Lifestyle intervention and cardiac arrhythmia

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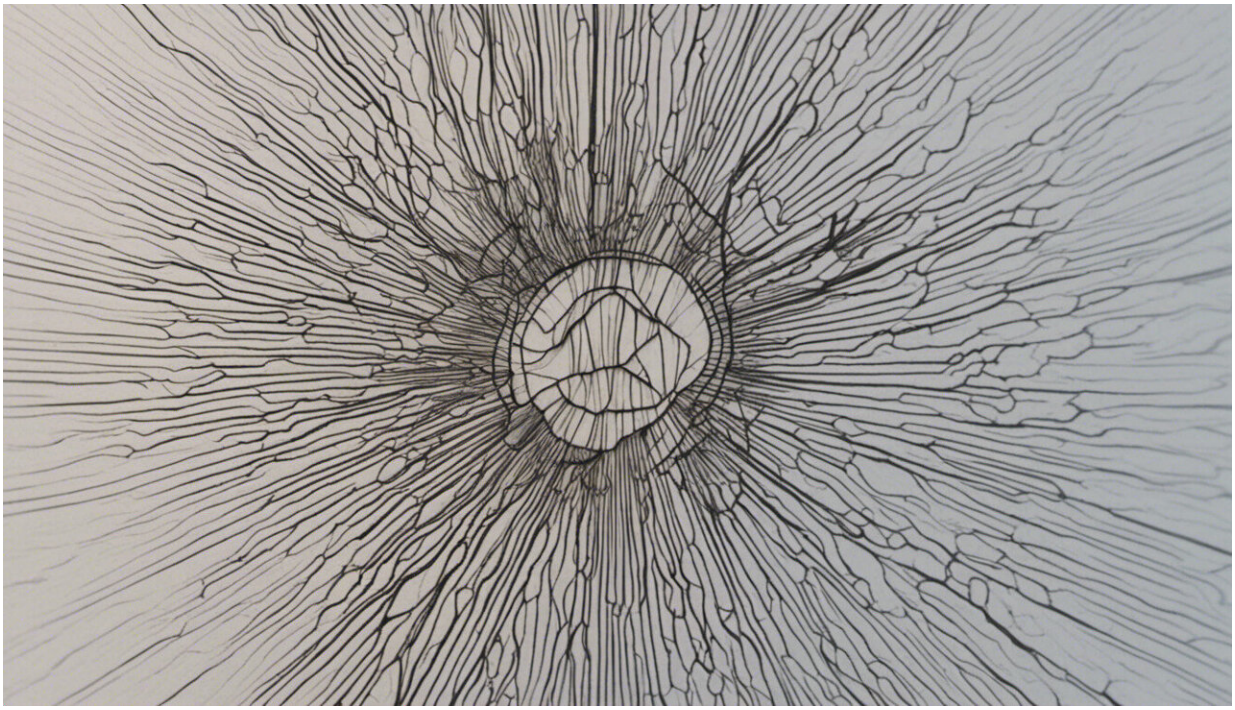

Credit: AI-generated image (disclaimer)

What do George Bush Sr. and Joe Biden have in common?

Both have been diagnosed with an irregular heart beat called atrial fibrillation (AF). This condition affects almost 400,000 Canadians and if untreated may result in a potentially disabling stroke.

A "short circuit" within the top chambers of the heart, it frequently causes palpitations, fatigue and reduced exercise tolerance and often lands people in the hospital.

Although we have been making huge strides in the treatment of this rhythm disturbance with medications and invasive procedures such as catheter ablations, we are now taking a step back to look at the obvious. The condition is much more common in individuals who are overweight, sedentary, have poorly controlled blood pressure, diabetes and obstructive sleep apnea.

And so rather than waiting until the condition progresses to the point where procedures may be required, addressing lifestyle, diet and exercise may actually significantly improve and even reverse symptoms —and the need for further invasive treatment.

Lifestyle risk factors

Having spent years during my career treating this rhythm disturbance with complex procedures using sophisticated equipment (which has its value in appropriate cases), I began to notice the obvious. A significant number of patients had modifiable lifestyle risk factors.

This has resulted in a huge investment in research into this field at Queens University examining the impact of dietary interventions, exercise and psychological interventions in the modification of AF.

Our aim is to design an effective intervention to target established risk factors, which are potentially amenable and even reversible through lifestyle-focused interventions. Our ultimate goal is not only to examine if this improves symptoms, but to assess if these changes can reduce the amount and perhaps even reverse the underlying changes in the heart.

Almost 30 per cent of the Canadian population is obese. This increases the risk of high blood pressure, diabetes mellitus, obstructive sleep apnea and, more recently, AF. All of these risk factors may result in AF, but obesity can also directly affect the heart and increase the risk of rapidly firing electrical currents.

Weight loss critical

One study showed that in obese patients with a body mass index greater than 27, weight loss and treatment of risk factors in patients with AF significantly improved their symptoms to the extent that one third no longer needed procedures.

These findings are exciting but many more questions need to be answered, including:

1. What is the optimal diet?
2. How sustainable are these lifestyle changes?
3. How do we help individuals implement these changes?
4. Can we use technology to help achieve some of these aims?
5. How resource-intensive are these strategies?
6. Can we actually reverse this condition to the extent that we can impact on the risks of the rhythm disturbance?

In many regards, addressing risk factors seems like an obvious strategy to combat AF. Perhaps we have been focused on technology and drugs, and have missed the key issues that need to be addressed. Lifestyle changes are often difficult to initiate and even more difficult to sustain. These are the key issues that we're looking to address.

Our aims: The Big 3

Our research group is examining the implementation of a comprehensive lifestyle modification program for the management of AF. This program will focus on diet, exercise and behavioural therapy —The Big 3.

We hope to study a healthy and sustainable diet while assessing the practicality and cost of the diet, as well as the ability of an individual to maintain it over the time. We are also looking at exercise regimens and their implementation. Yoga with light movements and deep breathing, for example, has been shown to lower blood pressure, heart rate and improve the quality of life in patients with this rhythm disturbance.

As well as symptoms, we're also going to examine structural changes in the heart and whether they can be reversed. This isn't just about changing the body, but also the mind and the way individuals think about themselves and the way they live.

Although this will involve a group of researchers, the ultimate aim will be to create multiple small teams who can reproduce this care across the country.

This is not simple research, but the potential ramifications for Canadians and the country's health-care system are huge.

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