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Remote Patient Monitoring - Its Time Has Come

The invasion of COVID-19, SARS-CoV-2 coronaviruses have led to the rapid expansion of the use of telemedicine or telehealth. I have used it to stay in touch with existing patients when the community positivity rate of infection is so high that coming to the office for a healthy person check-up is too big a risk to take. I find the telehealth visits adequate for checking medications, reviewing emotional health issues and problems, looking at a rash or wound and not much else.

Clinicians have complained that without listening to the heart sounds and lung sounds its exceedingly difficult to monitor individual's health and provide sage advice. To increase the amount of information physicians can access remotely, Medicare has decided to pay for remote patient monitoring, aka RPM, as have many private insurers.

Now that there is a financial reimbursement for remote monitoring the technology to monitor your health and safety is beginning to appear on the market. My wife and I are currently wearing a water-resistant wrist bracelet marketed by VIP Remote Health. It is lightweight, looks like a watch band or Fitbit and allows me to monitor my pulse rate, heart rhythm, blood pressure, oxygen saturation, daily steps and will call for help if I fall and I do not get back up quickly. The new model will provide an EKG rhythm strip for review as well as body temperature.

The data interacts or syncs with my android phone or Apple iPhone with the data sent to a monitoring station which uses humans plus artificial intelligence to monitor how you are doing. You and your physician set the parameters for what is considered normal for you and what values require a call for notification to your designated emergency contacts immediately. The device can be connected to an Omron Bluetooth blood pressure cuff, provided with the band, if you choose to take your blood pressure that way or can be obtained in 30 seconds by placing your finger over the device sensors lightly. If you have diabetes or prediabetes you can add on a special glucometer to record blood sugars obtained in a traditional fingerstick manner.

Your physician will receive all the data on their computer and finally will be able to determine if your blood pressure in the office was high due to stress and white coat syndrome or because you have essential hypertension. Patients are required by CMS to wear the device for a minimum of 16 days per month, and for the App to be "open" to sync with the band, to qualify for Medicare and your secondary insurance to pay for this. I expect soon we will be providing patients with Bluetooth compatible stethoscopes which will allow us to listen to your hearts, lungs, abdomens and blood vessels remotely.

This is an important clinical tool so we are currently distributing the remote patient monitoring wrist bands to those who would benefit clinically and whose insurance will cover it so there will be no out-of-pocket expense.

You likely have a monitoring system to protect your home. Shouldn't you have one to protect your health? Please call the office if you would like to add a new level of safety and security to your life.

Obstructive Sleep Apnea Surgery vs. CPAP & Testing New Daytime Oral Device

Obstructive sleep apnea is now epidemic in a population where it runs hand-in-hand with obesity, which is also an epidemic. The consequences of untreated sleep apnea include daytime somnolence, cardiovascular, neurological and endocrine complications. One of the hallmark signs of obstructive sleep apnea (OSA) is snoring.

The US Food and Drug Administration (FDA) recently approved an oral device to be worn during the daytime to reduce and/or eliminate snoring. The device is called eXciteOSA made by Signifier Medical Technologies. The device is a prescription item which will be used by sleep specialists, dentists and ENT physicians. It has four electrodes that deliver a series of electrical stimuli to the tongue with rest periods in between. The stimulation over time improves tongue function preventing the tongue from collapsing backward into the airway and obstructing it during sleep. The device is used for 20-minutes once a day, while awake, for six weeks and then once a week thereafter. It is designed to be used in adults age 18 or older with snoring and mild OSA. Think of it as physical therapy for the tongue.

The device was tested on 115 patients, 48 of whom had mild obstructive sleep apnea plus snoring. The others were all snorers. The snoring was reduced in volume by more than 20% in 87 of the 115 patients. In the group of patients with the diagnosis of OSA and snoring, the apnea-hypopnea index score was reduced by 48%.

It is recommended that a thorough dental exam be performed prior to trying this device. The major side effects noted from its use were excessive saliva production, tongue discomfort or tingling, metallic taste, jaw tightening, tooth filling sensitivity. No mention of the cost was included in the printed review.

The online journal *Practice Update* reviewed a *JAMA Otolaryngology* publication on the use of surgery to treat Obstructive Sleep Apnea versus using a CPAP machine. There are many patients who just cannot wear the CPAP mask which is the "gold standard" for treating OSA. Most patients who spend 90-days adjusting to the mask sleep far better and look forward to using the device to obtain a restful night's sleep.

The study looked at patients who were at high risk for not being able to adhere to a CPAP use regimen. Soft tissue surgery to the uvula was found to reduce the rates of cardiovascular, neurological and endocrine systemic complications compared with prescriptions for CPAP in patients less likely to adhere to, or use, the CPAP mask.

The takeaway message is clear. When a patient is unlikely to adhere to CPAP mask use, offering soft tissue oral surgery should be offered early while treating the disease.

Vitamin D & Cardiovascular Health

The online journal *Practice Update* reviewed a publication in the *Journal of the American College of Cardiology* which basically says excessive calcium supplementation may harm your healthy heart. It was published at a pertinent time because it came while I was trying to convince my post-menopausal wife that between her Vitamin D pearls, calcium, Vitamin D pills and her multivitamin she was taking too much Vitamin D. Her measured 25-hydroxy Vitamin D level came back at 63.

Vitamin D is a fat-soluble vitamin like vitamins A, E and K. Extra doses of fat-soluble vitamins are stored in the body's cells and can reach harmful and toxic levels. The normal level of Vitamin D measured by a standard blood test is considered to be 20 or greater by the World Health Organization. In North

America it was originally higher at 28 then raised to 30. The Covid-19 Pandemic has raised issues about low levels of Vitamin D being a risk for catching the disease, and developing complications, but no one has defined what levels are considered unsafe.

The National Academy of Medicine, after reviewing this data, has set these limits and levels:

1. Deficiency is less than or equal to 12ng/ml
2. Inadequacy is 12-20 ng/ml
3. Adequate is 20-50 ng/ml
4. Risk of Adverse Effects occurs at > 50ng/ml

The data suggest avoiding supplementation unless the 25-hydroxy Vitamin D level is <20 and probably best reserved for <12 ng/ml.

Calcium is best absorbed when accompanied by Vitamin D. Taking smaller doses like Calcium 500 mg plus 1000 of Vitamin D3 works. For osteoporotic patients they suggest 600mg of Calcium plus 1000 IU of Vitamin D3 daily. They want you to eat a diet that supplies another 600 mg of Calcium a day plus walk for weight bearing exercise and get 15 or more minutes of sunlight daily. Of interest was the statement that calcium supplements may harm your heart, but any calcium obtained naturally through foods does not.

The article was reviewed and commented on by David Rakel, MD, FAAFP with the take home message being, "Eat a high-fiber, plant-based diet with some fish and go outside and play."

Tea Helps Lower Your Blood Pressure & Oral Medication for Coronavirus

Researchers at the University of California, Irvine, led by George Abbott PhD and Kaitlyn Redford, published their findings in *Cellular Physiology and Biochemistry* explaining why and how tea lowers your blood pressure. They found that two flavonoid type compounds found in green and black tea activate a specific type of ion channel protein named KCNQ5 which allows potassium ions to diffuse out of cells to reduce cellular excitability. The two catechin type flavonoids acting on KCNQ5 in the smooth muscle of blood vessels relax these blood vessels.

Their discovery of the role of the KCNQ5 protein gives pharmaceutical developers a target for future medications as hypertension is present in one third of adults in the world.

Tea is the second most common liquid consumed on the planet. A difference in the fermentation process produces either green, oolong or black tea.

Dr Abbott's group found that when milk was added to the teas it negated the effects of the KCNQ5 protein. He also noted that with our body temperature being about 37 degrees centigrade, the positive effects of the tea continued to work independent of whether you consumed hot tea or iced tea. The message from this research is that a cup or two of tea per day will help lower your blood pressure.

Oral Medication for Coronavirus

Researchers produced a pill that, taken twice a day at the 800 mg dosage for five consecutive days, seems to stop SARS-CoV-2 virus from multiplying and causing clinical symptoms. The work is early and needs to proceed through stage 2 and 3 clinical trial phases before it can be presented to the FDA for emergency utilization authorization.

The drug is called Molnupiravir. It could be taken in the first few days of infection to prevent advancement to severe disease much like Tamiflu is used with influenza. In initial human trials, the virus was eliminated from the nasopharynx of 49 infected individuals. Molnupiravir works by interfering with the virus's mode of reproducing and mutating - overloading the virus with replication and mutation until the virus burns itself out and can no longer make effective viral copies.

Their method of testing the drug was to administer it, or a placebo, to humans who were infected and in the early stages of symptomatic disease. They used three different dosages and swabbed the participants' nose and cultured for the virus at different times during the experiment.

At day 5, after the onset of symptoms, there was no detectable infectious virus in the nasopharynx of participants who were treated with Molnupiravir. Dr. Painter mentioned that the next test will be given to patients who are sick with COVID-19.

This preliminary data demonstrates that when scientists are given the time and resources, they solve problems.

**It's time to spring into action with a commitment to achieve your personal level of optimal health. Let's work together to make that happen.
After all, the quality of one's health does impact the quality of one's life.**

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