Conclusion: The use of a PDSA cycle showed an improvement in quality of care and health outcomes over three years in rural GP practice in WA. Regular reviews of patient health outcomes improved GPs' active management. Failure to reach targets can be addressed for the majority of patients using existing medications and health service support through regular screening and an appropriate clinical response. This study is an example of practical practice-based research that has resulted in active engagement with GPs with excellent results.

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The effects of antioxidants and immunosuppressive agent treatment on oxidative stress and antioxidant systems in thymus during experimental diabetes mellitus

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The effect of taurine, selenium and azathioprine treatment on oxidative stress and antioxidant defense systems was investigated in diabetic-induced rats by daily oral intubations for 90 days. Diabetic rats exhibited an elevation in the levels of plasma glucose, liver glycogen, and erythrocytic lipid peroxides, and a decline in plasma insulin, whole blood glutathione, erythrocytic glutathione peroxidase, and serum glucose-6-phosphate dehydrogenase in comparison with controls. Treatment with antioxidants and an immunosuppressive agent together amended the fluctuations in parameters levels and returned them to normal. Thymus sections from diabetic rats showed marked alterations including shrinkage, and thymocyte depletion, compared to profiles seen in normal animals. Treatment of diabetic rats with either antioxidants or immunosuppressive agent managed to decreases shrinkage, thymocyte depletion and cell deteriorations in the cortex and medulla. Treatment of diabetic rats with both antioxidants and immunosuppressive agent together was more effective. Therefore, oral treatment of both antioxidants and immunosuppressive agent at the time of onset, or soon after the diagnosis of diabetes, could prevent diabetes or at least delay diabetic complications, and stimulate amended profiles in thymus sections.

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Anti-diabetic effects of cytopiloyne in db/db mice and its likely mechanism

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Our previous results reported that cytopiloyne, a polyacetylene isolated from the Bidens pilosa plant, prevented Type 1 diabetes and maintained normal blood glucose and insulin levels in non-obese diabetes mice. The present study was to evaluate the therapeutic effect of cytopiloyne on Type 2 diabetes in db/db mice. We found that a single oral dose of cytopiloyne could decrease blood glucose and increase serum insulin levels in db/db mice. Accordingly, long-term treatment with cytopiloyne could lower postprandial glucose, increase blood insulin, improve glucose tolerance, reduce glycosylated hemoglobin A1c (HbA1c) and preserve islet architecture in these mice. Mechanism studies suggest that cytopiloyne is beneficial in Type 2 diabetes in db/db mice as it increases insulin secretion and expression in pancreatic islet cells and decreases islet destruction. In addition, cytopiloyne did not induce adipogenesis in 3T3-L1 adipocytes. Overall, our results show that cytopiloyne may be a valuable candidate for a novel anti-diabetic agent.