



Concerns raised about digoxin safety

A drug commonly used to treat heart failure could be associated with an increased risk of death in certain patient groups.

KAIMRC researchers have shown that a drug, commonly used to treat various types of heart failure, appears to increase mortality risk in certain groups of patients when it is used in place of current guideline-recommended treatments.

Digoxin is used extensively in combination with other medications in the treatment of heart failure, and is often prescribed to patients with atrial fibrillation — a kind of irregular heartbeat — to help slow and stabilize their heart rate. However, concerns have recently been raised about potentially harmful effects of digoxin, with research pointing to an association between digoxin and increased chances of death under certain circumstances.

“Many patients are still regularly using this medication for heart failure or irregular heartbeat,” says KAIMRC’s Mouaz Al-Mallah, who led the study with colleagues from the King Abdulaziz Cardiac Center. “However, digoxin has a narrow therapeutic window and as a result it can easily reach toxic levels in the body. We were keen

to establish the long-term effects of taking digoxin, and to determine which patient groups might be at risk of any potential ill-effects.”

77%
Researchers found that digoxin use was associated with a 77% higher risk of mortality

Al-Mallah’s team conducted a retrospective study of 2,298 patients seen at the heart failure clinic at the Ministry of National Guard-Health Affairs in Riyadh between 2000 and 2015. All the patients received appropriate treatment as outlined by current guidelines. The team matched 325 digoxin users with 750 non-digoxin users, making sure that considerations such as clinical variables and demographics were matched as closely as possible between individuals in each group. This helped to

limit other factors influencing the patients’ health, and allowed the team to achieve a meaningful analysis of the effects of digoxin.

The researchers followed up patients two to six years after they commenced digoxin treatment. They found that digoxin use was associated with a 77% higher risk of mortality, mostly in digoxin users who did not suffer from atrial fibrillation.

“We’ll investigate whether digoxin can still be helpful in certain subgroups of patients, but we believe digoxin users should be closely monitored for side-effects and switched to other safer drugs as soon as clinically possible,” says Al-Mallah. “We also hope to verify if the digoxin-associated increase in mortality can be prevented if the levels are closely monitored and are kept within a therapeutic range.”

Al-Khateeb, Qureshi, M. W., Odeh, R., Ahmed, A. M., Sakr, S. et al. The impact of digoxin on mortality in patients with chronic systolic heart failure: A propensity-matched cohort study. *The International Journal of Cardiology* **228**, 214–218 (2017).

Researchers at KAIMRC have shown that the commonly used drug digoxin, used to treat heart failure and irregular heartbeat, is linked with increased risk of mortality in certain patient groups.