Ensuring Quality in Telemedicine for PAD

How telemedicine is uniquely suited for peripheral artery disease and dispelling the perceived barriers to adoption.

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Peripheral artery disease (PAD) ranges from asymptomatic to critical limb ischemia (CLI) and has long been underestimated as an urgent condition. However, when left untreated, CLI leads to severely negative outcomes, including limb loss, which is especially prevalent in vulnerable patients. The COVID-19 pandemic has required that clinicians more critically define urgent versus elective procedures to reduce the potential surge of ill patients requiring hospitalization and preserve precious personal protective equipment.

When urgent and nonelective procedures are defined as those that would lead to loss of life or limb if delayed, it was accepted that CLI fits into the nonelective category. Telemedicine for this patient population was not systematically adopted or reviewed until recently, but the need for telemedicine technology to assist in evaluating and managing wound care and PAD from a remote location has become paramount, especially during shelter-in-place orders.

BACKGROUND

Telemedicine services have become a necessity during COVID-19 to help limit exposure of staff to infected people, either knowingly or unknowingly. Additionally, the ability to triage patients by adopting telemedicine avoids unnecessary use of hospital facilities. Telemedicine is a subset of the broader term of telehealth, which employs digital technology in both real-time and "store-and-forward"/asynchronous methods. It allows for patient care without direct patient contact. Telemedicine growth was beginning to rise before the pandemic, but it has exponentially grown for better patient access with the reduction of barriers, including waivers to allow swift transformation from in-office and in-person visits to telemedicine visits. Certain chronic and acute cardiac conditions such as blood pressure (BP) control, congestive heart failure management, and arrhythmias have lent themselves to an easier transition to telemedicine than peripheral vascular disease until the last 5 years.

UNIQUE FEATURES OF TELEMEDICINE FOR PAD

How applicable is PAD to telemedicine? One of the greatest limitations of telemedicine is the inability to adequately examine patients or perform testing outside of the clinic setting. Quality wound care clinics see their complex PAD wound patients as frequently as every week for wound measurement, assessment, Doppler analysis, and treatment to increase the chances of healing. Without these intense evaluations, amputation rates could increase in this vulnerable population. This at-risk population often has the greatest challenges dealing with the social determinants of health, including access to transportation and Wi-Fi or a reliable internet connection. However, in a recent Harris Poll, 60% of patients with chronic conditions reported they would be open to adopting telemedicine as an alternative to an in-person visit with a health care provider.[1] We should expect consumer interest in telehealth-enabled chronic care to rise steeply as more health systems make it a part of their treatment model. The good news is that many of them are already incorporating telehealth into specialty care, chronic care, and follow-up care programs. Chronic disease care management accounts for approximately 75% of health care spending,[2] and reductions in hospitalizations, readmissions, lengths of stay, and cost have been realized with home monitoring and more frequent patient check-ins. Technologies to assess wounds from afar and remotely measure patients to prevent amputation are also being developed and implemented at rapid speed in the United States and throughout the world to serve the PAD population.

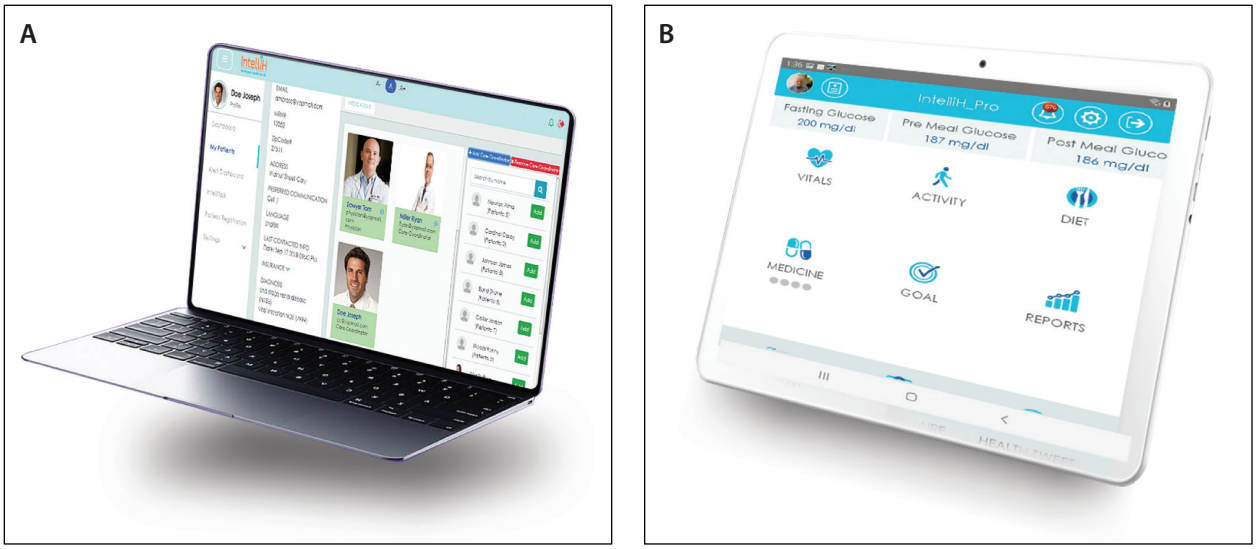

Figure 1. The IntelliH portal system.

BENEFITS AND NEW SOLUTIONS FOR REMOTE PAD MONITORING

Unlike for PAD, remote monitoring solutions for cardiovascular chronic conditions have exploded, including emerging companies such as Orma Health (www.ormahealth.com), which uses cellular-enabled BP cuffs and weight scales; JedMed (www.jedmed.com) and Eko (www.ekohealth.com), which use digital stethoscopes; LIVMOR (www.livmor.com), which uses a continuous atrial fibrillation detection wearable; and IntelliH (Figure 1; www.intellihinc.com), which has a sophisticated platform connected to multiple devices. These companies have created technologies that greatly complement video telehealth by enabling the patient to conduct more thorough at-home examinations and have that information directly synced with their video telehealth solution. In the PAD space, telemedicine and activity tracking have had mixed results in previous studies. Lifestyle coaching, wound monitoring, and activity tracker technologies have been tested in small series and are felt to be valuable in the daily management of PAD patients.[3] In the randomized clinical HONOR trial, wearable technology and coaching did not show an improvement of exercise performance at 9 months without periodic on-site visits.[4] Prior to this trial, Stanford University launched a PAD study using Apple's HealthKit technology and the VascTrac app on patient's iPhones.[5] In the study, 114 patients with PAD performed a supervised 6-minute walk test (6MWT) using the VascTrac app while simultaneously wearing an ActiGraph GT9X activity monitor (ActiGraph). Steps and distance walked during the 6MWT were manually measured and used to assess the bias in the iPhone CMPedometer algorithms. It was found that the iPhone CMPedometer step algorithm underestimated steps with a bias of -7.2% ± 13.8% (mean ± SD) and had a mean percent difference of 5.7% ± 20.5% with the Actigraph (Actigraph-iPhone). The iPhone CMPedometer distance algorithm overestimated distance with a bias of 43% ± 42% because of overestimated stride length. The correction factor improved distance estimation to 8% ± 32%. The ankle-brachial index correlated poorly with steps (R = 0.365) and distance (R = 0.413). Therefore, the study investigators concluded that in PAD patients, the iPhone's built-in distance algorithm did not accurately measure distance, suggesting that custom algorithms are necessary when using iPhones as a platform for monitoring distance walked. Although the iPhone measured steps accurately, more research is necessary to establish step counting as a clinically meaningful metric for PAD.

More recently, emerging technology gathers physiologic and wound data remotely to improve the utility of telemedicine monitoring for established or at-risk patients with PAD. Promising companies such as Siren (Figure 2; www.siren.care), which has developed a washable neuroyarn sock with built-in sensors to detect slight temperature changes and predict neurotropic ulcers, and platforms for wound assessment such as CarePICS (www.carepics.com) that allow clinicians to receive photos from wound care patients, track healing and invite collaboration with care teams.

MYTHS ABOUT ADOPTING TELEMEDICINE

Myth 1: The Technology Is Too Challenging

A common excuse for the slow adoption of telemedicine by physicians includes the comment, "My patients can't figure out telemedicine." This comment couldn't be further from the truth. American Well, a national telehealth leader, announced the findings of its 2019 telehealth consumer survey, which revealed that 66% of Americans surveyed are willing to use telehealth, and 8%

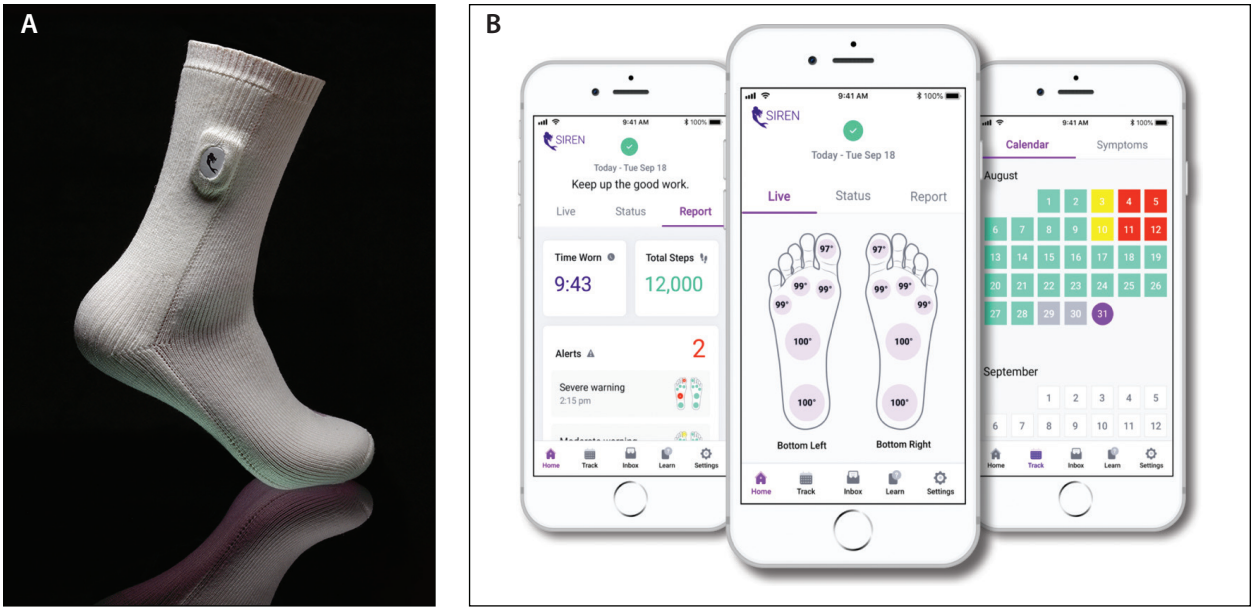

Figure 2. Siren socks (A) and foot monitoring system app (B).

have had a telehealth visit with a doctor.[6] According to a 2015 survey by Software Advice, only 16% of patients said they would prefer to seek care in an emergency room if they also had the option of telemedicine.[7] Maybe that's because 97% of patients are frustrated by doctor's office wait times,[8] but maybe they prefer the convenience of being treated with no commute or inconvenience. In our practice, we have noticed that the success of figuring out the technology of televisits is not well correlated by age. In a survey of 100 patients at my center (Connected Cardiovascular Care Associates) using telemedicine from March to April 2020, age was not directly correlated with the success of the televisit connection with the providers. In fact, we have had patients in their late 80s easily log on, while patients in their mid-50s were unable to connect. In 2019, the Pew Research Center found that 90% of Americans use the internet and 81% of Americans own a smartphone.[9,10] The technology needed to practice telehealth has become widely accessible and more widely adopted.

Myth 2: Telemedicine Lessens the Doctor/Patient Relationship

This may be the least true statement. Because virtual visits are more convenient for patients, fewer patients get lost to follow-up. In my experience, patients appreciate the personal feeling of a televisit and consider it personal communication with their doctor, perhaps because they are in their home environment. Our patients have felt more connected and cared for with televisits, especially during the unsettled time of the COVID-19 pandemic. Many important medical issues such as uncontrolled BP, chest pains, and vascular wounds have been uncovered with routine check-ins by telemedicine. These same issues would have led to critical emergency room visits or costly urgent care evaluations.

Myth 3: Telemedicine Costs Too Much and Doesn't Pay

A cost analysis of televisits in 2014 found the average cost of a televisit to be almost 50% less than traditional visits.[11] In our electronic health record system, eClinicalWorks, the cost to physician practices for televisits is a minimal cost per visit, with a monthly cap for each provider. Reimbursement for televisits is the same as the evaluation and management codes, with modifiers for televisits. Commercial insurances require that modifier 95 is used for synchronous, live, interactive, real-time audio and video (patient portal), and the GT modifier is used for interactive audio and video telecommunication systems (eg, Skype, Doxy.me). Medicare does not require modifiers but designates that Place of Service (POS) 2 is used to describe telehealth/virtual visits (see Sidebar). Additionally, e-visits can be billed under codes 99421, 99422, and 99423 for a physician phone call with durations of 5 to 10 minutes, 11 to 20 minutes, and > 20 minutes, respectively. The codes for the same times for a physician extender are 98966, 98967, and 98968. Due to the rapid evolution of telehealth and the various policy changes, there is diversity in how claims are being paid and processed for telehealth services. Providers cannot submit a regular claim and expect to be reimbursed accordingly.

MEDICARE CODES FOR E-VISITS

Medicare designates that POS 2 is used to describe telehealth/virtual visits. E-visits can be billed under codes for a physician phone call based on duration:

- 99421: 5 to 10 minutes
- 99422: 11 to 20 minutes
- 99423: > 20 minutes

Codes for the same times for a physician extender are 98966, 98967, and 98968, respectively.

Sometimes telehealth has an out-of-pocket contribution that differs from a regular office visit or the claim may need to be submitted with modifiers. To ensure maximum reimbursement and lessen the risk of claim denials, a telehealth program must have the flexibility to handle every transaction and claim process. However, telemedicine is associated with a low cost to implement and a high yield on payment overall.

Myth 4: Telemedicine Increases Malpractice Risk

Telemedicine may decrease your risk of malpractice by adding another chance for treatment documentation. It also facilitates follow-ups and allows you to check in more frequently to ensure patients are staying on track and adhering to treatment. Whether you're a cardiologist checking on a patient's BP or a podiatrist checking on a wound using telemedicine technology like CarePICS, telemedicine gives you more points of contact.

Myth 5: Telemedicine Is Not HIPAA Compliant

Unlike Skype and other video chat technologies, many telemedicine platforms are compliant with the Health Insurance Portability and Accountability Act (HIPAA) and are often engineered with military-grade security. If you are concerned about a security risk, ask the telemedicine provider how they've built their platform to ensure 100% security and compliance with HIPAA. For example, Samsung Galaxy smartphones and tablets come with Samsung Knox security, which has been certified by HIPAA.

BEST PRACTICES FOR PAD ASSESSMENT WITH TELEMEDICINE

Telemedicine has been rapidly adopted during COVID-19 for acute and chronic conditions. During the "new normal," clinicians will need to transform to a virtual care practice for vulnerable wound care patients, with strategies to maintain the patient/doctor interaction while maintaining reasonable thresholds for escalation to in-person visits when needed, including interventional procedures. Best practices include methods that increase the accuracy and quality of physiologic parameters of wound care and CLI.

CONCLUSION

Telemedicine is here to stay. Remote monitoring of patients will continue to grow as the population ages and chronic conditions (including PAD) continue to increase. Regardless of the adoption before the COVID-19 era, regulators, payors, patients, and providers have all now realized the significant advantage of remote evaluation of patients between traditional visits. This field will keep evolving as companies continue to develop technologies for more accurate physiologic assessment of patients from nontraditional sites of service, like their homes. ■

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