**THYROID HORMONE DYSFUNCTION AND HEART FAILURE: FEAR OF OVERTREATMENT MAY BE CAUSING HARM**

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Growing evidence from human and animal studies suggests that low cardiac thyroid hormone (TH) function may be present in many individuals with heart disease, particularly those with heart failure (HF). Animal studies show that myocardial infarction and hypertension actually promote cardiac tissue hypothyroidism by induction of D3 deiodinases. Importantly, chronic hypothyroidism in rats eventually leads to dilated HF with maladaptive changes in myocyte shape and small resistance vessels. Many clinical studies show an inverse relationship between TH function and poor outcomes in cardiac patients. Regarding changes in cardiac function, it is difficult to distinguish between HF from hypothyroidism and HF of other etiologies. Is it possible that a treatable tissue hormone imbalance that by itself causes HF may be present in most heart patients? Is it time to re-evaluate our current aversion to the use of THs in cardiac patients? This position has largely been driven by a 40 year old poorly conducted, and incorrectly interpreted, clinical study showing that TH overdosing leads to increased arrhythmias. While it is clear that hyperthyroidism may lead to increases arrhythmias, it is less appreciated that low TH function, more likely in HF patients, also promotes arrhythmias. Many short term studies have shown safety and benefits from TH treatment in HF patients, including improved LV function and neurohormonal profile. No adverse side effects have been observed when therapeutic doses were administered. Clearly, more research is needed to determine if TH treatment of HF can be done safely and lead to improved outcomes.