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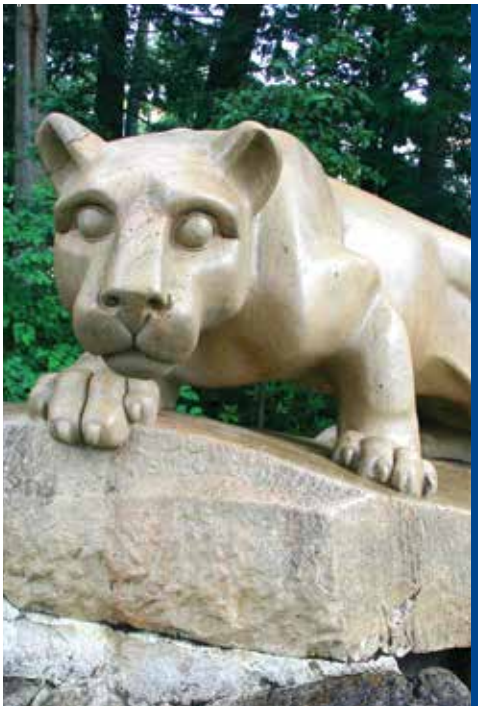

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EDITOR'S MESSAGE

Incredible Life Lesson from *Groundhog Day*

Ronald Januchowski, DO, FACOFP, Editor, *Osteopathic Family Physician*

Ask my wife and she will tell you that one of my favorite movies is *Groundhog Day* starring Bill Murray. If you have some time in the evenings to enjoy movies, *Caddyshack* (turned 40 this year) and *Meatballs*, *Stripes*, *Tootsie, Ghostbusters*, *Scrooged* and *Lost in Translation* are all great additions to a Bill Murray, forget the pandemic for a while, movie marathon.

Groundhog Day has a special significance at this time, given the story is of waking up to the same events over and over again with no end in sight. Bill Murray is one of those guys who seems to have life events that mirror the common man. He actually worked as a caddy to make money to go to college. He majored in pre-med but was expelled after being arrested for cannabis use. His passion for sports includes a love of the Chicago Bears and Cubs. He is listed as the Director of Fun for the Charleston RiverDogs minor league baseball team in my state and also is the team psychologist for St. Paul Saints baseball. Overall, he is a renaissance actor with quite a varied life history.

Moving on from pop culture trivia to the current issue of *Osteopathic Family Physician*, I am excited to tout the excellent articles we have for you in this issue. The timely reports on the coronavirus will hopefully provide you valuable information, ranging from "Telemedicine During A Pandemic," to "Treatment Experiences in the ICU." The dermatologic article, "Timeline in Pictures of Oral Aphthae," presents a brief report on a chronic, relapsing, inflammatory vascular disease with no pathognomonic test. The clinical image article concludes our issue and this month focuses on "Intranasal Manifestation of Granulomatous Disease in Common Variable Immunodeficiency." The *OFP* editorial board works hard to put out a high-quality journal for our readers and our mission is that you learn something applicable to your practice in each issue.

Back to *Groundhog Day*. Initially, the lead character was wrought with fear, depression and horror in his seemingly endless situation. But eventually, Phil (Bill Murray) used his time to become a better person by learning from the past and caring about people in the present. He broke the curse and his life continued on a better path than before his endless loop of experiencing the same day over and over. Without this, *Groundhog Day* would not have ended (and Bill Murray would not have been available for *Lost in Translation*).

Let's see if we can strive to find a better way forward!

Take care of yourself and others.

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FROM THE PRESIDENT'S DESK

A Presidential Mother's Perspective

Nicole H. Bixler, DO, MBA, FACOFP
ACOFP President

Well, it is finally here—my first chance to address the ACOFP community from the President's Desk. You would think with an extra six months to think about this, I would have been prepared with an eloquently written message to attest to my thoughts, plans and initiatives for the upcoming year. Ironically, this extra time has brought only more uncertainty, unrest and injustice on so many different levels.

As you are reading this, we are eight months into the COVID-19 pandemic in the United States. We have witnessed numerous protests in response to police brutality and the need for fair and equal treatment of minorities, specifically our Black communities. We have seen record high unemployment rates, bankruptcies of major businesses and a strain on our economy. We have seen the education of our medical students and residents disrupted, leaving us wondering if that lost clinical time can truly be replicated. We have seen frontline health care workers give everything they have and more, with too many succumbing to this pervasive virus. These are the unfortunate realities of 2020.

For those who do not know me well, I am a graduate of the Philadelphia College of Osteopathic Medicine and received my MBA in Health Administration at St. Joseph's University while attending medical school. I completed my family medicine residency in the Philadelphia area at what was once called Frankford Bucks Hospital, a part of the Jefferson Health System.

As a clinician, I precept fourth-year medical students from Kiran Patel College of Osteopathic Medicine at NOVA Southeastern University in their rural and underserved rotation and family medicine residents at HCA Oak Hill Hospital for their inpatient family medicine blocks. As an advocate for our profession, I have had the honor of serving as the president of the Florida Osteopathic Medical Association and Florida Society of ACOFP—both preparing me for my position on the ACOFP Board of Governors and as your incoming president.

I moved to Florida in 2007 and have since been working in an Advanced Payment Model, taking care of Medicare Advantage patients in the outpatient and inpatient setting. In 2011, Brian Bixler, MD, joined our practice and it is no coincidence that our last names are now the same—we married in 2012. Together we have three beautiful daughters ages 9, 15 and 17.

As a mother, I manage the family calendar: birthday parties, school functions, swim practices, homework and "drama" that goes along with raising three girls. As a daughter, I am the primary caregiver for my mother, who suffers from dementia since the age of 60 and resides in an assisted living facility. As a wife, I am blessed to be married to the kindest, smartest, most selfless man who truly is my partner on every level.

And as a woman who is trying to manage it all, I hope I am getting it "right" and serving as a role model to my daughters and other females who are striving to find that balance between a professional career and motherhood.

To say that the year 2020 has thrown this highly motivated, multi-tasking planner for a loop is an understatement. With the help of my family and the dedication of the ACOFP Board and staff, March in New Orleans was set to be a fantastic annual convention. Over six months of preparation was upended by six days of immediate action planning to present a successful ACOFP '20 Virtual CME program—minus the meeting of our Congress of Delegates, the launch of new presidential initiatives, the honoring of new fellows and the fellowship that is synonymous with our college and convention.

The newly formed Health and Wellness Committee and Task Force on Convention Innovation could not meet to lay out the groundwork for the year to come. The 70th Anniversary of the ACOFP could not be celebrated with a traditional Mardi Gras king cake. The Presidential Diversity, Equity & Inclusion Leadership Award could not be announced in conjunction with honoring the past presidents of the ACOFP. And a special tribute to women leaders in our profession will have to wait another year. Not to mention the thousands of Mardi Gras beads, masks, pralines and Zapp's chips that were packed and ready to make the trip as part of a proper New Orleans presidential celebration.

I have to take this opportunity to publicly thank my ACOFP Board family and the continued leadership and kindness of our president, Robert DeLuca, DO, FACOFP *dist*., and our Executive Director, Bob Moore, for their support during that really tough week as we made that decision to cancel the in-person convention. But as the saying goes: "There's no crying in baseball" (or maybe this year, there is crying for baseball as we knew it). Neither is there crying over your personal disappointments when you have children who need you to be their rock of support.

Who knew that March 13 would be the last day my daughters attended school for the year and we would all need to learn to adapt to online learning, separation from our extended families and peer groups, and months of existence in relative isolation. No matter how many years of education you have or how many leadership roles you have served, you cannot be prepared for the questions: "When can I go back to school?" "Why can't I have playdate?" "Are you and Daddy going to get sick?" "Will we ever get to see Grammy again?" "Mommy, when will this virus ever end?" Those questions have made me realize that as important as ACOFP is to me and how unfortunate it was that my well-laid plans did not come to fruition, it paled in comparison to the devastating toll this year has taken on our collective families.

So, what lemonade have I made from all these 2020 lemons? For me, it has been a time to slow down, reflect and reconnect—a time to take longer evening walks, read a book for pure enjoyment, make family dinners, play a board game, go fishing and build forts in the family room. It's an opportunity to be creative in providing traditional activities in a new socially distanced way.

Who would have thought an RV trip to a local campsite would be just as memorable as our family trips to Hawaii and Puerto Rico? It has given me a new appreciation for our educators and the patience they have in teaching our children. It has pushed our practice to adopt telemedicine to care for our vulnerable population. It has made us all examine our personal implicit biases and how we can do better as physicians.

As for ACOFP, it has exemplified how a dedicated staff, volunteer board and committee members can rise to the challenge to provide member benefits better than ever. Our Health and Wellness Committee has done an extraordinary job with our Virtual Doctor's Lounges and the COVID-19 Resource Center. The Task Force on Convention Innovation has thoroughly evaluated the educational needs and desires of our members and is prepared to take our CME events, whether online or in-person, to the next level. We provided outstanding virtual CME and OMT training through the newly designed Intensive Osteopathic Update. Our advocacy efforts have significantly increased throughout this year, especially pertaining to COVID-related legislation, support for osteopathic family physicians, our focus on vulnerable populations, the protection of the educational process for our medical students and residents, and championing a streamlined osteopathic board certification process. We have redesigned our committee structure and are taking a deep dive look at ACOFP's governance structure so that we can be more inclusive, nimble and efficient with our limited resources.

I am proud to say that the initiatives I had hoped to share with the 2,000+ registered attendees in NOLA have not been delayed. I am grateful for the support, dedication and collective energy of the ACOFP Board and staff in adapting to our new circumstances. I am looking forward to continuing these efforts and hoping that one day soon we get the chance to share an osteopathic hug. I am hopeful that our country can forge a path that includes empathy, peace and good health. In the meantime, I will enjoy some more late-night chats with my nine-year-old, sharing her hopes and dreams for the future.

Osteopathically yours,

Nicole Heath Bixler, DO, MBA, FACOFP

RESEARCH ARTICLE

EVALUATION OF CLINICAL NO-SHOW RATES IN THE SETTING OF AN OUTPATIENT INTERNAL MEDICINE RESIDENCY CLINIC

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KEYWORDS:

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Telephone Reminder

ABSTRACT: A no-show appointment is clinically defined as a scheduled appointment in which a patient fails to attend without prior notification to the provider or staff. In primary care clinics, no-show rates have been shown to range from 15% to 30%. Smaller studies have shown that interventions including phone calls, emails or text message reminders can reduce no-show rates.[1–9] Our retrospective review sought to evaluate a similar intervention performed at the Multispecialty Residency Clinic (MSC). A test of two proportions was performed to evaluate the effect of a 24-hour reminder phone call. The no-show rate before initiating a 24-hour phone call was 17.8%, and following the intervention this rate improved to 16%, an observed reduction of 1.9% with a 95% confidence interval (CI) from 0.1% to 3%, p = 0.003. New patient encounters, established patient visits and cancellations were analyzed as secondary endpoints to further evaluate the effects of a reminder phone call. Our retrospective analysis is the largest to date regarding the effectiveness of utilizing phone call reminders to reduce no-show rates in the setting of a residency clinic and has confirmed a significant 2% reduction in no-show appointments.

INTRODUCTION

A no-show appointment is clinically defined as a scheduled appointment in which a patient fails to attend without prior notification to the provider or office staff. In practice, no-shows often lead to poor continuity for patients and result in a loss of profitability for providers, medical groups and corporations.[2] In 2014, the study "Estimating the Cost of No-Shows and Evaluating the Effects of Mitigation Strategies" found that with office schedules based around 24 patient encounters per day, the daily loss of income due to no-shows could be as high as $1,019.29 per provider, or approximately 23.0%. In a medical training environment, these effects are compounded by a loss of an invaluable opportunity for education and experience.

Studies have demonstrated no-show rates ranging between 15% to 30% and in some extreme cases have reported no-show rates as high as 50% in a primary care setting and 60% in mental health clinics.[3–6] Smaller studies have shown that interventions including phone calls, emails or text message reminders have led to improvement in no-show rates.[7–11] In one study, "Effectiveness of Telephone Reminders in Improving Rate of Appointments Kept at an Outpatient Clinic," a family medicine residency clinic performed a randomized control trial with an intervention of calling patients one day before their appointment: 479 patients were placed in the intervention and 424 in the control group. Their study revealed a reduction of no-show rates from 26% to 19% in the intervention group, which was accompanied by a concurrent increasing rate of cancellation.[3] Another study performed in Veterans Affairs (VA) clinics compared reminder phone calls at 24 hours, 48 hours and 72 hours prior to appointments.[9] Results revealed a benefit in the 24- and 48-hour group over the 72-hour group.[9]

In February 2018, the MSC committee implemented a policy in which Medical Assistants (MAs) notified patients with a telephone call 24 hours prior to their scheduled appointment. The MSC is an urban ambulatory care center focused on resident education in the primary care setting. Our retrospective review of more than 17,000 patient encounters is the largest to date and sought to evaluate the effects of a 24-hour reminder phone call on clinical no-show rates.

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METHODS

Study Population

A retrospective analysis was performed on clinical data ranging from February 2015 to February 2019. Analyzed data included the numbers of no-show visits, cancellations, established patient visits and new patient encounters. Appointment rates before and after an intervention consisting of a 24-hour reminder phone call were compared for significance. Prior to the intervention there were a total of 13,373 visits with an additional 4,357 visits in the following year. Encounters evaluated in this study include appointments scheduled at the MSC. The patient population consists of approximately 50–60% Medicare and Medicaid patients.

Study Design

This was an empirical interventional study used to estimate the causal impact of an intervention on a target population without random assignment. In February 2019, a retrospective study was initiated to evaluate the effects of an intervention in which clinical staff would provide a telephone reminder to each patient 24 hours prior to their scheduled appointment. If the patient could not be reached by phone during regular business hours, a voicemail was left to remind patients about their scheduled appointment. Clinical data collected from February 2015–February 2019 included the numbers of appointments scheduled, cancellations, no-shows, established visits and new patient encounters. No-show rates were calculated by dividing the number of no-shows by the number of expected visits. This was done in both the control group from February 2015–February 2018 and the intervention group from February 2018–2019. Before intervention there were a total of 13,061 expected visits and a calculated 18% of no-shows. The null hypothesis was established as "calling patients 24 hours before scheduled appointments will have no effect on improving no-show rates." The alternative hypothesis was established as "calling patients 24 hours before scheduled appointments will decrease no-show rates." A test of two proportions (comparing the no-show rates before and after intervention) was done using Minitab 18.1 (Minitab LLC, State College, PA) with a CI of 95% and an alpha of 0.05. P-values were used to determine the significance of the study. A subgroup analysis was also performed between different populations before and after the intervention. This included the rate of cancellations, the rate of cancellations plus no-shows, the established patient visit rate and the new patient visit rate was analyzed between the non-intervention group and the intervention groups.

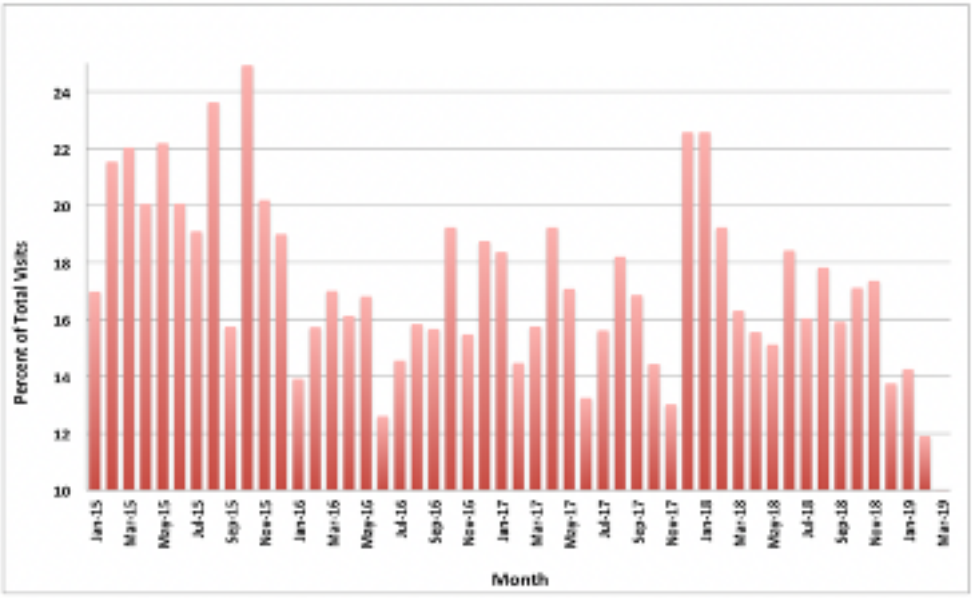
RESULTS

No-Shows

The no-show rate prior to initiating a telephone reminder was 17.8%, which improved to 16% with intervention (Figure 1). The observed reduction in no-show rates with a 24-hour reminder call was 1.8% with a 95% confidence interval (CI) from 0.1% to 3%. This was determined to be a statistically significant difference with a p-value of 0.003.

FIGURE 1:

No-show visit rates by month showing modest reduction in no-show rates following 24-hour telephone reminder in February 2018.



Cancellations

The cancellation rate prior to initiating a telephone reminder was 7.0%, which increased to 9.9% following intervention (Figure 2). The observed increase in the cancellation rate with a 24-hour reminder call was 2.9% with a 95% CI from –3.9% to –1.9%. This was a statistically significant difference with a p-value < 0.001.

Established Patient Visit Rates

The established patient visit rate prior to initiating the telephone reminder was 66.7%, which increased to 68.8% following intervention (Figure 3). The observed increase in the established patient visit rate was 2.1% with a 95% CI from –3.7% to –0.1%, which was a statistically significant difference with a p-value of 0.008.

FIGURE 2:

Cancellation rates by month showing a marked increase in cancellation rates with a 24-hour telephone reminder.

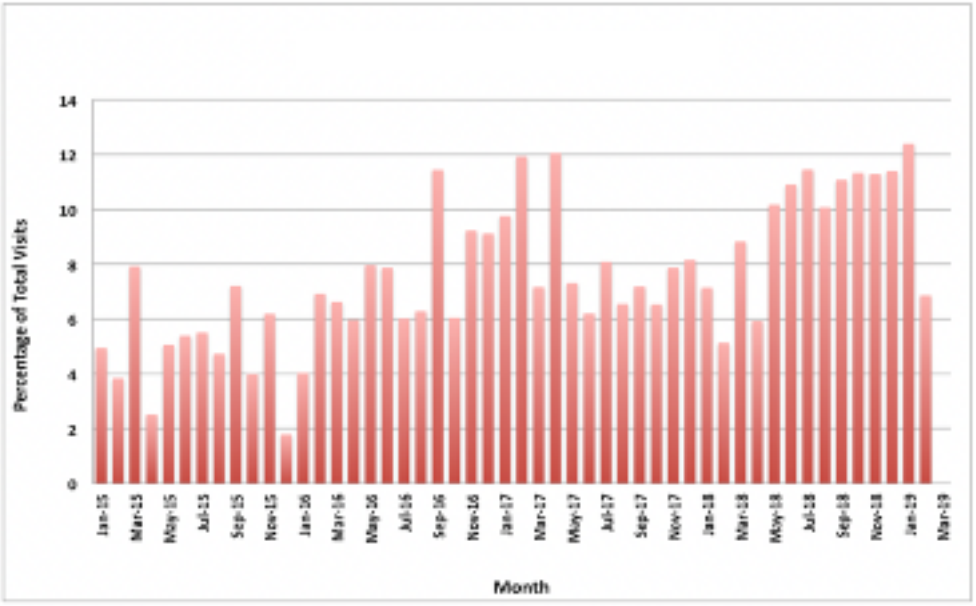
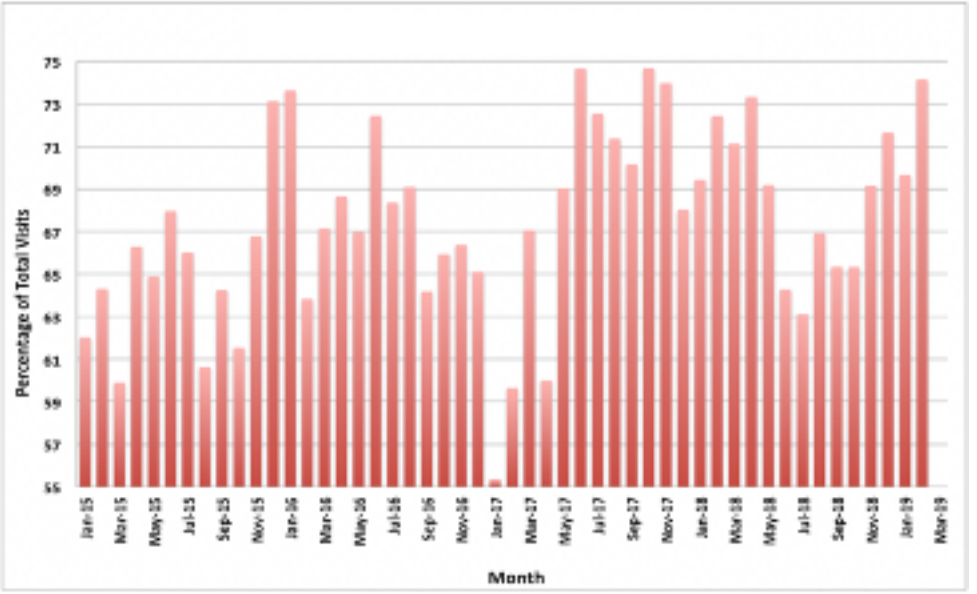


FIGURE 3:

Established patient visit rates by month showing a modest increase following 24-hour telephone reminder in February 2018.

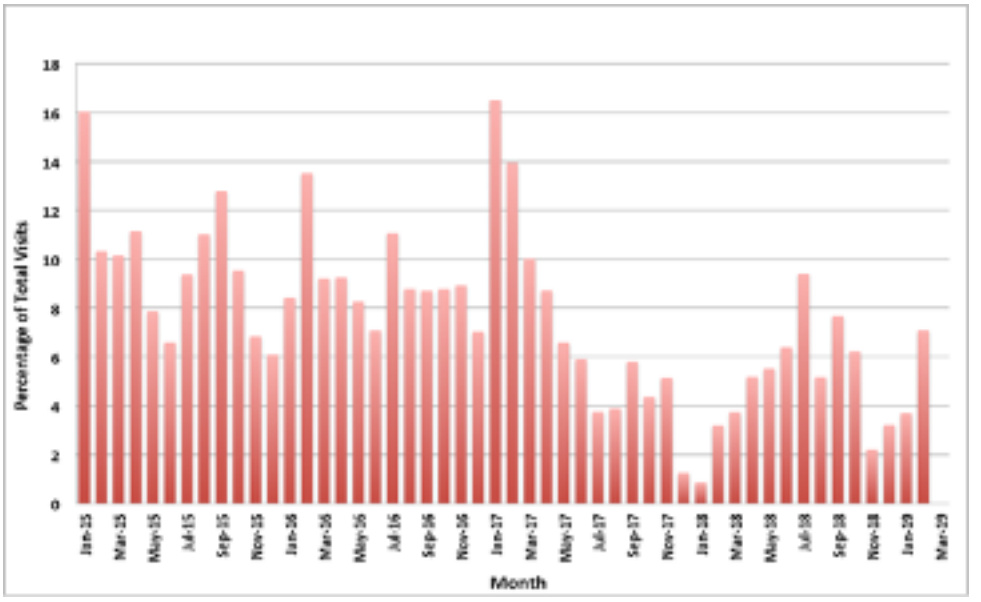


New Patient Visit Rates

The new patient visit rate prior to initiating a telephone reminder was 8.5%, which decreased to 5.4% following the intervention (Figure 4). The observed decrease in the new patient visit rate was 3.2% with a 95% CI from –2.4% to 4.0%. This was determined to be a statistically significant difference with a p-value < 0.001.

FIGURE 4:

New patient visit rates by month showing a marked reduction in new patient visits following 24-hour telephone reminder.



DISCUSSION

Clinical no-shows are often a source of poor continuity for patients, a loss of profitability for providers and in a medical training environment, a loss of an invaluable opportunity for education and experience for residents. Many prior studies have indicated that no-show rates in the primary care setting have ranged from 15–30% and can be as high as 50% in some cases.[2–12] This data exemplifies the need for interventions to improve patient attendance and compliance. Our single-center retrospective large-scale study was performed at a multispecialty ambulatory care center primarily focusing on resident education. We evaluated the effects of a 24-hour telephone reminder on no-show visit, cancellation, established patient visits and new patient encounter rates. Our study spanned a timeframe of four years and utilized data collected on more than 17,000 patient encounters.

Our findings were consistent with prior studies in which a 24-hour phone call resulted in a reduction of clinical no-shows; however, the reduction was much more modest than that which has been previously established. Previous smaller studies have shown reductions in no-show rates to be as high as 7%,[2] but our retrospective analysis reveals a reduction that appears to be much lower, approximately 1.8% (Figure 1). We believe that these results better approximate the effects of such an intervention in true clinical practice because of the volume of patient encounters encompassed during our study.

Our results further mirrored that of prior studies in that cancellation rates increased with the 24-hour phone call reminder, from 7.0% to 9.9% (Figure 2). This 2.9% increase had a 95% CI from –3.9% to –1.9%, (-0.0386, –0.0194) and was found to be statistically significant with a p-value < 0.001. This increase in cancellation rate may have occurred due to two mechanisms. First, by notifying patients 24 hours before a scheduled appointment the opportunity for cancellation was made readily available. Second, we believe that part of our increased cancellation rate could be directly associated with the reduction in the no-show rates as patients who had planned to miss their appointment without notification and those who had forgotten their scheduled appointment were given an opportunity to cancel their visit. The combined cancellation and no-show rate was found to increase by 1%, increasing from 24.8% to 25.8%. This was found to have a 95% CI ranging from –2.5% to 0.4% (–0.0251, 0.0041) and found to be not statistically significant with a p-value of 0.150.

In further analysis, our study also found an increase in the established patient visit rate of 2.1% (Figure 3), increasing from 66.7% to 68.8%. This was found to have a 95% CI from –3.7% to –0.1% (–0.0367, -0.0056) and was found to be statistically significant with a p-value of 0.008. This increase in established patient visits mirrored the reduction in no-show rates. We suspect that this correlation occurred because as cancellations made appointment slots available, clinic staff could utilize the openings in the schedule for same-day sick or follow-up appointments as established patient visits. Our study also found a 3.2% decrease in the new patient visit rate with this intervention (Figure 4). Prior to the intervention, the new patient visit rate was 8.5% and decreased to 5.4% with a 95% CI from –2.4% to 4.0% (0.0236, 0.0397). This was a statistically significant difference with p <0.001. We believe that this reduction may be multifactorial in nature and suspect that the reduction may not be solely related to our 24-hour phone call reminder policy. In October 2017, new opioid policies were initiated in the MSC in response to the opioid epidemic that resulted in established patients undergoing significant opioid weans. Additionally, new patients were informed prior to their scheduled appointments that chronic opioids would be continued at the discretion of their physician and may potentially not be continued at their current doses. Unfortunately, we were unable to identify which appointments were associated with patients on chronic opioids and those undergoing medication weans. Lastly, in December 2017 the MSC was moved to a new location, which resulted in an increase in late arrivals or missed appointments; however, missed appointments associated with moving the clinic were not recorded.

During our analysis, we registered additional weaknesses associated with our study. We found that in clinical practice attempts to notify patients of an upcoming appointment with a 24-hour phone call can often fail due to incorrect contact information or the inability to contact a patient, requiring a voicemail to be left. Unfortunately, as this was a real-world retrospective analysis of appointment data, we were unable to evaluate or track phone calls and associated appointments in which a voicemail message was recorded as opposed to a direct conversation. As noted above, we were unable to discern the effects that changing opioid policies and moving to a new location may have had on our clinical visit rates. One previous study in the Detroit metro area evaluated potential causes for those patients who did not show up to their appointments in the otolaryngology department in the Henry Ford Health System.[13] It was determined that younger, Black and low-income patients are significantly related to patient non-compliance with clinic appointments.[13] It was also found that location of the appointment and means of transportation had an effect on no-show rates.[13] We did not perform subgroup analysis looking into our patient population age, ethnicity, means of transportation or socioeconomic status that may have impacted our results. Regardless of these weaknesses, we believe that the strength of our retrospective study lies in the breadth of visits encompassed in our analysis as well as the period of time spanned. To date we have been unable to find an equivalent study spanning such a period of time or encompassing the number of patient encounters present in our analysis. We believe that while some weaknesses may be present, this study represents the flow of a clinic in true practice and as a result is a better representation of such interventions than previously reported studies.

In the future, we plan to continue our investigation of the effects of various interventions on patient encounters. In Denver Health's 21st Century Care program, a before and after analysis compared no-show rates, attendance rates, cancellation rates and patient satisfaction scores with patients who opted into text message reminders to those who declined text message reminders. It was determined that the cancellation and no-show rates were lower, the attendance rate higher, and the patient satisfaction scores were higher in those patients who received text message reminders.[14] Based on this study and previous studies showing the impact of SMS messaging on no-show rates, it would be beneficial to try to incorporate SMS messaging to outpatient clinic patients.[15–16] Another study suggests that two of the top three given reasons

for missing appointments are forgetfulness and confusion over appointment time, date or location. It was also determined that patients tend to prefer a single reminder versus multiple reminders within two weeks of their scheduled appointment.[17] Current purposed interventions include use of business cards at the point of hospital or emergency room discharge to increase new patient encounters in the clinic, and the use of text messaging in addition to a 24-hour phone call reminder to notify patients of existing appointments.

CONCLUSION

This is a single-center retrospective large-scale study in which we evaluated the effects of a 24-hour telephone reminder on no-show visit, cancellation, established patient visit and new patient encounter rates. The MSC is an urban ambulatory care center focused on resident education in the primary care setting. Our study spanned a timeframe of four years and utilized data collected on more than 17,000 patient encounters. Our study was the largest single-center retrospective study to evaluate clinical no-show rates with an intervention of a phone call to patients prior to their appointment. Similar smaller studies showed reduction in no-show rates. However, we believe that our results better approximate the effects of such an intervention in true clinical practice given the large scale of patient encounters. Our study shows a statistically significant reduction in no-show rates with just a simple phone call. Decreasing the no-show rates in an ambulatory clinic will not only reduce loss of wasted time and reimbursement, but it will also provide greater opportunity to improve preventative medicine within a community. Something as simple as a phone call can help encourage patients to attend their next appointment and give them a chance to obtain the medical care that they need. Further potential studies would try to correlate decrease in no-show rates with hospitalization rates and incorporation of SMS reminders.

AUTHOR DISCLOSURES:
The author(s) declare no relevant financial affiliations or conflicts of interest.

IRB STATEMENT:
Our study received Non-Human Determination through McLaren IRB. A formal copy of the Non-Human Determination may be provided at request.

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REVIEW ARTICLE

TELEMEDICINE DURING A PANDEMIC WITH OSTEOPATHIC CONSIDERATIONS

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KEYWORDS:

Billing

Coding

Empathy

Legal Considerations

Practice Management

Telemedicine

ABSTRACT: Health care continues to make strides in the industry by incorporating technological innovation to capture consumer demand and financial growth. Over the past 10 years, significant technology advances in health care include developing electronic health records, patient portals, self-service kiosks, remote monitoring devices, genome sequencing and telemedicine. The topics covered include visit how-to's, presenting yourself professionally, displaying empathy and treating the whole person in the virtual platform. Practice management topics include benefits of telemedicine, billing and coding, reimbursement, and legal consideration. Multiple tables display various topics, including different types of telemedicine, different virtual platforms, CPT codes to code the visit and billing modifiers associated with telemedicine.

INTRODUCTION

Telemedicine history dates to its first successful launch back to the 1960s when NASA developed it to find ways to improve telecommunication technology to provide health care to astronauts.[1] In 2013, the future of telehealth started to emerge, with 52% of hospitals using its features in some capacity.[2] The following year in 2014, eVisit launched. Before the COVID-19 pandemic, telehealth's focus areas included mental health, specialist care and improving the delivery of care for those in rural areas across the U.S. It was already expected that in 2020 that telehealth visits would increase to 158 million from 19 million.[3] Primary care has been forced to transition to virtual visits with the current pandemic and as a result, this projected number will likely be exceeded. In April 2020, my health network conducted 80,000 virtual visits, with half performed by primary care providers, to protect both patients and providers from COVID-19.

Before the pandemic, telemedicine was drastically different. The Centers for Medicare and Medicaid Services (CMS) has been promoting telemedicine services since 1999. However, it had limited criteria. These criteria include the beneficiary receiving those services must be located in a designated rural area and the visit would have to be conducted in a medical facility, known as an originating site. With the start of the COVID-19 pandemic, CMS approved the 1135 waiver, which is a disaster proclamation effective for services starting March 6, 2020 and to last for the duration of the COVID-19 public health emergency. The waiver states that Medicare reimburses for Medicare telehealth services furnished to beneficiaries in any health care facility and their home.[4,14] Medicare can also pay for office, hospital and other visits furnished via telehealth across the country in the patient's place of residence starting March 6, 2020. There are four main technology applications under telemedicine: synchronous live video conferencing, synchronous (store and forward), remote patient monitoring and mobile health (Figure 1)[8,13]

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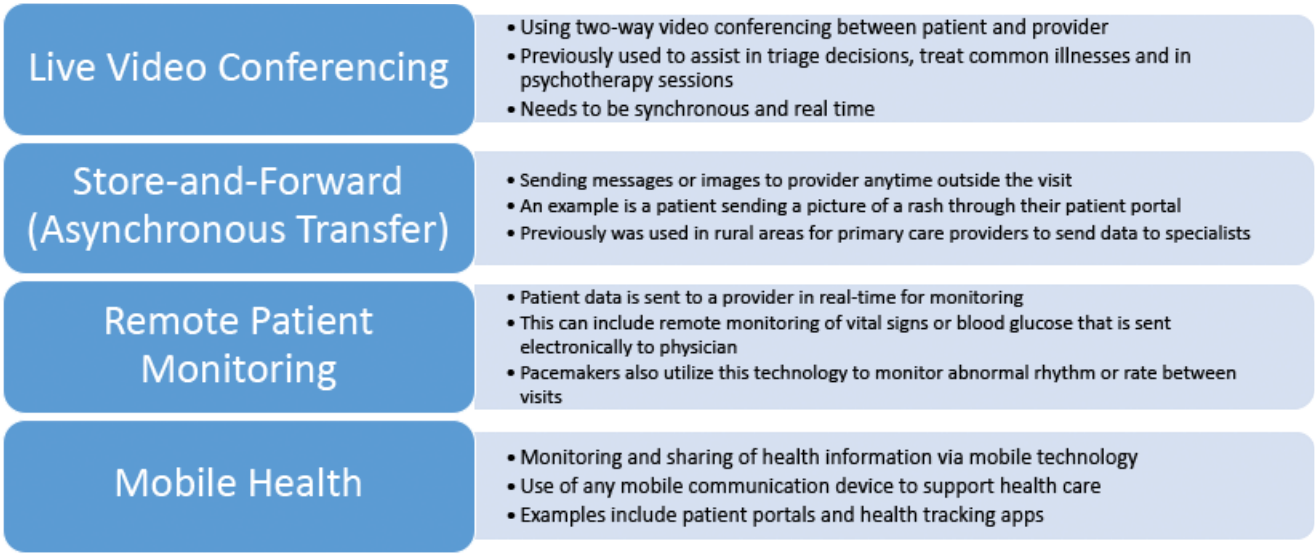
FIGURE 1:

Types of telemedicine technology



VISIT HOW-TO'S

Technology has evolved in a way that makes conducting telemedicine easy and convenient. Most smartphones and computers are embedded with webcams that are capable of performing these virtual visits. There are many telemedicine platforms, some of which are HIPAA compliant, while others such as Facetime and Skype are not. HIPAA regulations are being relaxed during the pandemic, and these regulations will likely be the first to be adjusted post-pandemic. Providers might utilize these platforms in the beginning as they set up telemedicine services to generate early success. However, they will need to adjust to a HIPAA compliant platform for patient care as they get comfortable with the permanent telemedicine platform that they choose. Some platforms can be incorporated directly into the electronic medical records (EMR) or the health network's phone app, especially practices within an extensive network. During the pandemic, many platforms are offering free trials. This will give the practice time to get comfortable finding a platform that works for their needs. Be sure to know the ongoing fees, such as yearly, monthly or hourly costs to the practice. Check with your existing EHR vendor to see if there is telehealth functionality that can be turned on. Also, consider reaching out to your state medical association on vendor evaluation, selection and contracting. For examples of common telemedicine platforms utilized during the current pandemic see Table 1.[14]

TABLE 1:

Common telemedicine platforms used in the pandemic[14]

Telemedicine Platform	HIPPA Compliant	Mobile App
Amazon Chime	✓	✓
American Well	✓	
Apple Facetime		✓
Blue Jeans for Health Care	✓	✓
Cisco Webex Meetings	✓	✓
Doximity Video	✓	
Doxy.me	✓	
Google Duo		✓
GoToMeeting	✓	✓
MDLive	✓	✓
Medici	✓	✓
Mend Telemedicine	✓	✓
Microsoft teams	✓	✓
Noteworth	✓	✓
Skype for Business	✓ *	✓
Teladoc	✓	✓
What's App		✓
Zoom for Health Care	✓	✓

Present Professionally

Before the telehealth visit, ensure the video device is stable. Providers can utilize video capabilities from a laptop, desktop camera or the provider's mobile device. Ideally, the patient should be able to see the provider from the shoulders up. The provider should be directly facing the screen and avoid turning away from the camera to engage with direct eye contact. This also allows the ability of the provider to capture their hands on the screen for gesturing. If possible, set up in a room where the provider can take off their mask to demonstrate facial expressions to the patient. Take caution to what may be situated behind the provider and any external noise. Identify yourself with credentials by showing your I.D. on the screen. Ensure to correctly identify the patient with their name and date of birth before the visit starts. If attention is taken away from the screen, do not hesitate to explain to the patient why this is happening, such as charting or placing orders on the computer.

Empathy

When utilizing telemedicine, we lose physical touch - something that an osteopathic and primary care physician fosters daily. Even though we cannot reach through the phone to examine our patients, we can still show our patients empathy in the virtual encounter. This can be accomplished by fostering a supportive environment by active listening, asking open-ended questions and responding to cues with support.[5] Nonverbal displays of empathy are a major aspect of our everyday communication and can still be displayed on a screen.[5] As providers, we can demonstrate these nonverbal displays by maintaining eye contact, showing emotional concern through facial expressions or demonstrating active listening with an occasional head nod. Patients will display nonverbal cues by changes in their facial expressions or verbal cues by stating words of emotion, such as "worried" or "afraid."[5] It is also important as providers that we try to focus on not interrupting the patient, as it can lead to increased patient frustration on the virtual platform.

Treat the Whole Person

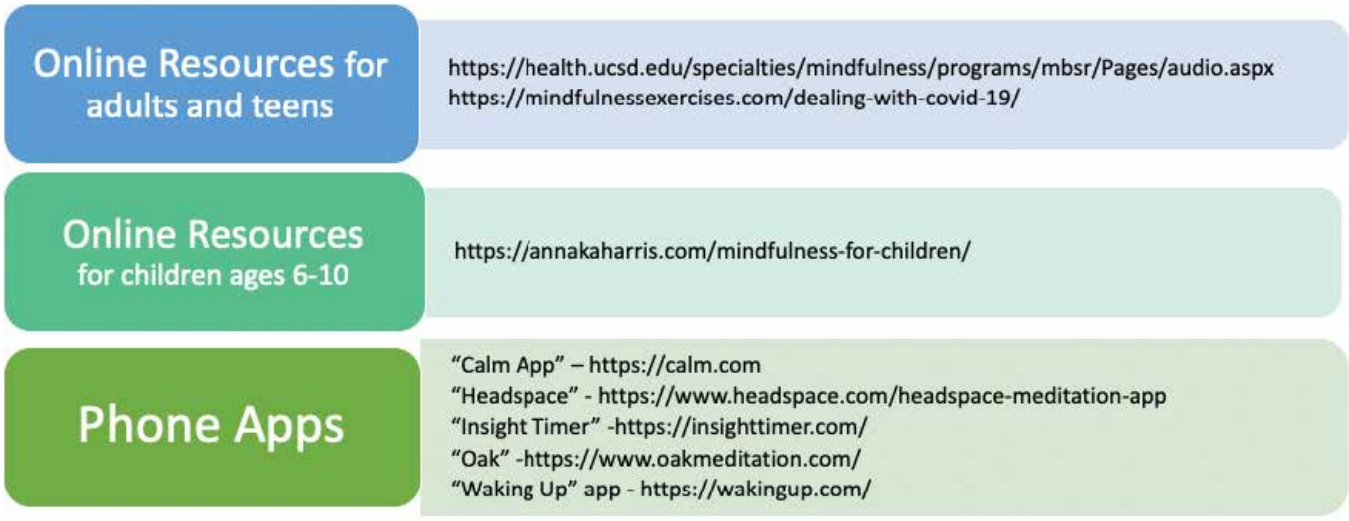
Our osteopathic imprint allows us to focus on our osteopathic tenets, such as treating the whole person with the interrelation of mind, body and spirit. We have unique training to recognize patient distress signals. Our patients have an extreme increase in anxiety during the pandemic due to lockdowns, battling illness, loss of income or employment and grief from lost loved ones. We can guide our patients to cope with this increase in stress.

Research shows that physicians that have an empathic relationship with their patient can positively impact patient outcomes such as improving self-efficacy, compliance to treatment plans and decrease psychological stress.[6] Advise patients to keep a consistent schedule that includes self-care. Self-care may look different in quarantine but can still be accomplished. Encourage patients to reduce exposure to news and media, utilize the extra time to exercise regularly and direct them to online mindfulness resources. (Figure 2)[7]

Extending a helpful hand by incorporating osteopathic manual medicine does not have to halt in the virtual visit altogether. Providers can teach patients simple techniques that a caregiver at home can perform or that the patient can perform on themselves. Taking the time to explain simple techniques to patients will improve the provider-patient relationship and increase patient gratitude. (The OFP Patient Education Handout: Osteopathic Home Exercises for Caregivers of COVID-19 Patients available for download at acofp.org/peh)

FIGURE 2:

Online mindfulness resources[7]



PRACTICE MANAGEMENT ASPECTS

Benefits of Telemedicine to the Provider and Patient

The benefits of telemedicine begin at the patient level and expand to the provider. It is especially cost-saving and convenient for the patient, who will incur fewer travel costs, and missed work, plus it allows them to receive care faster. It may also benefit the provider's practice to decrease no show rates or in special scenarios such as inclement weather. The geographic footprint of the provider has the potential to expand to further patient locations, while, at the same time, improving patient satisfaction scores. Many primary care providers may adjust to a blended practice utilizing telemedicine combined with remote patient monitoring for some routine follow-ups, managing recently discharged patients or medication changes such as titrating insulin regimens. The physician can use remote patient monitoring such as automatic blood pressure cuffs, digital scales, blood glucose monitors and other health tracking apps to receive vital data to manage chronic conditions such as diabetes or hypertension. This blended model could decrease readmission rates, no show rates and cost of patient transportation, ultimately reducing health care costs by an estimated $1.8 billion over the next ten years.[8]

TABLE 2:

National telemedicine CPT codes for Medicare plans and some commercial insurers[16]

Payer/Plan	CPT codes	Audio/Video
Medicare Plans: CMS Medicare Aetna Medicare Advantage Humana Medicare Advantage	99201-99215 G2012 99441-99443	Video Required Telephone Allowed Telephone Allowed
Add Modifier CS to Medicare Claims with (COVID) Reason for Visit to get Cost Sharing Waiver		
Aetna Commercial	99201-99215 99441 to 99443 G2012	Video Required Telephone Allowed Telephone Allowed
Cigna	99201 to 99215 G2012 99441-99443	Telephone Call Allowed Telephone Call Allowed Telephone Call Allowed
Humana Commercial	99201-99215 99241-99245 99441-99443 G2012	Video Required Video Required Telephone Call Allowed Telephone Call Allowed
UHC Commercial UHC Medicare Advantage	99201-99215 G2012 99441-99443	Telephone Call Allowed Telephone Call Allowed Telephone Call Allowed
Blue Cross and Blue Shield – State Dependent for CPT codes and Video/Telephone Requirements		
For commercial coverage by state visit https://www.empclaims.com/ and select "Access Telemedicine Billing Guide" or https://osteopathic.org/practicing-medicine/telemedicine/ and select "Telehealth Guide" to reach the same state specific excel sheet		

TABLE 3:

New CMS HCPS codes for virtual check-in[9]

Code	Description	2020 wRVU	National non-facility / facility payment
G2012	Brief communication technology-based service, i.e., virtual check-in, by a physician or other qualified health care professional who can report evaluation and management services, provided to an established patient, not originating from a related E/M service provided within the previous 7 days nor leading to an E/M service or procedure within the next 24 hours or soonest available appointment; 5-10 minutes of medical discussion.	0.25	$14.8/13.35
G2010	Remote evaluation of recorded video and/or images submitted by an established patient (e.g, store and forward), including interpretation with follow-up with the patient within 24 business hours, not originating from a related E/M service provided within the previous 7 days nor leading to an E/M service or procedure within the next 24 hours or soonest available appointment.	0.18	$12.27/9.93

TABLE 4:

New CMS HCPS codes for telephone visits[4,14,17]

Code	Time	2020 wRVUs	Medicare Reimbursement (non-facility/facility)	Non-Medicare Reimbursement
99441	5-10 minutes	0.48	46.13 / 26.31	$12.50 to $15.25
99442	11-20 minutes	0.97	76.04 / 52.26	$23.00 to $29.50
99443	21-30 minutes of medical discussion	1.50	110.28 / 80.37	$33.75 to $44.00
Telephone Encounter Description: "Telephone evaluation and management service provided by a physician to an established patient, parent, or guardian not originating from a related E/M service provided within the previous 7 days nor leading to an E/M service or procedure within the next 24 hours or soonest available appointment." [4,17]				

TABLE 5:

Telemedicine modifiers

95 Modifier
Synchronous telemedicine service rendered via a real-time interactive audio and video telecommunications system. Append this modifier to an appropriate CPT code (listed in Appendix P in CPT manual) for a real time interaction between a physician or other qualified healthcare professional and a patient who is located at a distant site from the reporting provider.
GT Modifier
Interactive audio and video telecommunication systems. Use only when directed by your payor in lieu of modifier 95
CS Modifier
Under the Public Health Emergency (PHE) patients will not be held responsible for deductibles, co-insurance or copayments for certain services they receive as part of their care for COVID.

TABLE 6:

Additional HCPCS and CPT codes allowed for telemedicine by CMS during the COVID-19 pandemic

CPT/HCPCS Code	Short Description	CPT/HCPCS Code	Short Description
99281-99285	ED Visits	99477-99480	Initial/Subsequent Intensive Care
99218-99220	Observation Initial Care	99291-99292	Hourly Critical Care
99224-99226	Subsequent Observation Care	99468-99473	Initial Critical NICU/PICU
99234-99236	Same Day Admit/Discharge	99315-99316	Nursing Facility Discharge
99217	Observation Discharge	99483	Care Planning

Reimbursement of a Telemedicine Visit

CMS offers equal reimbursement for telemedicine visits as in person-visits, as well as increasing the payment of telephone visits codes when all documentation requirements are adequately satisfied. (Table 4)[4, 14,17] On April 30, officials at the CMS announced the temporary telephone visit rate increase from $14–$41 per visit to about $46–$110 as well as expanded eligible services, including patient education services.[12] This pay increase will retroactively take effect from March 1, 2020. Private payors' reimbursement depends on the state and negotiated reimbursement rates with that private payor.

States with telemedicine parity law in place have the best reimbursement.[8] When a state passes a telemedicine parity law, it means private payors in that state have to reimburse for telemedicine care in the same way they would for in-person care. Twenty-nine states have passed parity laws for telemedicine, including eight additional states that have proposed parity laws pending in-state legislation. The five biggest commercial insurers are Aetna, Cigna, Blue Cross-Blue Shield, Humana and United Health Car. Commercial payors are always increasing telemedicine coverage due to cost-saving benefits and consumer demand. For a detailed summary of parity law in your state, visit: *https://www.cchpca.org/telehealth-policy/current-state-laws-and-reimbursement-policies*

Legal Considerations

There are many legal considerations as a health care provider such as credentialing and malpractice insurance - telemedicine is not immune to these considerations. First and foremost, you must be credentialed and licensed in the state that you are conducting telemedicine visits. In most cases, the patient must also be located in the state that you are in when doing these visits; this rule varies by state. The Interstate Medical Licensure Compact has also allowed health care providers to extend their patient population and there have recently been states added to this during the pandemic to help hard-hit states. Also, you must check with your malpractice insurance carrier to ensure your policy has coverage for telemedicine visits, as this may reveal a gap in protection for the provider. Some states have placed restrictions on certain medications that can be prescribed via telemedicine, especially in cases where the patient is new to the provider as well as controlled substances.[8]

Informed consent is also an important aspect to make sure patients understand the basic procedures of telemedicine as well as the potential privacy risks. Some states have instituted requirements for consents that are specifically for telemedicine. Some practices may embed this telemedicine statement into their general consent for treatment as well as in the note template to be rehearsed with the patient during the time of the visit. This may include statements such as a "full exam cannot be completed" or directly notifying the patient when a non-HIPAA compliant platform is used. There are multiple areas of content to include in the telemedicine consent beyond risks, benefits and alternatives. These include a description of telemedicine care, types of transmissions permitted (i.e., prescription refills or education), privacy and security risks and safeguards, technical failure risks, the physician determines if care if appropriate for telemedicine, physician misdiagnosis or mistakes due to nature of video visits and where to go for ongoing care.[8]

CONCLUSION

Telemedicine continues to make strides in technological advancements as well as reimbursement to providers. With the COVID-19 pandemic, telemedicine has become embedded into primary care, allowing providers to reach their patients in the comfort of their homes while decreasing office no-show rates. More and more payors will allow for telemedicine as they uncover cost-saving advantages and have increased customer demand. The pandemic has improved Interstate Medical Licensure Compact and quickly broadened states participating in telemedicine parity

laws resulting in better reimbursement and further provider outreach. A future practice with a blended telemedicine model can decrease health care costs, increase patient compliance and health outcomes, and start to take steps to close the gap for health care disparities.

AUTHOR DISCLOSURES:

The author(s) declare no relevant financial affiliations or conflicts of interest.

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REVIEW ARTICLE

TREATMENT MODALITIES FOR NOTALGIA PARESTHETICA INCLUDING OMT

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ABSTRACT:

Background: Notalgia paresthetica (NP) is a type of neuropathy associated with pruritus, dysesthesias and sometimes pain. Most etiologies stem from trauma and entrapment of cutaneous branches of the upper thoracic nerves.

Objectives: We report a case of NP treated with osteopathic manipulative therapy (OMT) along with a review of previous treatment modalities performed per the literature.

Methods: A comprehensive literature search using PubMed was performed on NP and its treatment. Keywords used include notalgia paresthetica, treatment, osteopathic manipulation, neuropathy and pruritus.

Results: Our patient reported a 30% reduction in severity of pruritus after receiving OMT, with full intention of following up in office for additional treatment.

Conclusion: OMT monotherapy or combination treatments may prove to be efficacious with little to no added risk.

INTRODUCTION

Notalgia Paresthetica (NP) is a rarely reported condition that presents with chronic neuropathic pruritus, commonly localized to the interscapular borders and paravertebral regions with episodic exacerbations and remissions. Associated symptoms include, but are not limited to, hyperesthesia, dysesthesia and pain. The pruritus is commonly unilateral although it may be bilateral. These symptoms are often seen in conjunction with hyperpigmentation at the site of irritation without any triggering factors.[1] NP is often a disease of adulthood with women more commonly affected than men. Some pediatric cases with underlying multiple endocrine neoplasia 2A have been reported. [2–4]

Pathophysiology & Pathology

Pruritus, the chief complaint in patients with NP, stems from a division of c-fiber neurons, a subset also responsible for the sensation of nociception.[5] The release of Substance P from c-fiber nerve terminals leads to release of histamine, which can induce mast cell degranulation and cause consequent pruritus.[6,7] The ensuing chronic rubbing and itching produces a localized inflammatory infiltrate with subsequent post-inflammatory melanosis.[8] Substance P may also be the primary mediator of hyperpigmentation seen in NP as it stimulates the growth of keratinocytes, arterial smooth muscle cells and fibroblasts.[9]

While the etiology of NP is not entirely clear, it is generally accepted that NP is a sensory neuropathy stemming from irritation to the cutaneous branches of the posterior division of the upper six thoracic nerves, most frequently T2 through T6. The T2–T6 posterior division fibers are particularly predisposed to injury and entrapment as they penetrate and cross through the transverse spinal musculature at a 90-degree angle prior to providing sensory innervation to the epidermis.[10] Furthermore, compression from degenerative pathologies in the spine or hypertonicity of paraspinal musculature may be responsible for damage to the posterior rami of the involved thoracic nerves.[1,8] Wang *et al*., reported significant symptomatic relief in patients with NP by providing electromagnetic stimulation to the serratus anterior muscle. This further suggests that NP may occur secondary to underlying neuromusculoskeletal disease.[11]

As underlying neuromusculoskeletal disease may play a significant role in the development of NP, osteopathic manipulative treatment (OMT) merits consideration as a treatment modality. To date, the literature on the utility of OMT for patients with NP is limited.[12] In this manuscript, we describe the case of a 70-year-old male who presented with episodes of a suprascapular itch in a bilateral dermatomal distribution that started six months prior.

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He was diagnosed with NP, was treated with OMT and efficacy of treatment was measured via the Visual Analog Scale (VAS). A review of treatment options for patients with NP is also discussed.

CASE PRESENTATION

History And Examination

A 70-year-old male with a diagnosis of NP was referred to our clinic by dermatology. The patient presented with episodes of a suprascapular itch in a bilateral dermatomal distribution (C6/C7) that started six months prior. The episodes gradually increased in frequency over time until they became intolerable. Nothing made the pruritus better or worse. Patient reported no pain associated with the episodes: no upper back pain, neck pain or radicular symptoms. He stated that the daily pattern of episodes was unpredictable. Prior to treatment, he reported the severity of the pruritus to be an 8/10 on VAS. Of note, the patient had a history of bilateral neuropathy in the lower extremities, with no associated numbness and minimal tingling. He also had history of malignant melanoma (amelanotic) and associated phosphatase and tensin homolog (PTEN) abnormality on genetic testing. He underwent neck dissection in 2004 to ascertain whether his cancer had metastasized.

Additionally, the patient's history was remarkable for obstructive sleep apnea, tobacco abuse, hypertension, coronary artery disease, hypercholesterolemia, obesity, peripheral neuropathy, abnormal gait, bilateral hearing loss, benign prostatic hyperplasia, erectile dysfunction, gastroesophageal reflux disease, colonic polyps, diverticulosis, melanoma, umbilical hernia and bilateral cataracts.

His surgical history was remarkable for hemorrhoidectomy, cardiac catheterization, laparoscopic cholecystectomy, bilateral inguinal hernia repair, excision of giant cell tumor on the left index finger, excision and neck dissection associated with malignant melanoma at the left mastoid process.

On physical exam, the patient was well developed and in no acute distress. His vitals were stable. He had decreased range of motion of the head and tenderness to palpation of the cervical and thoracic paraspinal musculature. His neurological exam was unremarkable for focal neurologic deficits. Cranial nerves II–XII were grossly intact. The patient had intact sensation to light touch in C5–T1 dermatomes, 2/4 deep tendon reflexes, and 5/5 strength in the upper extremities bilaterally. Skin was intact without lesions or rashes, particularly in the bilateral suprascapular area.

Intervention

OMT was performed to the cervical, thoracic and lumbar vertebrae, as well as the sacrum, innominates and pelvis. Cervical somatic dysfunctions at C2–C4 and C6 were treated with balanced ligamentous tension (BLT) and direct release (DIR). Thoracic somatic dysfunctions at T2–T6 were treated with BLT and DIR. Lumbar somatic dysfunctions at L2–L4 were treated with BLT and DIR. Right on right (RoR) sacral torsion was treated with BLT and DIR. Right anterior innominate was treated with DIR and muscle energy (ME).

FOLLOW-UP

On his two-week follow-up, the patient reported severity of pruritus to be 5/10 the night of treatment, indicating a 30% reduction in severity from baseline. He reported that in the week following treatment, the severity of pruritus returned to an 8/10. The patient reports that he plans to follow up in the office for additional treatment, in hopes that he will experience more long-lasting and sustained relief.

DISCUSSION

As NP does not consistently respond to conventional treatments such as anti-inflammatory or antipruritic drugs, unconventional methods for relieving symptoms may be considered. The suspected etiology of NP—that it stems from some extent of muscle impingement or spinal nerve pathology—has led clinicians to consider a variety of different treatment modalities. These range from topical capsaicin, tacrolimus, gabapentin, botulinum toxin, strengthening exercises, stretches and physical therapy. While literature on the use of osteopathic manipulation to treat NP is limited,[12] we believe that there should be a role for it in the algorithmic approach to treatment of these patients.[13]

Stretching and Strengthening Exercises

One group discusses the efficacy of exercise as either a first line or adjunct in the treatment of NP. They report a case series demonstrating symptomatic improvement in patients that participated in range of motion exercises, as well as strengthening of the scapular and pectoral muscles. Initially, they describe a case of a patient experiencing episodes of subscapular itch typical for NP. One month prior to the start of the episodes, the patient ended her weight-lifting regimen. Additionally, the team noticed that this patient normally kept her shoulders rounded, leading to protraction and elevation of her bilateral scapulae. The patient's posture, in combination with the fact that the spinal nerves initially pierce the rhomboid and trapezius muscles prior to becoming cutaneous nerves, led the team to conclude that the cutaneous spinal nerves were under persistent tension; this could have been a potential source for the symptoms. The patient was instructed to strengthen her rhomboids in hopes of reducing the protraction and elevation of the bilateral scapulae and restoring the musculature of the back to a neutral position. After a week of performing these exercises, the symptoms subsided.[14]

This team had a second patient with reduced bilateral shoulder range of motion, status post right mastectomy and axillary node dissection. This patient began to experience pruritus consistent with NP localized medial to the scapula. She was encouraged to perform rhomboid, pectoral and latissimus dorsi strengthening exercises and stretches. After a week of performing the exercises, her pruritus resolved.[14] These cases suggest a role for upper body strengthening as an option for patients with NP.

Another team reported a patient with refractory NP and cervical neural foraminal stenosis. She was prescribed a course of mechanical cervical traction, trapezius exercises and posture education, during which her symptoms resolved. This further

supports the notion that some cases of NP may be due to nerve impingement and associated musculoskeletal issues.[15]

Pharmacological Therapies

NP's classification as an isolated peripheral sensory neuropathy has led to the use of pharmacotherapies such as tricyclic antidepressants (TCAs) and gabapentin for relief of symptoms. In an isolated case by Yeo and Tey, 300 mg of gabapentin worsened the patient's symptoms. A 10 mg dose of amitriptyline once per day for nine months blunted pruritic symptoms to a manageable level. After nine months, the patient stopped taking amitriptyline and the symptoms' severity remained stable.[16] This case demonstrates that although these medications may not work for all cases, NP may require personalized treatment with various drug classes/non-pharmacological treatments to optimize therapy.

One team discusses a patient with an itch medial to the scapula and on the extensor surfaces of both arms. He was diagnosed with NP and bilateral brachioradial pruritus (BRP). Of note, the itch began after corrective surgery for spinal stenosis. After experiencing limited relief with hydrocortisone/pramoxine (2.5%) ointment, he was given gabapentin 300 mg at bedtime. After one month of taking gabapentin, his itch resolved. Furthermore, the itch returned after he ran out of medication, and was specifically localized to the scapular area. Interestingly, this suggests two distinct pathologies between NP and BRP. Also, this suggests a role for the use of gabapentin in patients experiencing NP.[17]

Botulinum Toxin

One team assessed the effect of botulinum toxin A (BTX-A) in the treatment of NP, with a proposed mechanism being that the toxin mitigates the production of substance P. The group performed a double-blind, randomized control study, where 10 patients were delivered placebo treatment and 10 were given BTX-A. The impact of treatment was evaluated using the VAS. It was found that the difference in pruritus VAS in patients given BTX-A (–0.72 +/– 2.97) versus placebo (–0.91 +/– 3.8) at eight weeks was not statistically significant (p=.902).[18] The major limitation of this study was the small sample size.

Capsaicin

The use of capsaicin in the treatment of NP is contingent on the idea that the condition results from a local release of tachykinins, neurokinin A, substance P and calcitonin gene-related peptide from unmyelinated C-fibers in the epidermis. Capsaicin, like BTX-A, is thought to decrease these C-fiber neuropeptide levels and mitigate the burning and itching sensation. One group conducted a vehicle-controlled double-blind crossover study that assessed the effect of capsaicin in the treatment of NP. The team used the VAS scale to assess treatment impact. The group treated initially with capsaicin had a reduction of itch intensity from 60.9 +/– 4.3 to 34.7 +/– 6.9 during the first period, and a reduction of 35 +/– 5.9 to 30.7 +/– 8.6 after the vehicle-controlled second period. Additionally, the group treated with the vehicle first had a reduction of 68.3 +/– 4.5 to 55.2 +/– 10.1 in the first period and from 52.5 +/– 9.3 to 26.6 +/– 8.6 after the second period (using capsaicin). The results demonstrated that 14 of 20 patients found symptomatic improvement with capsaicin treatment, while six of 19 patients found symptomatic improvement with the vehicle. Despite the small sample size, this suggests a potential role for the use of capsaicin for symptomatic relief in NP.[19]

Tacrolimus

One group evaluated the efficacy of 0.1% tacrolimus ointment in reducing pruritus from NP. The team had a sample size of seven patients, four male and three female, who had been experiencing symptoms anywhere between one and four years. Dermatomal distributions varied from T2–T8. The results indicated that after six weeks of treatment, six patients reported reduction in intensity or frequency of itch. Mean itch pre-treatment on VAS was 6.6 +/– 1.9 versus 4.6 +/– 2.1 post-treatment ($p<0.02$). Frequency of itch was reduced from 2.2 +/– 1.5 episodes per day pre-treatment versus 0.7 +/– 0.7 post-treatment ($p<0.03$). Of note, after treatment had ceased, symptoms recurred. Although the sample size was small, this study suggests a role for 0.1% tacrolimus in the symptomatic control of NP.[20]

Surgical Decompression

In one case report of NP, the authors were able to discern the entrapment of the dorsal branches of T4 and T5 spinal nerves and surgical decompression was performed. The authors reserve this approach, following diagnosis of NP via electromyography, for when other methods of symptom relief have failed. The patient in this report had a 50% reduction of pain one week post-operatively. Four months post-operatively, the patient was symptom-free.[21]

Local Anesthetic Block

While local anesthetic blocks are known to provide short-term symptomatic relief, some studies have demonstrated their potential to provide long-term symptomatic relief. In one case report, a patient with NP had a paravertebral block at D5/D6 followed by a D3/D4 block with 5ml of 0.75% bupivacaine with 40mg of methylprednisolone acetate. This regiment provided the patient relief from pruritus for 12 months.[22] Local anesthetic blocks are a conceivable approach in patients resistant to other treatment modalities. Furthermore, local anesthetic blocks pose less surgical risk and are less invasive than surgical decompression.

Additional Non-Pharmacological Therapies

One novel treatment modality is narrow-band UVB phototherapy. In a report of five cases, pruritus improved significantly in all patients after full completion of UVB protocol.[23] Although the mechanism of action is unclear, UVB phototherapy serves as a relatively safe and economic adjunctive treatment option.

Another non-pharmacologic therapy used for neuropathy, although studies have been inconclusive, is acupuncture. One retrospective case series demonstrated that 75% of patients with NP experienced total resolution of symptoms using acupuncture when symptom severity was measured using the VAS. However, 37% of patients reported reoccurrence of their symptoms in the ensuing 1–12 months post-treatment.[24]

TABLE 1:

Treatment modalities for notalgia paresthetica

TREATMENT	REFERENCES
PHARMACOLOGICAL	
Tacrolimus	Ochi H, Tan LX, & Tey HL, 2016
Gabapentin	Loosemore MP, Bordeaux JS, & Bernhard JD, 2007
Amitriptyline	Yeo B & Tey HL, 2013
Botulinum toxin-A	Maari C, Marchessault P, & Bissonnette R, 2014
Capsaicin	Wallengren & Klinker, 1995
NON-PHARMACOLOGICAL	
Narrow-band UVB	Perez-Perez L, Allegue F, Fabeiro JM et al., 2010
Acupuncture	Stellon A, 2002
Cervical traction	Low R, Swanson LA, & Swanson DL, 2017
Exercise	Fleischer AB & Meade TJ, 2011
Osteopathic manipulative treatment	Richardson BS, Way BV, & Speece A 2009
Muscle stimulation	Wang CK, Gowda A, Barad M et al., 2009
Surgical decompression	Williams EH, Rosson G, Elsamanoudi I et al., 2010

Osteopathic Manipulation

Prior to this manuscript, only one case of OMT for the treatment of NP had been reported. In this case, modalities including sub-occipital decompression, thoracic and cervical ME, soft tissue techniques, rib ME, rib raising and scapulothoracic fascial release to the patient's pruritic left scapula were performed. A total OMT time of 20 minutes was enough to alleviate symptoms immediately and for two weeks post-treatment.[12] Findings from our case demonstrate a 30% reduction in severity of pruritus after treatment, with full intention of following up in the office for additional therapy. Further controlled experiments should be performed in order to more appropriately assess and isolate the impact of each osteopathic treatment modality in the treatment of NP or other neuropathies.

Limitations

Despite the various modalities used to treat NP,[25] there are no randomized control trials demonstrating the most efficacious treatment. Our manuscript would have benefitted from additional follow-up data on the patient. Additionally, OMT modalities were performed at multiple sites, making it a challenge to determine which specific treatment provided benefit. Our intention is for this manuscript to raise research interest and contribute to the limited literature discussing treatment of NP with OMT.

CONCLUSION

OMT has a place in the treatment of patients with NP. While additional data is needed to more appropriately assess the therapeutic efficacy of OMT, the results of our patient case suggest that OMT has the potential to provide immediate symptomatic relief in patients with NP. Our hope is that repeated follow up treatments will lead to more long-term, sustained symptomatic relief and that this manuscript stimulates further research interest in this area.

AUTHOR DISCLOSURES:

The author(s) declare no relevant financial affiliations or conflicts of interest.

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BRIEF REPORT

DIRECT-TO-CONSUMER CARE IN COVID-19 AND OTHER PUBLIC HEALTH CRISES

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KEYWORDS:

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Public Health

ABSTRACT: Direct-to-consumer care (DTC) is a popular subset of telemedicine ideal for delivering large volumes of health care during a pandemic or other public health crisis conditions. DTC has the potential to relieve the burden of health care shortages and improve patient safety and outcomes during widespread disease. Below is a brief discussion exploring perspectives and evidence for DTC as a business modality, including the advantages and disadvantages of using DTC for providing health care during a pandemic.

INTRODUCTION

Direct-to-consumer care (DTC) is a new modality of providing telemedicine care based on patient preferences and needs. It is grounded mainly in the private sector and has evolved into a multibillion-dollar industry.

In a 2018 survey, before telemedicine's current noted value, 100 hospital executives from the U.S. placed Amazon and telehealth as the most significant disruptors of the health care market with reimbursement rates thought to be the largest setback to further incorporation and usage.[1] For companies that adopted the DTC model despite lower reimbursement rates than in-office visits, the model has been a tremendous success. HIMS, a company specializing in men's health, grew to a value of $1.1 billion after just two years of opening, resulting in 550% growth.[2] As the model continues to gain traction, understanding its basic functions and potential in pandemic medicine becomes increasingly important.

DTC caters to the general population, is hailed as the most popular form of telemedicine and offers an array of services ranging from specialty companies for contraceptives or men's health to comprehensive primary care from companies like Lemonaid.[3,4,5] The results of a recent study of 2,216 patients over two years provides insight into patient demographics and utility statistics. In the study, 71% of participants were female, 84% had a registered PCP and 8% chose to self-pay. Sinusitis was the most common complaint in the population, comprising 21% of visits.[6] Providers spent a median of 7.4 minutes with patients during the virtual encounters and generated a prescription 77% of the time; the prescription rates were similar to in-office visit prescription rates of 73%.[6] Over 70% of visits in the study occurred on a Monday through Friday schedule between 8:00 am and 6:00 pm, challenging the idea that DTC provides care primarily during abnormal times.[7]

DTC as a basic health care modality has the potential for further use in pandemics and other public health crisis as demonstrated by the significant growth in usage during COVID-19; one analysis revealed a 14% increase in telemedicine visits in a system already regularly utilizing telemedicine.[8] The analytics company, Forrester, predicts telemedicine visits to exceed one billion in the U.S. in 2020 due to current conditions—an unprecedented number in the history of telemedicine.[9]

ADVANTAGES

Primary advantages for telemedicine during a pandemic include decreases in costs, hospital stays and mortality rates with an increase in accessibility, quality of care and patient satisfaction. Additionally, advantages include usefulness in treating infectious disease and providing mental health care.

DTC has the potential to triage patients, keeping valuable hospital space available for patients in dire need during a public health crisis, while maintaining primary health care for less serious conditions. The U.K. Department of Health reported a 15% reduction in emergency room visits, a 20% reduction in emergency admissions, a 14% reduction in elective hospital stays, a 14% reduction in length of stay and an overall 45% reduction in mortality from appropriately incorporated telehealth and telecare modalities in 2011.[10]

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Beyond DTC directly, telehealth initiatives for paramedics and first responders, including Emergency Telehealth and Navigation (EThaN), have decreased ambulance transportation to emergency departments by 56%, providing a wealth of opportunities for incorporating telehealth modalities into public health disaster care.[11] DTC telemedicine can now be offered at competitive prices during the COVID-19 pandemic, as demonstrated by insurance company Aetna's decision to offer a zero co-pay telemedicine visit. Other insurance providers echoed the decision in an attempt to improve access to care for patients.[12]

Medicare's decision under the Coronavirus Preparedness and Response Supplemental Appropriations Act, 1135 WAIVER, and Coronavirus Aid, Relief, and Economic Security Act (CARES) to reimburse telemedicine visits at equal rates and in the absence of pre-established care with a provider additionally improved access to telemedicine.[13,14] The various legislative changes enumerated in the above bills are setting a precedent for telemedicine's use in future public health crises. Broader usage of the technology is feasible and more sustainable with increased funding. A direct-to-consumer method of delivering the care would further improve patients' access to appointments.

In a meta-analysis of telemedicine's use in infectious disease medicine, six of seven studies demonstrated patient satisfaction rates above 97%. The same analysis demonstrated mixed results in patient mortality over in-person visits and called for more research on the efficacy of telemedicine over clinic medicine. Readmission and compliance rates were found to be statistically similar between telehealth and in-person visits.[15]

Additional work investigating telemedicine in infectious disease treatment showed favorable results in antimicrobial stewardship programs for HIV and HepC patients, demonstrating as much as a 30% increase in appropriate antibiotic prescribing in some populations.[16] Treating infectious disease without the need for exposing uninfected individuals or for placing infected individuals at further risk during a public health crisis and improving the quality of care for infectious disease is supported by telemedicine's positive success.

During the initial stages of the COVID-19 pandemic this year, telehealth served to offload the immediate shortage of health care, with Massachusetts General Hospital reporting rates 10–20 times higher than normal telemedicine utilization.[17] As the COVID-19 pandemic progressed, telemedicine visits plateaued in some populations. In contrast, in-person visits began to climb, demonstrating the viability of telemedicine as an acute answer to the health care crisis.[3]

COVID-19 specific mental health symptoms at the population level, including anxiety-driven panic buying and paranoia about attending community events, need mental health care beyond the previous community needs and are perfect candidates for aid from DTC, traditional telemedicine or telepsych encounters. Telemedicine is supported as an effective modality for aiding in the treatment of mental health conditions and is encouraged to handle the increasingly large volumes of mental health patients in need of psychiatric care.[18] Other mental health benefits of DTC include telemedicine being used to bring back the intimacy of home visits that many patients value and to integrate physician-patient relationships with quality care.[19] DTC takes the benefit one step further by allowing patients to choose their appointments on their own time, enabling them to play a more active role in their care.

DISADVANTAGES

Disadvantages for the use of telemedicine include the considerable concerns of quality of care and at-risk funding in the future. Teledoc, a DTC primary care company that provided over two billion DTC telemedicine visits to the public, has been criticized after research discovered poorer performance and lower diagnostic care in a California-based population.[20] Quality issues with the telemedicine model explain the slowness for its adoption by most health care organizations (HCOs) as, during the early stages of the pandemic, only 24% of HCOs in the U.S. had virtual care programs in place.[9]

Underutilization during emergencies has been prominent since the advent of telemedicine, as documented during a period of 17,000 public health emergencies between 1980 and 2013, in which only 19 articles documented the use of telemedicine in the use of public health care.[21] Some underutilization may be attributed to a lack of funding on the parts of Medicare and other insurance providers that have only recently provided additional funding.

Balancing the physician requirement of requiring adequate reimbursement with former ideologies of DTC effectively reducing cost will be a challenge that must be overcome, particularly in light of the current $3.6 trillion annual health care expenditure budget and the need for large-scale quality health care on demand.[22] The continuation of increased funding beyond the pandemic and patient response to quality concerns remain in question and will directly impact the usability of telehealth for general use and future public health emergency use.

CONCLUSION

Direct-to-consumer care and telemedicine are valuable options for providing additional health care options during an acute crisis in a variety of capacities. Extensive research into quality improvement and long-term reimbursement will be required to incorporate DTC into public health crisis planning appropriately.

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BRIEF REPORT

COVID-19 Treatment Experiences in the ICU

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ABSTRACT: The COVID-19 pandemic has been a global crisis at an unprecedented level. More than 4.75 million cases and 157,000 deaths have been reported in the U.S. as of August 3, 2020. The whole disease process, from symptoms and diagnosis to medications and treatment, has been a challenge, as COVID-19 is a novel disease that the world has never before encountered. In this article, the authors discuss the disease symptoms, pathophysiology and treatments based on their experience treating COVID-19 positive patients in the intensive care units of a major Louisiana academic medical center.

INTRODUCTION

The COVID-19 pandemic has been a global crisis at an unprecedented level. More than 4.75 million cases and 157,000 deaths have been reported in the U.S. as of August 3, 2020.[1,2] The disease process, from symptoms and diagnosis to medications and treatment, has been a challenge as COVID-19 is a novel disease that the world has never before encountered. In this article, the authors discuss the disease symptoms, pathophysiology and treatments from their experience treating COVID positive patients in intensive care units of a major Louisiana academic medical center. Much of this clinical practice has been based on limited evidence from other centers, underpowered clinical trials and empiric clinical judgment from experience with similar pathophysiologic conditions. Over time, we expect the quantity and validation of quality evidence to increase, thus better guide our practice.

Worldwide data indicates individuals of all ages are at risk for infection and severe disease. However, the probability of fatal disease from multiorgan failure secondary to cytokine storm is highest in people aged ≥65 years and those living in a nursing home or long-term care facility. Other individuals at the highest risk for COVID-19 are people of any age with certain underlying conditions, especially when not well-controlled, including:

- Cardiovascular disease
- Hypertension
- Diabetes
- Chronic respiratory disease
- Cancer
- Renal disease
- Obesity[3-7]

National Institutes of Health (NIH) data estimates that the incubation period for COVID-19 is up to 14 days from the time of exposure, with a median incubation period of four to five days.[8,9] The spectrum of illness can range from asymptomatic infection to severe pneumonia with acute respiratory distress syndrome (ARDS) and death. In a summary of 72,314 persons with COVID-19 in China, 81% of cases were reported to be mild, 14% were severe and 5% were critical.[10] In a report of 1,482 hospitalized patients with confirmed COVID-19 in the U.S., the most common presenting symptoms were cough (86%), fever or chills (85%), shortness of breath (80%), diarrhea (27%) and nausea (24%).[7] Other reported symptoms have included, but are not limited to, sputum production, headache, dizziness, rhinorrhea, anosmia, dysgeusia, sore throat, abdominal pain, anorexia and vomiting.

Common laboratory findings of COVID-19 include leukopenia and lymphopenia. Other laboratory abnormalities have included elevations in aminotransferase levels, C-reactive protein, D-dimer, ferritin and lactate dehydrogenase.

Studies report that acute myocardial injury (7.2–17%) and acute renal injury (2.9–15%) can occur in severe patients. The reported incidence of acute respiratory distress syndrome (ARDS) is 15.6–31%, which is notably higher than that of other organ injuries.[8–11] Additionally, the incidence of coagulation disorder is around 5–10%.

The most common respiratory symptom of COVID-19 is a dry cough (59.4–82%).[8–11] Sputum production is less. It suggests that injury to the alveolar epithelial cells is the main cause of COVID-19-related

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ARDS and endothelial cells are less damaged, with, therefore, less exudation.[12]

Chest imaging findings suggest the involvement of both lungs. Abnormalities in chest x-rays vary but typically reveal bilateral multifocal opacities. Abnormalities seen in computed tomography (CT) of the chest also vary but usually reveal bilateral peripheral ground-glass opacities, with the development of areas of consolidation later in the clinical course.[11] Imaging may be normal early in infection but can be abnormal even in the absence of symptoms.[11]

At our institution, COVID-19 positive patients are admitted if they require supplemental oxygen to maintain oxygen saturation above 92% and also have an increased work of breathing (respiratory distress, increased respiratory rate).

Earlier during the pandemic, all patients with oxygen saturations less than 90% on supplemental oxygen were intubated. However, we learned from the clinical experience of other institutions worldwide that intubating every hypoxic patient was doing more harm than more conservative treatment. The term "happy hypoxic" was introduced to label patients who had no increased work of breathing though their oxygen saturations were in the mid-80s on supplemental oxygen.

Though the ARDS Berlin criteria based on PaO2/Fio2 ratio was used to classify mild, moderate and severe cases, treatment of the same was slightly different when it came to COVID-positive patients, relative to other ARDS patients.[12] Most of the mild COVID ARDS and some moderate to severe COVID ARDS patients did exceptionally well on supplemental oxygen (nasal cannula) or advanced therapies like high flow nasal cannula/noninvasive positive pressure ventilation, avoiding intubation and ventilation. The key to managing such patients was close observation for any respiratory deterioration and immediate intubation by an expert airway team. However, if a patient on admission has increased work of breathing (respiratory distress, increased respiratory rate) and is requiring high volumes of oxygen to maintain acceptable oxygen saturation (severe ARDS), it is prudent to intubate such patients right away. Additionally, in patients with severe ARDS/refractory hypoxemia, we used prone ventilation and neuromuscular blockers in cases of ventilator dyssynchrony.

At our institution, a designated "Tiger Team," operated by the Department of Anesthesiology, responds to and provides airway management for all airway emergencies, COVID and non-COVID. In COVID patients, this team also places invasive hemodynamic monitoring and central lines to limit the exposure of hospital personnel and more quickly and efficiently secure these lines. This team is equipped with full PPE, including powered air-purifying respirators (PAPRs), video laryngoscopy and other advanced airway tools and point-of-care ultrasound.

The latest NIH guidelines regarding ventilatory support for COVID-positive patients are as follows:[13]

- For adults with COVID-19 who are receiving supplemental oxygen, the COVID-19 NIH Guideline Panel recommends close monitoring for worsening respiratory status and in the event intubation becomes necessary, that an experienced practitioner performs the procedure in a controlled setting.
- For adults with COVID-19 and acute hypoxemic respiratory failure despite conventional oxygen therapy, the NIH panel recommends high-flow nasal cannula (HFNC) oxygen over noninvasive positive pressure ventilation (NIPPV).
- In the absence of an indication for endotracheal intubation, the NIH panel recommends a closely monitored trial of NIPPV for adults with COVID-19 and acute hypoxemic respiratory failure for whom HFNC is not available.
- For mechanically ventilated adults with COVID-19 and acute respiratory distress syndrome (ARDS), the NIH panel recommends using low tidal volume (Vt) ventilation (Vt 4–8 mL/kg of predicted body weight) over higher tidal volumes (Vt >8 mL/kg).
- For mechanically ventilated adults with COVID-19 and refractory hypoxemia despite optimized ventilation, the NIH panel recommends prone ventilation for 12–16 hours per day.

- For mechanically ventilated adults with COVID-19, severe ARDS and hypoxemia despite optimized ventilation and other rescue strategies, the NIH panel recommends a trial of inhaled pulmonary vasodilator as a rescue therapy. If no rapid improvement in oxygenation is observed, the patient should be tapered off treatment.
- The NIH panel recommends using, as needed, intermittent boluses of neuromuscular blocking agents (NMBA), or continuous NMBA infusion, to facilitate protective lung ventilation.
- In the event of persistent ventilator dyssynchrony that places the patient at risk for ventilator-induced lung injury, the need for ongoing deep sedation, prone ventilation or persistently high plateau pressures, the panel recommends using a continuous NMBA infusion for up to 48 hours as long as patient anxiety and pain can be adequately monitored and controlled.
- There is insufficient data to recommend either for or against the routine use of extracorporeal membrane oxygenation for patients with COVID-19 and refractory hypoxemia. (This has been used at our institution, with limited success). Table 1 shows the labs we order at our institution, depending on disease severity.

TABLE 1:

Labs ordered depending on disease severity.

TIMING	MILD	MODERATE	SEVERE
	Patient with mild clinical symptoms RR<24 breaths per minute SpO2>94% on room air	Symptomatic patient with mild to moderate pneumonia RR 24–30 breaths per minute SpO2>94% on room air	Symptomatic patient in ARDS and septic shock RR>30 breaths per minute SpO2<94% on room air PaO2/FiO2<300 mmHg or lung infiltrates >50%
At admission	CBC, BMP, ECG HbA1C9 (if diabetic) D-dimer	CBC, BMP, ECG D-dimer, CRP, serum ferritin, LDH, procalcitonin, troponin, PT/INR, ABG, blood culture (if WBC count is high), IL-6, serum cortisol, CXR, CT thorax, cardiac echo	CBC, BMP, ECG D-dimer, CRP, serum ferritin, LDH, procalcitonin, troponin, PT/INR, ABG, blood culture (if WBC count is high), IL-6, serum cortisol, CXR, CT thorax, cardiac echo, NT proBNP, serum magnesium, serum calcium
Repeat daily		CBC, BMP, ABG	CBC, BMP, ABG
Repeat every 72 hrs	D-dimer (if initial is high)	CRP, D-dimer, serum ferritin, LDH, CXR	CRP, D-dimer, serum ferritin, LDH, CXR

PHARMACOLOGIC INTERVENTIONS

Antivirals/immunomodulators

All our ICU patients received hydroxychloroquine initially. However, after multiple trials showed no beneficial effects using hydroxychloroquine for either prophylaxis or treatment of COVID patients, we stopped using the drug at our institution. Intensivists at our hospital and other centers have used interleukin-6 inhibitors and convalescent plasma for severely critically ill patients.

After promising trial results and emergency use authorization by the FDA for remdesivir, we are using it at our institution for treatment of suspected or laboratory-confirmed COVID-19 in adults and children hospitalized with severe disease. Severe disease is defined as patients with oxygen saturation (SpO2) ≤ 94% on room air or requiring supplemental oxygen, invasive mechanical ventilation or extracorporeal membrane oxygenation (ECMO).

For adults, we are using a single loading dose of 200 mg infused intravenously over 30 –120 minutes on day 1, followed by once-daily maintenance doses of 100 mg infused intravenously over 30–120 minutes for four days (days two through five). A treatment course of 10 days is recommended for adults and pediatric patients requiring invasive mechanical ventilation and/or ECMO. A treatment course of five days is recommended for adults and pediatric patients not requiring invasive mechanical ventilation and/or ECMO. If a patient does not demonstrate clinical improvement, treatment may be extended for up to five additional days (i.e., up to a total of 10 days).

According to the NIH Panel[13] preliminary data from a multi-national, randomized, placebo-controlled trial (Adaptive COVID-19 Treatment Trial [ACTT]) of hospitalized patients with COVID-19 showed that patients who were randomized to receive remdesivir had a shorter time to clinical recovery than those who received the placebo. There is not enough clinical trial data to assess the role of remdesivir for patients with mild to moderate COVID-19.

The NIH panel recommends the investigational antiviral agent remdesivir for the treatment of COVID-19 in hospitalized patients with severe disease (defined as having SpO2 ≤94% on ambient air [at sea level], requiring supplemental oxygen, mechanical ventilation or ECMO. Remdesivir is not approved by the FDA; however, it is available through an FDA emergency use authorization (EUA) for the treatment of hospitalized adults and children with COVID-19 and is currently being investigated in clinical trials. Remdesivir is also available through an emergency access program for children (<18 years of age) and pregnant patients. Additional data on the use of remdesivir for patients with COVID-19, including analyses of important patient subgroups, is pending and might change the recommendations. The NIH panel does not recommend remdesivir for the treatment of mild or moderate COVID-19 outside of a clinical trial.

Drugs Not Recommended by the Panel

Except in the context of a clinical trial, the panel recommends against the use of the following drugs for the treatment of COVID-19:

- High-dose chloroquine (600 mg twice daily for 10 days) for the treatment of COVID-19
- The combination of hydroxychloroquine plus azithromycin because of the potential for toxicities and prolonged QT interval
- Lopinavir/ritonavir or other HIV protease inhibitors because of unfavorable pharmacodynamics and negative clinical trial data

Insufficient Data to Recommend Either for or Against the Use:

- Though most of the hospitals initially used hydroxychloroquine, the NIH highlights there is insufficient clinical data to recommend either for or against using chloroquine or hydroxychloroquine for the treatment of COVID-19. As new data is published, the consensus seems to be that there is no clear benefit to its use and most institutions are abandoning the therapy, as is the case at our institution.
- Interleukin-1 inhibitors (e.g., anakinra)
- Interleukin-6 inhibitors (e.g., sarilumab, siltuximab, tocilizumab)
- Also, the NIH panel states that there is insufficient data to recommend either for or against the use of COVID-19 convalescent plasma or SARS-CoV-2 immune globulins for the treatment of COVID-19.

Antibiotics

At our institution, some intensivists treating patients with COVID-19 routinely administer broad-spectrum antibiotics to all patients with moderate or severe hypoxemia. Other intensivists administered antibiotics only for specific situations, such as the presence of a lobar infiltrate on chest x-ray, leukocytosis, elevated serum lactate, microbiologic data or shock. Per the latest NIH guidelines, in patients with COVID-19 and severe or critical illness, there is insufficient data to recommend empiric broad-spectrum antimicrobial therapy in the absence of another indication.[13]

Corticosteroids

Initially, at our institution, we used low dose corticosteroids only in severely critically ill COVID-positive patients with refractory shock or myocarditis. However, after the data from the RECOVERY trial done in the U.K. came out last month, we are now using dexamethasone for COVID-19 patients. Our institution's recommendation is as follows:

Recommend consideration of dexamethasone in COVID-19 patients who are hypoxemic, defined as:

- SpO2 ≤ 94% on ambient air at rest
- Requiring supplemental O2
- Mechanically ventilated or on ECMO

Our institution does not recommend dexamethasone in COVID-19 patients who do not have hypoxemia due to an increased risk of harm/potential mortality in this subset of patients noted in the RECOVERY trial.

Our institution does not recommend dexamethasone in ambulatory/outpatient COVID-19 patients at this time.

Dosing and Duration of Therapy

Dexamethasone dosing is 6mg PO (or IV) daily for up to 10 days OR until the patient is discharged from the hospital, whichever is sooner. The NIH panel recommends using dexamethasone (at a dose of 6 mg per day for up to 10 days) for the treatment of COVID-19 in patients who are mechanically ventilated (AI) and in patients who require supplemental oxygen but who are not mechanically ventilated (BI). The NIH panel recommends against using dexamethasone for the treatment of COVID-19 in patients who do not require supplemental oxygen. (AI)[13,14]

Antithrombotic Therapy

The decision of whether and when to start therapeutic anticoagulation in COVID-positive patients with abnormal coagulation parameters (D-dimer, fibrinogen) has been a very controversial topic among our intensivists. Many hospitals have their criteria to start anticoagulation. At our institution, we started therapeutic anticoagulation only if we suspected venous or arterial thrombosis in a patient.

From the NIH guideline, hospitalized adults with COVID-19 should receive VTE prophylaxis per the standard of care for other hospitalized adults. It also recommends patients with COVID-19, who experience a thromboembolic event or who are highly suspected of having the thromboembolic disease (when imaging is not possible), be managed with therapeutic doses of anticoagulant therapy as per the standard of care for patients without COVID-19. The NIH further states that there is currently insufficient data to recommend for or against routine deep vein thrombosis screening in COVID-19 patients without signs or symptoms of VTE, regardless of the status of their coagulation markers. Lastly, NIH recommends against routinely discharging COVID patients on VTE prophylaxis.[13]

CONCOMITANT MEDICATIONS

Angiotensin-Converting Enzyme (ACE) Inhibitors and Angiotensin Receptor Blockers (ARBs)

According to various studies, angiotensin-converting enzyme 2 (ACE2) is the cell surface receptor in severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2).[15] It has been hypothesized that the modulation of ACE2 associated with these therapies could suppress or enhance SARS-CoV-2 replication. Investigations of the role of ARBs and recombinant human ACE2 in treatment and prevention of SARS-CoV-2 infection are underway. It is unclear whether these medications are helpful, harmful or neutral in the pathogenesis of SARS-CoV-2 infection. Currently, there is a lack of sufficient clinical evidence demonstrating that ACE inhibitors or ARBs have any impact on the susceptibility of individuals to SARS-CoV-2 or on the severity or outcomes of infection. At our institution, we continued ACEIs/ARBs if patients were on them previously but

did not start it as a new medication.

The NIH panel recommends against the use of ACE inhibitors or ARBs for the treatment of COVID-19 outside of the setting of a clinical trial.

The panel also recommends persons with COVID-19 who are prescribed ACE inhibitors or ARBs for cardiovascular disease (or other indications) continue these medications.[13]

HMG-CoA Reductase Inhibitors (Statins)

HMG-CoA reductase inhibitors, or statins, affect ACE2 as part of their function in reducing endothelial dysfunction. It has been proposed that these agents have a potential role in managing patients with severe COVID-19. Observational studies have reported that statin therapy may reduce cardiovascular morbidity in patients admitted with other respiratory infections, such as influenza and bacterial pneumonia.

At our institution, we did not routinely start statins on our ICU patients. The NIH panel recommends against the use of statins for the treatment of COVID-19 outside of the setting of a clinical trial. The NIH panel also recommends that persons with COVID-19, who are prescribed statin therapy for the treatment or prevention of cardiovascular disease, continue these medications.[13]

Nonsteroidal Anti-Inflammatory Drugs (NSAIDs)

It has been proposed that NSAIDs, like ibuprofen, can increase the expression of ACE2 and inhibit antibody production. Shortly after these reports, the FDA stated that there is no evidence linking the use of NSAIDs with worsening of COVID-19 and advised patients to use NSAIDs as directed. At our institution, we continued NSAIDS if the patient was taking it previously and alternated them with acetaminophen as antipyretics. Per NIH guidelines, persons with COVID-19 who are taking NSAIDs for a comorbid condition should continue therapy as previously directed by their physician. The panel also recommends that there be no difference in the use of antipyretic strategies (i.e., with acetaminophen or NSAIDs) in patients with or without COVID-19.

POST COVID COMPLICATIONS AND FOLLOW-UP

There have been reports of patients suffering sequelae after mild/moderate and severe COVID infection. This may place an additional burden on primary health care professionals to monitor and treat such patients in a so-called “post COVID” clinic. Additionally, these patients may require long-term physical therapy and rehabilitation.

A post-viral syndrome known to occur with other coronaviruses, like SARS and MERS, called chronic fatigue syndrome/myalgic encephalomyelitis (CFS/ME), has also been occurring in COVID patients after recovery. These patients present with symptoms such as persistent fatigue, brain fog, diffuse myalgia, depression and non-restorative sleep. Patients with underlying comorbidities like obesity, hypertension and diabetes are more prone to this syndrome.

A possible etiology of the syndrome is the disturbance of the lymphatic drainage from the microglia in the brain. The main pathways of the lymphatic drainage of the brain are via the perivascular spaces along the olfactory nerves through the cribriform plate into the nasal mucosa. The symptom of anosmia seen in some COVID patients might be explained if the pathogenesis affects a similar pathway.[16,17] Some patients are also presenting with dysautonomia features, like chest pain, rapid heartbeat, anxiety, numbness, dizziness, low blood pressure, shortness of breath and gastrointestinal problems that are caused by an imbalance in the autonomic nervous system. It has been reported that more young patients present with dysautonomia symptoms post-recovery who have had only mild to moderate COVID symptoms during the acute phase of the disease.[16,17] A few patients are presenting with Guillain-Bare syndrome 10–15 days after initial COVID onset. There is a report of one patient developing the syndrome approximately three months after initial COVID symptoms.[18]

A subsection of COVID patients are having strokes and encephalitis in the acute phase and will eventually have to deal with sequelae from these above clinical conditions.

Some of the COVID patients with a severe presentation during hospitalization have had myocarditis and decreased cardiac function that may continue during recovery. Patients with previous cardiac conditions should be followed closely by their primary care physician.

Since COVID is a respiratory virus that primarily targets the lungs, there have been studies and reports indicating reduced lung capacity in the post-recovery period. Lung scarring leading to pulmonary fibrosis has also been reported. Even young patients have reported reduced exercise tolerance in the post-recovery period.[17]

Finally, the common problems of a prolonged ICU stay, such as critical care neuropathy and myopathy may be encountered post-discharge. It is imperative to follow such patients in an outpatient clinic to monitor and provide appropriate care. The COVID-19 virus is not stimulating a robust antibody response in patients with mild to moderate symptoms and even with severe disease, it has been reported that antibodies may only last for a few months. Thus, re-infection is a real possibility and the primary care physician should be aware of re-infection chances in recovered COVID patients.[19]

CONCLUSION

As COVID-19 is a novel disease, we are learning new information every day with regards to pathophysiology, symptomatology, immunity and treatment options. It is essential to be aware of the latest NIH/CDC recommendations regarding COVID-19 and keep ourselves updated. Doing so may help us to achieve greater success and save many more lives during a potential second and subsequent waves of the pandemic.

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BRIEF REPORT

TIMELINE IN PICTURES OF ORAL APHTHAE AS A PRESENTING SYMPTOM FOR BEHCET'S DISEASE

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KEYWORDS:

Behcet's Disease

Inflammatory Disorder

Oral Aphthae

Oro-Genital Ulcers

ABSTRACT: Behcet's Disease (BD) is a chronic relapsing and remitting vasculitis with an unknown cause. With its propensity to involve all size arteries and veins and the ability to affect all organ systems, BD can result in significant mortality. BD is commonly referred to as the "silk road" due to the high incidence of BD in the ancient Mediterranean trading route known as "Old Silk Road." A timeline in pictures of oral aphthae is presented to emphasize the need for increased awareness among clinicians to recognize the various manifestations of BD to diagnose and offer prompt, timely treatment. The evidence base for treatment is limited and further studies are needed to ascertain the prevalence and distribution as well as associated genetic factors of BD in the U.S.

INTRODUCTION

Behcet's disease (BD) is a chronic, relapsing, inflammatory vascular disease with no pathognomonic test. It is named after the Turkish dermatologist, Hulusi Behcet, who described the disease in 1937, characterized by recurrent oral ulcers and several other systemic manifestations.[1] It is believed to exist in many parts of the world with high incidences in the Middle East, Far East, Mediterranean region and an area of the ancient trading route known as "Old Silk Road" between latitudes 30° and 45° north in Asia and Europe.[2,3]

BD is thought to be an autoimmune over-reaction to either an infectious or environmental insult in a subset of patients genetically predisposed with an HLA-B51 genetic risk factor. BD typically presents in the third and fourth decade of life with no specific sex predilection.[1,3,4] The diagnosis relies on the clinical criteria according to the International Study Group for Behcet's Disease (ISGBD).[5] (Table 1)

Low sensitivity of the currently applied International Study Group (ISG) clinical diagnostic criteria led to their reassessment. An international team for the revision of the international criteria for BD (from 27 countries) submitted data from 2,556 clinically diagnosed BD patients and 1,163 controls with BD-mimicking diseases or presenting at least one major BD sign. For the International Criteria of Behcet's Disease (ICBD) ocular lesions, oral aphthosis and genital aphthosis are each assigned two points. In contrast, skin lesions, central nervous system involvement and vascular manifestations are one point each. The pathergy test, when used, is assigned one point. A patient scoring ≥4 points is classified as having BD.[6] Corticosteroids, immunosuppressant drugs, tumor necrosis factor-inhibitors and other symptomatic treatments are commonly used in the management of BD.[7] We report a case of a 60-year-old Turkish male who presented with a history of the recurrent oral ulcers of BD with the chronological order of oral aphthae development documented in illustrated pictures.

TABLE 1:

ISGBD clinical Behcet's Disease diagnosis criteria[5]

ISGBD REQUIRES THE PRESENCE OF RECURRENT ORAL APHTHAE (THREE TIMES IN ONE YEAR) WITH AT LEAST TWO OF THE FOLLOWING:
• Recurrent genital aphthae (aphthous ulceration or scarring)
• Eye lesions (retinal vasculitis, cells in vitreous or uveitis)
• Skin lesions (papulo-pustular lesions, pseudo-vasculitis, acneiform nodules or erythema nodosum)
• Positive pathergy test

EPIDEMIOLOGY

A high prevalence of BD (420 per 100,000) has been reported in Turkey[1] with the lowest prevalence of 0.38 per 100,000 being reported in North America.[2] In sub-Saharan Africa, the prevalence of BD is not known as few cases have been reported,[8–10] with only one case being reported from Tanzania over 40 years ago.[11]

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CASE REPORT

A 60-year-old Turkish male presented to our outpatient clinic frustrated by multiple visits to many doctors and clinics for his seemingly puzzling symptoms. The patient initially had blisters over his lips and tongue. He went to a walk-in clinic and was told he had HSV-1. The patient also had a blister on his penis. However, he denied being sexually active for years, which prompted us to conduct further investigation and search the literature. Two weeks later, the patient stated that the ulcers were healing and everything was beginning to look normal again. The next day the patient woke up with back pain radiating to the right side of the mid-thoracic area for which he went to the emergency department (ED). He was diagnosed with a kidney stone on CT imaging. The patient described two similar episodes of oral ulcerations over the previous year. The mouth ulcers started gradually in the buccal cavity, tongue and lips. There have been periods of complete healing and recurrences. His recurrences were neither bleeding nor discharging. The patient also had recurrent genital ulcers. He denied a history of epigastric pain, painful defecation, painful micturition, hematuria, reduced amount of urine or any history suggestive of sexually transmitted diseases in the past. There was no blurred vision or photophobia. Throughout his illness, the patient had neither fever nor weight loss.

The patient had no history of allergies and had never been transfused with blood or blood products. All of his family members were healthy and none had similar illnesses. He is a former smoker and has no history of alcohol use.

Physical examination revealed an anxious patient with multiple concerns about his health who was fully alert, cooperative and afebrile. He had no oro-genital ulcerations, eye lesions or skin abnormalities at the time of the exam. There was no lymphadenopathy. Eye examination revealed normal visual acuity, normal visual fields, normal optic nerves and no signs of uveitis.

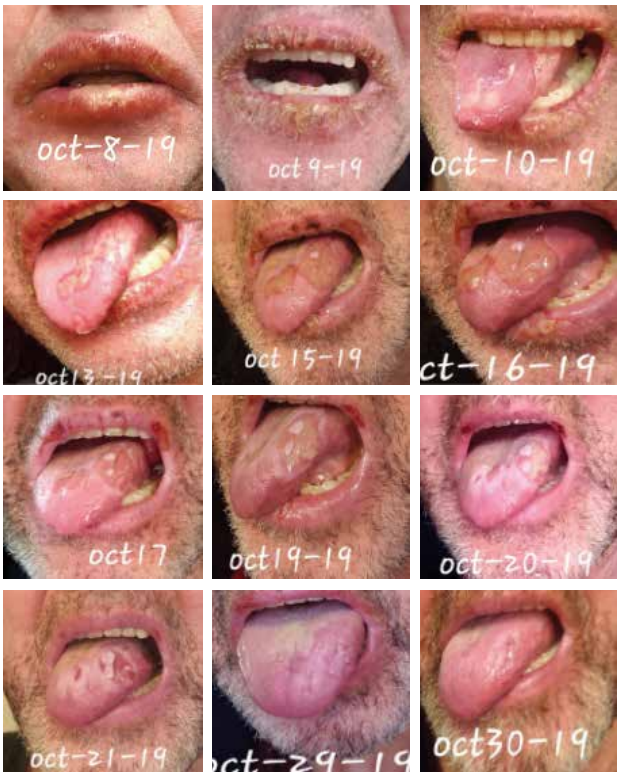
His blood pressure was 122/82 mmHg, pulse rate 68 beats per minute, respiratory rate 17 cycles per minute and oxygen saturation 96% in room air. Urogenital system examination revealed normal male genitalia. The physical examination of the rest of the systems was essentially normal.

The results from the laboratory analysis done were complete blood count (hemoglobin level of 14.6 g/dL and a mean corpuscular volume 93.7 fl., all blood cell counts were within normal ranges), renal function test (normal range), fasting blood glucose (92MG/DL) and pathergy test (negative). HLA-B27 antigen negative. The Erythrocyte Sedimentation Rate (ESR) was 18MM/HR and C-Reactive Protein (CRP) was 1.03mg/L. Herpes simplex Virus (HSV) Type 1 & 2 were undetected in the serum. Varicella-zoster virus (VZV) PCR was negative. The diagnosis of BD was made according to the ISGBD5 based on the presence of recurrent oral aphthae (≥3 times in one year) together with the self-reported genital aphthae and characteristic skin lesions.

The patient required no treatment since the disease course seemed to be in remission. Close monitoring of the various systemic symptoms of BD was advised and appropriate follow-up recommended. Generally, BD responds well to corticosteroids, with the combination of corticosteroids and immunosuppressant drugs being indicated when vital organs are involved.[7]

FIGURE 1:

Timeline in pictures of oral aphthae



CONCLUSION

This case emphasizes the need for increased awareness among clinicians to recognize the various manifestations of BD to diagnose and offer prompt treatment. Further studies are needed to ascertain the prevalence and distribution of BD in the U.S. as well as associated genetic factors.

AUTHOR DISCLOSURE(S):

The author(s) declare no relevant financial affiliations or conflicts of interest.

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CALENDAR OF EVENTS

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Missouri Society of the ACOFP
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CLINICAL IMAGE

INTRANASAL MANIFESTATION OF GRANULOMATOUS DISEASE IN COMMON VARIABLE IMMUNODEFICIENCY

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INTRODUCTION

A 26-year-old female presents to the allergy/immunology office with recurrent epistaxis, mild shortness of breath on exertion and nasal congestion. Her past medical history is significant for allergic rhinitis, asthma, osteopenia and hypogammaglobulinemia that is managed with monthly intravenous immunoglobulin (IVIG) replacement. Her initial serum Ig tests had revealed 469 mg IgG/dL (608-1229 mg/dL) and 59 mg IgA/dL (81-463 mg/dL), in addition to minimal response to childhood vaccination.

The patient reports intermittent, one to two-hour episodes of epistaxis about two to three times per day. She denies fevers, chills, headaches, hematuria, hematochezia and bruising. Physical examination and nasal endoscopy convey an obstructive mass in the left nasal passage. (Figure 1) A complete blood cell (CBC) panel denotes normocytic anemia with 10.7 g/dL hemoglobin (11.5-15.5 g/dL) and 31% hematocrit (35-45%). Prothrombin time and International Normalized Ratio were within normal limits. A computed tomography (CT) scan without contrast showed an obstruction of the left nasal passage with a soft tissue mass. (Figure 2) The intranasal granuloma was surgically resected. (Figure 3) Pathologic gross and microscopic evaluation revealed an intranasal granuloma. (Figure 4)

FIGURE 1:

Nasal endoscopy image of the granuloma within the naris

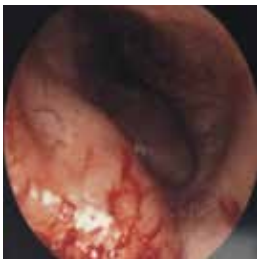

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FIGURE 2:

Computed tomography scan demonstrating intranasal granuloma

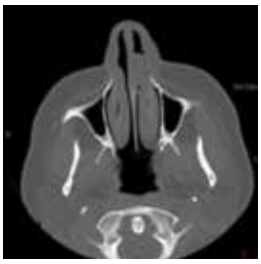


FIGURE 3:

Post-surgical specimen of intranasal granuloma

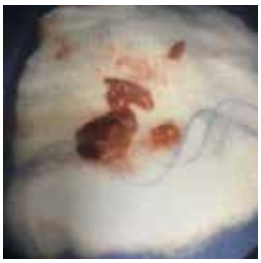
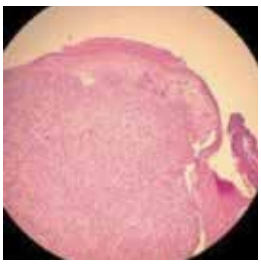


FIGURE 4:

Histology showing intranasal granuloma



QUESTIONS:

1. What do the nasal endoscopy and computed tomography scan reveal?

   A. Nasal polyp

   B. Intranasal granuloma

   C. Squamous cell carcinoma

   D. Turbinate hypertrophy

2. What is the underlying etiology?

   A. Chronic allergic rhinitis

   B. Chronic rhinosinusitis with nasal polyposis

   C. Common variable immunodeficiency

   D. Cystic fibrosis

ANSWERS:

1. What do the nasal endoscopy and computed tomography scan reveal?

Correct Answer:
B) Intranasal granuloma

Nasal pathophysiologic changes may be among early manifestations of systemic diseases and involve recurrent or severe epistaxis, mucosal pathologic processes and involvement of a symptom complex.[1] Macroscopic and microscopic evaluation and radiographic images guide differentiation between the neoplastic and non-neoplastic lesions that may arise in these systemic diseases.[2] Nasal granulomas are noncaseating, tight masses of epithelioid cells, surrounded by lymphocytes and fibroblasts.[1] Multinucleated giant cells that constitute granulomas may develop up to 150 µm in diameter, in response to infection or inflammation.[1] Although nasal polyps are the most common non-neoplastic cause of nasal obstruction,[2] they are distinguished from the current case by their locality in the middle meatus, hyperdense and heterogeneous opacification and presence of anatomic variations, such as a hypertrophied uncinate process or septal deviation.[3] Squamous cell carcinoma is the most common malignant nasopharyngeal mass with differentiation in the form of intracellular keratin, intercellular bridges and extracellular keratin pearls.[2] Cellular hyperplasia, tissue oedema, vascular congestion and bony enlargement characterize the nonspecific classification of turbinate hypertrophy.

2. What is the underlying etiology?

Correct Answer:
C) Common variable immunodeficiency

Allergic rhinitis involves inflammation of nasal tissue, obstructing sinuses with the progression of mucosal membrane swelling and congestion to bacterial infection, neutrophil influx and inflammation.[3] The more extensive abnormalities on sinus CT images of chronic rhinosinusitis with nasal polyposis predominantly present with hyposmia or anosmia and nasal congestion.[3] Other vague symptoms may include headache, halitosis, fatigue, dental pain, cough, throat clearing and/or ear pain.[3] These symptoms will have persisted for at least 12 weeks and may demonstrate sclerosis of the sinus walls on CT.[3] Cystic fibrosis (CF) will most often convey underdeveloped sinuses, especially the frontal sinus.[1] Patients with CF may present with grayish-green phlegm indicative of bacterial infection, likely Pseudomonas aeruginosa or Staphylococcus aureus.[1] Although nasal granulomas have not been reported in patients with Common Variable Immunodeficiency (CVID), between 8% and 22% present with granulomatous infiltration in one or more organ system.[5]

DISCUSSION

Common variable immunodeficiency (CVID) is a nonspecific primary immunodeficiency (PID) with a prevalence of 1:30,000 patients.[5] Diagnostic criteria for CVID are controversial but often include age over four years of age, hypogammaglobulinemia, defective antibody responses, recurrent infections and exclusion of other primary and secondary immunodeficiencies.[5–6] The undetermined etiology of CVID may involve diminished B cell, T-cell, cytokine and dendritic cell function, as well as gene mutations, such as the inducible co-stimulator (ICOS), Cluster of Differentiation (CD) 19 or TNFRSF13B gene encoding Transmembrane activator and calcium modulator and cyclophilin ligand interactor (TACI).[6] Standard management includes antimicrobials, immunoglobulin replacement and monitoring of pulmonary status.[5] Although relatively common, granulomatous tissue involvement often propagate misdiagnosis of sarcoidosis or delayed diagnosis and, thus, appropriate treatment.[7]

Granulomas are clusters of caseating or noncaseating tissue that primarily manifest in lungs, lymph nodes, liver, spleen or skin.[7] Inflammatory cytokines stimulate macrophage fusion into multinucleated giant cells that manifest as granulomatous reactions in inflammatory diseases, such sarcoidosis, Crohn's disease, rheumatoid arthritis and CVID.[8] The CVID granulomatous process is grossly similar to that of sarcoidosis but is distinguished by its epidemiology.[7] Evidence suggests that patients with the most impaired T-cell immunity, fewest switched memory B cells and/or unusual tumor necrosis factor (TNF) polymorphisms may foster a cytokine environment more susceptible to granuloma formation.[7–8] This uncertain pathophysiology may require additional or alternative therapies to high-dose IVIG and/or corticosteroids, such as surgical excision required to reduce the severe nasal obstruction in the present case).[1,7–8](Figure 3)

Granulomatous disease in CVID has been associated with polyclonal lymphocytic inflammation, presenting as lymphocytic interstitial pneumonia and persistent lymphadenopathy that evolves into granulomatous-lymphocytic interstitial lung disease (GLILD).[9] Excessive lymphoproliferation instigates the development of granulomas and their subsequent pervasion to other organs.[9] Ardeniz and Cunningham-Rundles documented granulomas in one or more organs of 37 (8.1%) out of 455 patients with CVID.[6] In addition to lung granulomas in 20 (54%) patients, other localities, in order of increasing prevalence, included lymph nodes, liver, skin, spleen, bone marrow, brain, retina, small bowel and kidney.[6] A meta-analysis by Song et al. revealed noncaseating granulomatous manifestations in 8% to 22% of patients with

CVID.[10] Scott-Taylor *et al*. diagnosed granulomatous liver disease in five out 24 patients with CVID.[9] The latest reported granuloma was localized at a subcutaneous IVIG site in a CVID patient.[11] The literature is limited with few documentations of granulomas in CVID and no existing findings of nasal granulomas in this PID.[5-12] We report the first case of an intranasal granuloma in a patient with CVID.

CONCLUSION

CVID is a relatively common form of PID of complex etiology and variable clinical manifestations.[5] Granulomatous lesions, such as GLILD and granulomatous liver disease, are common complications in patients with CVID but have not been identified in the nasal passage. [5–12] We offer the first report of an intranasal granuloma in a patient with CVID. The diagnostic images and information may guide future differential diagnoses of granulomatous manifestations in inflammatory diseases.

AUTHOR DISCLOSURE(S):

The author(s) declare no relevant financial affiliations or conflicts of interest.

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PATIENT EDUCATION HANDOUT

What to Expect During Your Telehealth Appointment

Jessica C. Tomazic, MD

Ronald Januchowski, DO, FACOFP, Editor • Paula Gregory, DO, MBA, CHCQM, FAIHQ, Health Literacy Editor

Telehealth offers a unique and flexible way to access your doctor or other health care providers without having to leave your home. Here's what to expect during your telehealth appointment, as well as some tips to help you get the most from the experience:

WHAT TO KNOW

Phone vs. virtual. You may have a phone visit or virtual (video) visit. If you have a visit by phone, be prepared to transition to video or schedule an in-office visit if your doctor feels this is necessary to best address your concern.

Pre-visit prep. A nurse or medical technician may call beforehand to have you answer questionnaires or gather more information like your weight or temperature. To help with this, have home medical equipment on hand like a scale, blood pressure cuff, thermometer, blood glucose monitor, pulse ox and tape measure.

Appointment structure. Your doctor will review your chart, discuss your concerns, determine a diagnosis and develop a treatment plan. Come prepared with a list of your priorities. It can be helpful to bring your medications or your medication list to the area where you'll conduct your visit in case your doctor asks you questions about them. Have a pen and paper ready to write notes or questions as they come up during the visit.

Privacy and security. Ensure you are in a quiet, safe, private area. Your doctor will discuss personal health information and may need to see areas of your body relating to your concern. A noisy environment may distract both you and your doctor.

Visibility. Be ready to show the doctor your concern visibly. Wear appropriate clothing to allow adequate access to the area you are concerned about. Make sure there is good lighting.

DO BEFORE YOU GO

Device set up. For a virtual visit, you may need to download an app to your phone or computer. Also, ensure you have access to a reliable network connection and a reliable camera on your mobile phone, tablet or computer. Charge or plug in your device so that your visit is not interrupted by a dead battery.

acofp AMERICAN COLLEGE OF OSTEOPATHIC FAMILY PHYSICIANS

SOURCE(S): *Centers for Disease Control and Prevention*

PATIENT EDUCATION HANDOUT

COVID-19: What You Can Do to Manage Your Symptoms at Home

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COVID-19, also known as coronavirus, is a virus that causes an illness affecting multiple systems of the body. Most people who get infected with coronavirus experience symptoms like the common cold. Some people who get infected have more severe symptoms and may end up in the hospital. People at high risk for severe illness are older people and those with other medical conditions such as hypertension, COPD and other lung diseases, diabetes, and cancer. While some people will need to be treated in the hospital, most people can manage their symptoms at home.

SYMPTOMS OF CORONAVIRUS

- Fever/chills
- Tiredness
- Dry cough
- Body aches
- Sore throat
- Shortness of breath
- New diarrhea
- Loss of taste or smell

MANAGE YOUR SYMPTOMS

- Isolate yourself. It is important to avoid contact with anyone else, as the virus is highly contagious. If you absolutely need to leave your house for food or medical care, make sure to wear a mask and gloves to avoid infecting others. Do not visit public places.
- Stay hydrated! Drink lots of water and avoid other drinks like alcoholic beverages, sodas and juices.
- Rest up and take care of yourself. Take Tylenol or Motrin for headaches and fevers. If available, take vitamin C and zinc supplements, as they may help.
- Continue to monitor your fever and symptoms. If your symptoms get worse, call your doctor immediately.
- Wash your hands often! It is very important to wash your hands with soap and water for at least 20 seconds or use a hand sanitizer that has at least 60% alcohol in it.
- Clean all surfaces that are touched often, including countertops, tables, doorknobs and even your phone. Avoid sharing personal items if you do not live alone. Try to use your own bathroom.
- **Call 911 immediately** if you develop these emergency signs: trouble breathing, chest pain that won't go away, new dizziness or confusion. If you have any symptom that you feel is severe, call your doctor.

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SOURCE(S): *Centers for Disease Control and Prevention; UpToDate; World Health Organization*

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