Does improved glycemic control lead to a better short-term quality of life in diabetes mellitus type 2?

The long-term benefit of glycemic control in diabetes mellitus is to reduce the risk of complications (e.g., cardiovascular disease, nephropathy, neuropathy). Since these complications are known to reduce (health-related) quality of life (QOL), intensified glycemic control is an important way to reduce risk of complications and improve QOL. However, what is the short-term effect of glycemic control on QOL? In their one-year cohort study of the “Association between glycemic control and quality of life in diabetes mellitus”, Lau et al observed an improvement in mental QOL but not physical QOL following reduction in HbA1c. While one is tempted to infer a cause-effect relationship, it is worthwhile to contemplate on other possible reasons for this finding. Possible explanations include chance, bias, and a non-causative association. Although the p-value of 0.042 is smaller than alpha=0.05, it indicates a 4.2% chance of seeing these results given no association between HbA1c and mental QOL. A larger sample size would resolve this problem. The association may also be due to bias (particularly selection bias). Despite some comparability in patient characteristics between study population and source population, it is still possible that the study population is unrepresentative of all patients. Minimal attrition and not a larger study population would rectify this; integration of QOL measurements into daily practice could also help. A third explanation is a non-causative association. Such an association between change in HbA1c and change in mental QOL is possible, since lifestyle changes and therapy may influence both parameters.

Nevertheless, a causative association may be argued (e.g., based on biological plausibility). The relationship between HbA1c and QOL would not be linear in form but perhaps more an inverted U-curve, where either hypoglycaemia or hyperglycaemia would reduce QOL. Improvement in QOL would likely be greatest in cases of severe hyperglycaemia.

More research is needed to map out the relationship between glycemic control and short-term QOL. As Lau et al suggest, cohort studies would be valuable here. In addition, such research would benefit from a better understanding of possible mechanisms (both biological and psychosocial) for how glycemic control might affect short-term QOL. For example, the lack of association with physical QOL is curious and may be explained in various ways. Adoption of existing models will still require careful consideration of the dynamics of diabetes.

References