

The paradox of invasive therapy following non-ST-acute coronary syndrome in older higher risk patients: A population level study in South Wales 2000-2014

Proty, Majd¹, Lacey, Arron², Smith, Dave³, and Freeman, Phillip^{4,5*}

¹Royal Gwent Hospital

²Swansea University

³Morrison Hospital, Swansea

⁴Cardiff University

⁵Aalborg University Hospital

Objectives

Following non-ST-elevation acute coronary syndrome (NSTEMI), patients are treated with medication and considered for invasive therapy and revascularization. Mortality for this whole population is high in the first year with multiple studies suggesting anything from 4% to 10%. However, the risk of death after the first year has a wide distribution amongst the whole population with a much higher risk in older patients. We will highlight that decisions to revascularise are predominantly focused on a younger lower risk population with smaller improvements in outcome. Older, higher risk patients frequently do not receive invasive therapy despite the potential to benefit the most. However, the evidence base for using invasive therapy in this group is poor overall. With the use of data linkage from a novel national NSTEMI registry dataset we aim to clarify the influence of invasive therapy on this group in terms of adjusted mortality, reinfarction, re-admission with ischaemia, stroke and major bleeding.

Approach

All patients over a 14-year period in south Wales with a first diagnosis of NSTEMI and treated either medically or invasively. Cohorts identified by a combination of ICD-10 codes, operation codes, and linkage to coronary angiography data. Extraction of cohorts validated externally using novel national NSTEMI registry data. Multivariate analysis of baseline-characteristics for understanding how these factors influence treatment decisions. Propensity matching between medical cohorts and invasive cohorts to show the corrected effect of invasive vs. medical therapy.

Results

Total population 83,712 from 2000 until 2015. With 23,670 patients invasive therapy, 57,042 medical therapy. Invasive therapy was common in the 65-69 age groups and below but the proportion was never more than 50%. Above 65-69 exponential decline in invasive therapy, 75-79 (24.4%) 80-84 (14.7%) and 85-89 (6.5%). Unadjusted mortality revealed highly significant improvements in survival for the invasively treated patients in all age groups but with large increases as age increased. Adjusted and matched results to follow.

Conclusion

Initial results suggest increasing age and cardiovascular risk is associated with much higher mortality at one year and beyond. Older higher risk patients have very low rates of invasive revascularization but appear to have more to gain from this approach (than younger, lower risk patients), in terms of mortality and morbidity. In the older higher risk population these results suggest that increased frequency of invasive therapy will lead to reduced short and long term mortality, reduced hospital readmission with less frequent development of heart failure and reinfarction.

*Corresponding Author:

Email Address: phillip@fischerfreeman.com (P. Freeman)

