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Lifestyle Changes in Covid-19 Pandemic and Impact on Modifiable Stroke Risk Factors



Kelly J. Chan

Ridgefield, CT

Family Medicine Rotation: February-March 2021

Community Mentor: Dr. Nick Florio

Problem Identification & Need

- **Stroke is ranked as the second leading cause of death worldwide with an annual mortality rate of about 5.5 million**
 - In 2018, 1 in every 6 deaths from cardiovascular disease was due to stroke in the USA¹
 - 50% of survivors are chronically disabled
- **While stroke is not the leading cause of death, it is a leading cause of disability in the USA**
 - About 85% of stroke victims now survive and currently, there are approximately four million people in the USA with the sequelae of stroke²
- **Rise in many conditions that place someone at high risk of stroke later in life**
 - From 1999–2000 through 2017–2018, the prevalence of obesity increased from 30.5% to 42.4%, and the prevalence of severe obesity increased from 4.7% to 9.2%³
 - 34.2 million Americans—just over 1 in 10—have diabetes. New diagnosed cases of type 1 and type 2 diabetes have significantly increased among US youth³
 - High blood pressure, high cholesterol, smoking, obesity, and diabetes are leading causes of stroke. 1 in 3 US adults has at least one of these conditions or habits.
- **Unknown ripple effect that the Covid-19 pandemic will place on the population, especially in treating emergent stroke symptoms**
 - Covid-19 pandemic has significantly decreased emergency department volume for non-covid related issues⁴
 - Patients may prioritize avoiding exposure to covid-19 over addressing what they may perceive as mild symptoms of headache, lethargy, difficulty speaking, and numbness⁵
 - Unknown stress that this will have on an aging population and stroke risk factors
 - Modifiable risk factors are a big way to reduce this stroke burden

Public Health Cost & Considerations

- **Overall post-stroke costs globally (inpatient/outpatient) were highest in the USA (\$4850/month)**
 - In comparison, lowest cost in Australia (\$752/month)⁶
- **Stroke-related costs in USA came up to 46 billion between 2014-2015 (up from 40.6 billion in 2007)**
 - Includes cost of health care services, stroke medications, and missed days of work⁷
- **In 2010, CT State Department of Public Health found that CT residents paid \$5.8 billion in medical expenses for heart disease and stroke⁹**
 - Up to 85% of strokes are preventable⁸
- **Stroke is the 5th leading cause of death in Connecticut, accounting for about 5% of all deaths⁹**
 - Many patients coming to Ridgefield Primary Care Clinic for an annual physical expressed that their diet and exercise has been drastically affected in the pandemic in some way
 - Patient visits have been disrupted during covid and many have not been able to follow up for chronic conditions



Community Perspectives

- "There's been a decrease in diagnosed number of stroke cases at Danbury hospital nearby. Heart attacks and strokes plummeted, and you don't know what's happening to them. People picked up unhealthy habits during the pandemic. People are resistant to starting medications but also don't want to work on modifiable risk factors. Then patients disappear and conditions like diabetes go out of control."

-Dr. Nick Florio, M.D.

- "Everything's been turned on its head – pre-covid, we already had a hard time getting patients in for follow up but last year was so much worse. No one wanted to come in even to draw blood. Almost every single patient I saw had gained weight, blood pressures and A1Cs were out of control. I don't think people will realize the long-term effects on their bodies"

-Sara Zarcone, LPN

Intervention & Methodology

Intervention

- Screen for patients with known risk factor (HTN, diabetes, ACS, smokers) for how their lifestyles have changed since start of Covid-19 pandemic in 2020
 - Assessing changes in current condition management, diet, exercise/activity, smoking frequency
- Give screening form to nurses to distribute to patients during intake

Methodology

- If patient selected “somewhat worse” or “significantly worse” for any of the questions, prompt provider to have a discussion at the end of visit about stroke risk and modifiable risk factors

1. Which of these medical conditions have you been diagnosed with? (Check more than 1 if applicable)

- Hypertension
- Type 1 Diabetes
- Type 2 Diabetes
- Cardiovascular disease
- High cholesterol

Please select 1 option from the choices below:

2. Since the Covid-19 pandemic, how well has your current condition(s) been managed?

- Significantly better
- Somewhat better
- About the same
- Somewhat worse
- Significantly worse

3. Since the Covid-19 pandemic, how has your diet changed?

- Significantly better
- Somewhat better
- About the same
- Somewhat worse
- Significantly worse

4. Since the Covid-19 pandemic, how has your exercise/activity level changed?

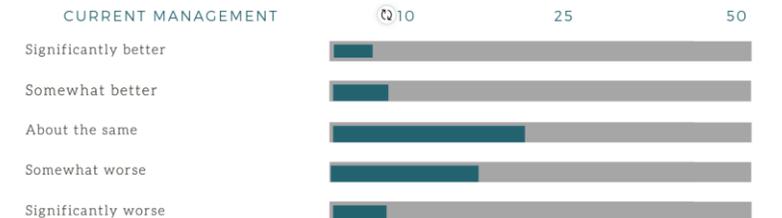
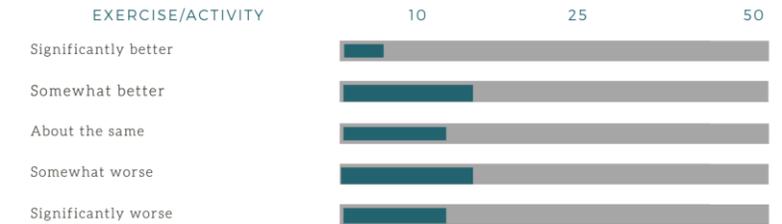
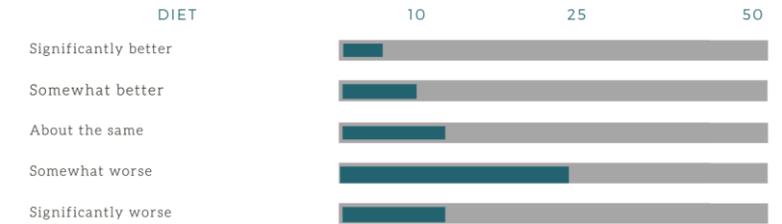
- Significantly better
- Somewhat better
- About the same
- Somewhat worse
- Significantly worse

5. Since the Covid-19 pandemic, how has your smoking frequency changed? (if applicable)

- Significantly increased
- Somewhat increased
- About the same
- Somewhat decreased
- Significantly decreased

Results

- 50% of patients noted that their diet had gotten “somewhat worse”
- 30% of patients noted that they had “somewhat better” exercise habits, while 33% noted that it was “somewhat worse”
- 45% of patients stated that current management of condition(s) was “about the same.”
- 36% of patients state that it was “somewhat worse”



Evaluation of Effectiveness & Limitations

- **Effectiveness**

- 52 intake responses were collected over the course of 2.5 weeks
- Patients were identified by the screening form to select for those with preexisting conditions that would put them at risk of stroke

- **Limitations**

- Sample size was limited due to increase in telehealth visits compared to in-person visits
- Questions were broad given patient time constraints, and did not elicit specific details about lifestyle habits, current plans, or trends in their habits

Future Recommendations

- Collect a larger sample size of patients to track over time and include qualitative data on personal experiences
- Use screening tool consistently with patients with stroke risk to follow up on their lifestyle habits and changes
- Use BMI measurements as a proxy for exercise/activity and track their progress over the course of the year
- Provide informational pamphlet on modifiable stroke risk factors for patient if provider time is limited

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