Heart Failure and Type-2 Diabetes

Overview
Heart failure (HF) is a life-threatening and prevalent disease that affects ~64 million people worldwide.1 One in five people in developed countries will develop the condition during the course of their life.2 It is commonly linked to those living with type-2 diabetes (T2D).3 People with T2D have a 2-to-5 times greater risk of HF plus increased risk of a heart attack or stroke.4

Disease Burden
For people living with T2D, HF impacts their quality of life and overall health outcome.4 It is the leading cause of hospitalisation for those over the age of 65 and represents a significant clinical and economic burden.5 Here are some facts:

- Patients hospitalised with HF have the highest rate of early readmission following discharge.6
- By 5 years after a T2D diagnosis, 18% (two-thirds) of patients have evidence of left ventricle (LV) dysfunction, often leading to HF.7,8
- HF causes between ~10% to 28% of deaths in adults with cardiovascular disease, worldwide.4

The Heart & Ejection Fraction
A healthy heart beats about 60 to 80 times per minute to pump blood. Blood passes through a valve before leaving each chamber of the heart. Ejection fraction (EF) is a measurement, expressed as a percentage, of how much blood the LV pumps out with each contraction.9

HF-EF occurs when the LV is not able to contract adequately and, therefore, expels less oxygen rich blood into the body.10,11

HFpEF occurs when the LV does not relax normally, often due to stiffening of the heart. As a result, LV ejection fraction is preserved but the total volume of blood pumping through the heart is decreased – resulting in symptoms of pulmonary and systemic venous congestion.12,13

Types of Heart Failure
There are two main categories of HF related to EF: reduced ejection fraction (HFrEF) and preserved ejection fraction (HFpEF).14

- Reduced EF (HFrEF) occurs when the LV muscle is not able to work normally due to various causes (myocardial infarction, high blood pressure etc.).
- Preserved EF (HFpEF) occurs when the LV does not relax normally, often due to stiffening of the heart.

Impact of Heart Failure
HF is dramatically increasing with an aging population.13

HF remains as “malignant” as some of the most common cancers in both men (prostate and bladder cancers) and women (colorectal and breast cancers).15

Heart failure is the most common first presentation of T2D-related cardiovascular (CV) event, more than heart attack (myocardial infarction) or stroke.14

About AstraZeneca in Cardiovascular, Renal & Metabolism (CVRM)
Cardiovascular, renal and metabolism together form one of AstraZeneca’s main therapy areas and a key growth driver for the Company. By following the science to understand more clearly the underlying links between the heart, kidneys and pancreas, AstraZeneca is investing in a portfolio of medicines to protect organs and improve outcomes by slowing disease progression, reducing risks and tackling co-morbidities.

Our ambition is to modify or halt the natural course of CVRM diseases and potentially regenerate organs and restore function, by continuing to deliver transformative science that improves treatment practices and cardiovascular health for millions of patients worldwide.

References