Patients with type 2 diabetes have an increased risk for developing symptoms of heart failure. These can be accompanied by a reduction of left ventricular ejection fraction (HFREF, systolic heart failure) or by a preserved function (HFPEF, diastolic heart failure). The pathophysiology of both entities is distinct and involves impairment of myocardial metabolism and coronary circulation alike. Although diabetes and heart failure often coincide, the management of these patients particularly with respect to the specific benefits or possible hazards of antidiabetic treatment is vague. Therefore, from a pathophysiological as well as clinical viewpoint, 1) diabetic patients with symptoms of heart failure have to be differentiated regarding systolic as well as diastolic left ventricular function by echocardiography and tissue doppler imaging. 2) Heart failure in diabetic patients needs similar attention due to a prognosis and interactions. 3) Optimized blood glucose lowering in combination with improvement of other cardiovascular risk factors is evident for HFREF and is assumed to be beneficial for HFPEF. 4) Antidiabetic medication has to be specifically adapted for both entities. As prospective, controlled studies are scarce, future interventional studies should specifically focus on clinical outcome in diabetic patients with different entities of heart failure.