Alberta Health Services

News Release

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Exercise improves hemodialysis, AHS study shows

CALGARY – Patients with kidney failure remove significantly more waste and toxins from their blood when they pedal a stationary bike during hemodialysis, a new Alberta Health Services study shows.

Staff at the Southern Alberta Renal Program studied 31 patients over a three-month period at the Sheldon M. Chumir Health Centre and the South Calgary Health Centre. Findings show patients remove an average of 12 per cent more urea when they pedal during hemodialysis. Urea is a waste product produced when the liver breaks down protein; hemodialysis removes waste and toxins from the blood when the kidneys fail to do so.

This is the first examination of real-time urea removal while exercising during hemodialysis, program nephrologist Dr. Davina Tai says.

“Before exercise, patients would remove urea at a certain rate. Once they started exercising, the rate of urea removal increased significantly,” says Dr. Tai.

“It’s very exciting. Urea removal is related to clearance of other toxins, and we know this is associated with better survival and decreased morbidity (disease) in hemodialysis patients.”

Exercise increases blood flow to the muscles, which also store urea. The blood picks up this urea, which is then removed by hemodialysis. The patients in the study also reported other health gains from the increased exercise, including weight loss and muscle gain.

The Southern Alberta Renal Program has been offering exercise during hemodialysis to its patients at three locations since 2005 (The Lethbridge Dialysis Unit is the third site). Currently, about 100 of the program’s 729 conventional hemodialysis patients – patients who need four-hour treatments three times a week – have chosen to pedal a bike during treatment.

More effective hemodialysis and regular exercise have made a big difference in Ralph Bosomworth’s life. The 87-year-old has required conventional hemodialysis since 2007 and has pedaled a bike during his visits to the South Calgary Health Centre for the past 18 months.

“When I first started, I could only ride for about nine minutes. I’m now up to 40 minutes and riding a lot faster with a lot more tension,” Bosomworth says. “My legs are stronger, I can breathe better and my legs aren’t as stiff. It makes a big difference in the way I feel.”

All patients are assessed to determine if they are safe to exercise, says program kinesiologist Kristen Parker.

“Each day we let the patient decide how they feel and we also check to ensure they are within our guidelines for blood pressure, heart rate and blood work,” Parker says. “We also will defer exercise for a day if the patient missed a previous dialysis session or has had a recent hospitalization.”

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Dr. Tai and Parker will be presenting their findings this month at the Canadian Society of Nephrology annual meeting in Montreal.

About one in 10 Alberta adults, and one in five seniors (age 65 and up), have chronic kidney disease, which is defined as less than 60 per cent of normal kidney function. Dialysis or a kidney transplant is typically required if a patients kidney function is 10 per cent or less.

Alberta Health Services is the provincial health authority responsible for planning and delivering health supports and services for more than 3.7 million adults and children living in Alberta. Its mission is to provide a patient-focused, quality health system that is accessible and sustainable for all Albertans.

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