Reducing Door-to-Balloon Time, Is It Really True Answer?

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The duration of total ischemic time is directly related to myocardial damage and mortality in the setting of ST-elevation myocardial infarction (STEMI). Rapidly restoring myocardial blood flow to limit the total ischemic time is a priority. The time duration between a patient entering the medical system and being treated with percutaneous coronary intervention to open the occluded culprit vessel is termed door-to-balloon (DTB) time, which is publicly reported and used to judge hospital quality of care. DTB time predicts survival in patients with STEMI undergoing primary percutaneous coronary intervention. This relation has been thought to be causal, supported by studies in animals and observational evidence indicating that shorter times to reperfusion are linked to decreased myocardial damage and mortality. As a result, clinical guidelines (ACC and AHA) and national quality initiatives in the past decade have focused on shortening DTB times. Yet some studies have reported that contemporary decreases in annual DTB times have not been associated with temporal improvements in mortality in the population of patients undergoing primary percutaneous coronary intervention. These results could be caused that DTB fails to consider the substantial duration of myocardial ischemia that exists prior to hospital arrival, and the large number of deaths that occur during the prehospital period. In addition, recent data suggested that total ischemic time was a better predictor than DTB time for 30-day mortality and infarct size in STEMI patients. These findings suggest that the focus of STEMI care should be directed at early initiation of therapy and minimizing total ischemic time rather than on DTB time alone. The potential impact of total ischemic time reporting in current STEMI registries merits further consideration.