# Heat stroke and cardiovascular disease drugs

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Madam, Pakistan has repeatedly been victim to heat waves resulting in increased mortality and morbidity to heat strokes. The recent heat wave saw temperatures soaring to as high as 49 degrees Celsius in some parts of the country.[1]

The increased temperatures combined with presence of dehydration in individuals can have devastating effects on the population making precautionary measures extremely important. While awareness regarding several heat wave prevention measures have been raised, some measures have yet to be properly highlighted.

Cardiovascular diseases (CVD) are highly prevalent in the country estimated to be responsible for around 200,000 deaths each year resulting from them.[2] This has led to a rise in cardiovascular ailments. As a result, the number of individuals taking medications for the treatment and management of heart-related illnesses is also high. Awareness regarding the possible roles of these drugs in increasing susceptibility to heat stroke is imperative. Drugs prescribed for CVD that could increase susceptibility through various mechanisms include Angiotensin Converting Enzyme (ACE) inhibitors, angiotensin receptor blockers (ARBs), diuretics, nitrates, beta blockers and calcium channel blockers.[3]

The possible mechanisms by which these drugs may work to increase the chances of heat stroke are: Diuretics, which work by removing excess fluid from the body, which in already dehydrated individuals could result in more severe forms of dehydration. Electrolyte imbalances causing hyponatraemia, commonly associated with Hydrochlorothiazide and Furosemide, could result from decreased clearance of drugs and other metabolites due to reduced blood flow to the kidneys and liver.[3] Blood pressure-lowering drugs could result in hypotension when combined with low blood volume in dehydrated individuals, resulting in increased chances of fainting and/or falls.[4]

No proper guideline has been laid out to regulate dosing during heat waves because very few studies have assessed the independent role of different CV drugs in the context of exposure to different climatic conditions. Some reports suggest antiplatelet medication use was associated with a 63% increase in risk and beta-blockers with a 65% increase. People taking both drugs had a 75% higher risk.[5] Thus, it is imperative to advise and incorporate precautionary steps into clinical practice.

Patients prescribed these drugs should be closely monitored with frequent scheduled visits and advised to avoid heat exposure as much as possible during these times. As the elderly are most at risk due to decreased thermoregulation ability of their bodies and increased prevalence of consumption of these drugs, their families should also be consulted regarding the risks and appropriate measures to take.

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