Prediction and pathogenesis in type 1 diabetes.

Abstract:
A combination of genetic and immunological features is useful for prediction of autoimmune diabetes. Patterns of immune response correspond to the progression from a preclinical phase of disease to end-stage islet damage, with biomarkers indicating transition from susceptibility to active autoimmunity, and to a final loss of immune regulation. Here, we review the markers that provide evidence for immunological checkpoint failure and that also provide tools for assessment of individualized disease risk. When viewed in the context of genetic variation that influences immune response thresholds, progression from susceptibility to overt disease displays predictable modalities of clinical presentation resulting from a sequential series of failed homeostatic checkpoints for selection and activation of immunity.