. Dr. Emry had learned of similar street medicine teams in other states. She has since partnered with professionals from many disciplines who share her passion for bringing care to vulnerable individuals.

Individuals experiencing homelessness often have complex social dynamics, including mental health or addiction care needs. Many



individuals have significant trauma and require multi-disciplinary care. This is why peer support and social work are vital.

Reducing the stigma surrounding addic-

tion and mental health is at the forefront of Midwest Street Medicine's approach, and the organization also works closely with partner agencies who are focused on the prevention and treatment of substance use disorder and opioid use disorder.

Evidence-based, patient-centered care is vital when caring for people who are unhoused. The Midwest Street Medicine team works to build a trusting rapport with individuals, including accompanying them to medical or other appointments, supporting them in their journey to recovery, and advocating for their behavioral health and mental health needs.

Medical Student Poster Session Highlights Medical Students' Work

Be sure to join us for the Medical Student Poster Session from 1:45-2:30 pm on May 31 during the 2024 SDSMA Annual Leadership Conference. Following the poster session, Sydney Payne, the #1 Abstract recipient, will present her project. The poster session is an opportunity that helps University of South Dakota Sanford School of Medicine students improve their CVs and their competitiveness for medical residencies.

Membership Mixer is Networking Opportunity

Join us for the Membership Mixer from 6:30-7:00 pm during the SDSMA Annual Leadership Conference on May 31 in Rapid City. Enjoy an opportunity to meet SDSMA leaders and network with your peers. Meet other physicians in the state to expand your professional network. The event is sure to be an all-around great time! Spouses/guest are welcome to attend. The mixer is free of charge. Tickets are required for the Awards Banquet and Scholarship Recognition following the mixer. Register at sdsma.org.

Submit a Policy Issue & Participate in the Open Forum During SDSMA Annual Conference

Do you have a policy issue you'd like to bring to the SDSMA's attention? Make plans to address the SDSMA Policy Council during the SDSMA Annual Leadership Conference on May 31. Policy issue submission forms and more information are available at sdsma.org. Submissions are being accepted until May 10. The open forum will be held at the Holiday Inn Downtown Rapid City during the conference.

Join us For Awards Banquet, Scholarship Recognition & Presidential Inauguration

Enjoy a fun-filled celebration on Friday, May 31! Start the evening with the Membership Mixer at 6:30 pm and continue the celebration at the Awards Banquet, Scholarship Recognition & Presidential Inauguration, where Jennifer Tinguely, MD, MPH, will be sworn in as SDSMA president, awards will be bestowed upon fellow colleagues, outgoing and incoming officers will be celebrated and welcomed, and medical student scholarship recipients will be recognized. The mixer is free of charge; banquet tickets must be purchased in advance. To buy banquet tickets or register for other annual conference activities, visit sdsma.org.

Syphilis Training to Highlight Recent Advancements in Epidemiology, Diagnosis, and Management

A May 16 webinar will provide training in the most recent advancements in epidemiology, diagnosis and management of syphilis. The session will focus on general syphilis overview and basics.

Register here: https://courses.nnptc.org/class_information.html?id=3935 or find a registration link on the SDSMA's Facebook page.

Objectives:

- Describe the changing epidemiologic trends of infection.
- List the stages of disease and describe clinical manifestations of each stage of syphilis.
- Discuss the clinical management of syphilis to include treatment, follow-up and partner management.
- Discuss screening recommendations.

Course presenter: Tim Menza, MD, PhD, infectious disease specialist with advanced training and expertise in HIV, STI and viral hepatitis prevention and care.



The webinar is being offered in collaboration among the South Dakota Department of Health and the University of Washington STD Prevention Training Center.

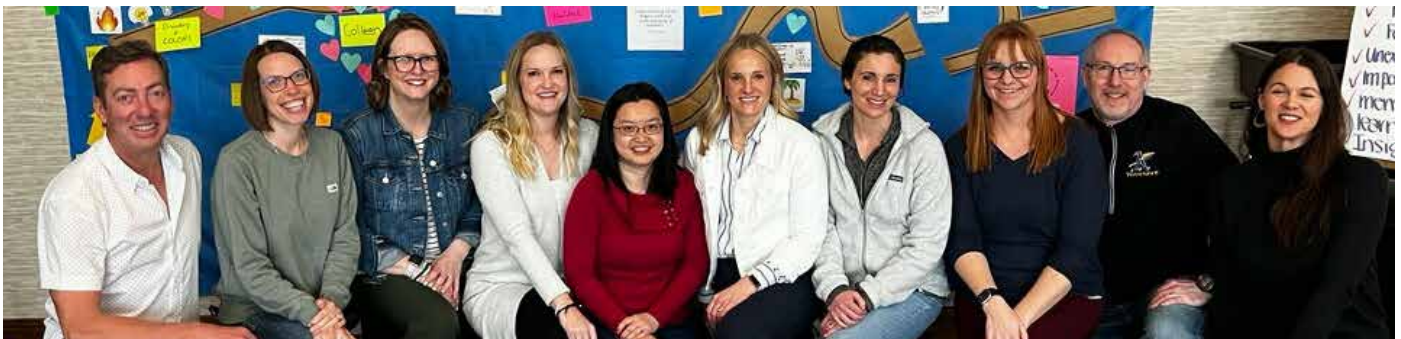
More on syphilis in South Dakota: Join us for the SDSMA annual leadership conference on May 31, where the DOH and Great Plains Tribal Leaders' Health Board will both be presenting on the topic. Register for the annual conference at sdsma.org.

Congratulations to the 2024 Graduates of the SDSMA Health Leadership Institute!

Congratulations to the 11 physicians who graduated this spring from the SDSMA Center for Physician Resources Health Leadership Institute:

The HLI's six-month program offers current and future leaders the opportunity to gain in-depth knowledge of the role leadership plays in medicine. The 2023-24 cohort brought together physicians from across the state and prepared them for participating in roles within their practice location or health system, and greater professional development, civic development, community engagement as well as leadership skills training.

Visit sdsma.org for more information about the HLI. Those interested in participating in the next cohort may contact Justin Ohleen at johleen@sdsma.org or 605.336.1965.



Pictured left to right: John Beranek – Facilitator; Jessica Olcott, MD; Carolyn Gilbertson, MD; Ashlea Semmens, MD; Yang Hu, MD; Martha Holstein, MD; Sara Marroquin, MD; Joy Mueller, MD; Dan Reiffenberger, MD; Elizabeth Jensen, DO. Not pictured: Benjamin Aaker, MD; Amy Kelley, MD

For Your Benefit:

Shaping Your Profession

The SDSMA has a member-driven focus on issues, programs and policies, professional involvement, personal development and representation in organized medicine.

- Leadership opportunities on SDSMA committees and task forces, and the SDSMA Center for Physician Resources Health Leadership Institute;
- Representation for students, residents, and young physicians;
- Low-interest educational loans and scholarships for students and residents;
- Collaborating with the University of South Dakota Sanford School of Medicine on physician workforce and medical education funding; and
- Networking with colleagues during SDSMA meetings, conferences, seminars and social events.

We want to help nurture your professional development and your personal development. If you have questions about these programs, give us a call at 605.336.1965, or visit sdsma.org.

Thank you for your membership in SDSMA.

"For Your Benefit" is the SDSMA's monthly update on programs and services available to physicians through their affiliation with the SDSMA.

Legal Brief Highlight: Peer Review

The Health Care Quality Improvement Act of 1986 sets out standards for professional peer review actions. If a professional review body meets these standards, then neither the professional review body, nor any person acting as a member or staff to the body, will be liable in damages under most federal or state laws arising out of their peer review activities.

The proceedings, records and reports of peer review committees relating to peer review activities are confidential, not subject to discovery and generally are not admissible as evidence in any court or arbitration proceeding. Similarly, no member of the peer review committee or any other person in attendance at a meeting of the committee may be required to testify as to what transpired at such meeting. Members of a peer review committee who act in good faith are immune from claims for monetary damages arising out of their peer review activities. This immunity does not, however, extend to professional societies or hospitals acting in a peer review capacity.

For more information, download the SDSMA legal brief Peer Review at sdsma.org. The SDSMA provides legal briefs for member physicians on a variety of rules and regulations that apply to the medical profession. For nonmembers, legal briefs are available for purchase.

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- **Submit a policy issue** at a membership open forum
- **Meet with your state legislators** to discuss the most pressing issues in medicine

For more information, contact SDSMA staff
membership@SDSMA.org
www.sdsma.org
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Board News is a monthly feature sponsored by the South Dakota Board of Medical and Osteopathic Examiners. For more information, contact the Board at SDBMOE@state.sd.us or write to SDBMOE, 101 N. Main Avenue, Suite 301, Sioux Falls, SD 57104.

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 605.336.1965.

Send Your Contributions Today To:

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