A Quality Improvement Project to Reduce Door to Balloon Times for Primary STEMI Patients

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Abstract

Delays in primary percutaneous coronary intervention (D2B Time) correlate strongly with increased mortality in STEMI patients. Our initial audit (N=38) showed we were making a systematic error with a mean D2B time of 109.36 minutes and compliance of 27.78%, with the (≤90-minute aim) explained largely by inefficient communication systems, staff education and logistical priority. Aim: To reduce mean D2B time (to ≤90 minutes) and increase compliance (to >75%) over four months. Two PDSA cycles were conducted using evidence-based interventions, including the SBAR Handover Protocol, targeted staff education, and the Red Tag Priority System. The analysis was performed on N=96 consecutive STEMI patients (N=38 pre-implant, N=58 post-implant). After implementation, mean D2B time dropped significantly to 64 minutes from 109.36 minutes (Δ45 minutes), and compliance rose to 82.41%, attaining the SMART target. Process analysis confirmed that the greatest time savings were achieved in the intervals from ECG to Cardiology Review (32 minutes to 13 minutes) and from Cardiology Review to Cath Lab Arrival (32 minutes to 16 minutes). This trainee-led Quality Improvement project used standardised communication and priority systems (SBAR, Red Tag) to correct systematic errors and achieve considerable clinical improvement. The revised pathway is now the departmental Standard Operating Procedure, with subsequent PDSA cycles planned to achieve digital automisation that will further reduce activation delays.

Keywords

Door to Balloon Time, STEMI, Quality Improvement, SBAR, Percutaneous coronary interventions, PDSA.