

When Sweet Turns Sour

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Every five hours in Singapore, there is one person diagnosed with kidney disease who requires dialysis or a kidney transplant. That works out to be about five a day, or over 1,700 new cases a year.¹

This fresh statistic, reported in May 2015, reflects the state of Singapore's diabetic affairs. Our nation ranks fourth on the world scale for the number of kidney failure cases of which 60% are caused by diabetes.¹

Diabetes is a chronic disease that has been on the rise nationwide as well as in many developed countries. If not managed properly, it can lead to many serious complications such as end-stage renal disease. Research has clearly shown that one way to reduce the risk of complications is to control the sugar or glucose level well, particularly in the early stages of diabetes.

Kidneys are the body's trash pickers, filtering 115 to 140 litres of blood every day to remove the waste products of energy production by the body. An early sign of kidney damage as a result of poor diabetes control is the presence of small amounts of blood protein leaking into the urine, also known as microalbuminuria (micro – small, albumin – blood protein, uria – in urine).²

Left uncontrolled, the high glucose levels weaken the kidneys further and the protein leakage worsens. Over time, the kidney function progressively deteriorates finally leading to end-stage kidney failure. At this point, the only treatment options available are dialysis and kidney transplantation.

The ADVANCE study, published in 2008, was a clinical study involving more than 11,000 Type 2 diabetics over a five-year period. The patients were split into two groups. One group was put on a good glucose control regimen involving the use of a gliclazide modified-release diabetic medication. The other group was placed in a less stringent glucose control treatment protocol. At the end of the study, the group with good glucose control had a 21% relative risk reduction in nephropathy or kidney damage.³

From this study, 8,500 patients were later followed up on for another five to six years in the ADVANCE-ON study. During this period, the group that experienced the good glucose continued to reap the benefits, which translated to an almost 50% reduction in end-stage kidney disease. The results were published recently in the September 2014's issue of The New England Journal of Medicine.⁴

So far the results from these and other studies are promising for diabetics. It is heartening to learn that the risk of major complications such as kidney disease can be reduced with proper treatment and appropriate lifestyle interventions.

Diabetes may be a chronic condition, but patients can continue to lead long, healthy and productive lives. This can be achieved with proper treatment with the help of their doctors, nurses, allied health professionals as well as with the support of family and friends.

The ADVANCE-ON study published results showing the reduction in end stage kidney disease in the group with good blood glucose control compared to the group with less stringent blood glucose control. Here is a chart summing up the results.

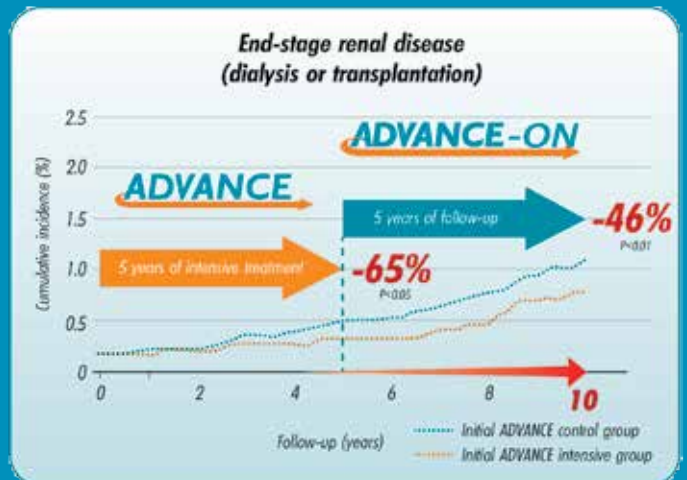


Figure 1. Cumulative incidence of end stage renal disease (%) in the standard control arm versus the intensive arm.

References:

1. <http://www.nkfs.org/kidney-disease/leading-causes-of-kidney-failure/causes-symptoms-and-treatment/>
2. <http://www.diabetes.org/living-with-diabetes/complications/kidney-disease-nephropathy.html>
3. ADVANCE collaborative groups. Intensive Blood Glucose Control and Vascular Outcomes in Patients with Type 2 Diabetes. N Engl J Med 2008;358:2560-72.
4. S. Zoungas et. al. Follow-up of Blood-Pressure Lowering and Glucose Control in Type 2 Diabetes. N Engl J Med 2014;371:1394-1406.

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