
Worsening Heart Disease Because of Global Warming



A new study reports that during the 2019 heatwave, hot temperatures were linked with weight loss in heart failure patients, indicating a worsening of their condition. The study is published in *ESC Heart Failure*.

This is the first study to show a relationship between ambient temperature and body weight in heart failure patients. The weight loss in these patients can lead to low blood pressure and renal failure. This could be potentially life-threatening for heart failure patients. As temperatures continue to rise, clinicians and patients may need to reduce the dose of diuretics in case of weight loss.

The heart does not pump blood around the body as it should in patients with heart failure. As a result, there is an accumulation of waste products which causes shortness of breath and fluid build-up in the lungs, legs and abdomen. Weight is an important factor that is monitored in these patients. Weight gain can be related to congestion, which is a primary reason for hospital admission. Diuretics are used in heart failure patients to increase urine output and reduce breathlessness and swelling. ESC guidelines recommend educating patients to increase their diuretic dose or inform their doctor if there is an increase in breathlessness or swelling or a weight gain of more than 2 kg in three days. So far, weight loss has not received the same attention in this patient population.

In this study, the authors hypothesised that the body weight of patients with heart failure could change during a heatwave. People tend to drink more fluids in hot weather. But when healthy people do this, their body automatically regulates urine output. This is not the case with heart failure patients because they take diuretics.

The study examined the relationship between body weight and air temperature and covered the two heatwaves at the end of June and July 2019. One thousand four hundred and twenty patients with chronic heart failure were included in the analysis. The median age was 73 years, and the average weight was 78 kg. Information on weight and symptoms was obtained remotely through a telemonitoring system. Patients weighed themselves daily using a weighing scale that automatically sent measurements to the clinic. They also reported daily symptoms such as oedema, fatigue, breathlessness and cough by answering questions on a personal device. In addition, daily temperatures were obtained using data from the closest weather station to each patient's home.

The association between weight, ambient temperature on the same day, and temperature two days before weight measurement was analysed. Findings show a very strong relationship between temperature and weight, with weight decreasing as temperatures increased. The strongest relationship between weight and temperature was found with temperatures two days before weight measurement.

According to the authors, the weight loss observed during the heatwave is clinically relevant as patients lost 1.5 kg quickly. The researchers expected the opposite effect, and the telemonitoring systems were programmed to alert clinicians in case of a weight gain. However, the findings show weight loss. Hence, clinicians need to monitor weight loss in heart failure patients, given the expectation of more heat waves. In addition, systems should notify patients losing weight that it could be due to the heat. They should consult their healthcare providers and discuss the possibility of reducing the dose of diuretics. As recommended by the study authors, a rule of thumb is to contact a healthcare provider if the weight drops by 2 kg during a heatwave, as early intervention could prevent future complications.

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