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Stanley Schwartz

University of Pennsylvania, USA

A unified pathophysiologic construct of diabetes and its complications, including malignancies, in the context of the B-cell classification of diabetes

We have previously presented a proposal for a new, beta-cell centric classification of diabetes based on a consilience of genetic, metabolic, and clinical research that have accrued since the current classification was instituted. It recognizes that the beta-cell is the core defect in all patients with diabetes. Differences in the genetics, insulin resistance, environment and inflammation/immune characteristics of the damage to the beta-cell in each individual will determine the phenotypic presentation of hyperglycemia and allow for a patient-centric, precision-medicine therapeutic approach, part of which we labeled 'the Egregious Eleven'. We, now recognize the same pathophysiologic mechanisms that account for damage to the beta-cells govern the susceptibility of the cells involved in the complications of diabetes to damage by the now well-defined abnormal metabolic environment that typifies beta-cell dysfunction. This abnormal metabolic environment is typified by oxidative stress which alters metabolic pathways a la Brownlee's Hypothesis model, alterations in gene expression, epigenetics and inflammation. This unified pathophysiologic approach to the complications of diabetes in the context of the b-cell-classification of diabetes allows us to understand the varied risk of developing complications of diabetes with similar levels of glycemic control, how non-glycemic effects of some medications for diabetes result in marked complication risk modification and the value treating co-morbidities of diabetes in effecting complication risk. We also believe that the same pathophysiologic mechanism that account for damage to the beta-cells and govern the susceptibility of the cells involved in the complications of diabetes are likely to explain the association of cancer to diabetes and obesity and explains why diabetic medications may affect cancer risk and therapy.

Biography

Stanley Schwartz is an Emeritus Associate Professor of Medicine at the University of Pennsylvania. He has trained at the University of Chicago and University of Pennsylvania. He actively lectures nationally, as well as internationally, about diabetes and its treatment. He has authored numerous articles in peer-reviewed scientific journals and has been a lead or co-investigator for many clinical trials (DCCT-EDIC, LOOK AHEAD). He has created a call for minimizing hypoglycemia in hospitals using incretins, and minimizing insulin use in 'Type 2 'DM. He has proposed a new classification and unified pathophysiologic construct for all diabetes. He has been elected by his peers for inclusion in Best Doctors in America® from 1996 to 2017. Though he does some research and teaches a great deal, most of his time is spent caring for patients.

stschwar@gmail.com

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