Management of acute ischaemic heart disease:
Aspirin for high-risk chest pain
(DCP4 ID: CVD04-01)
Cluster: Cardiovascular & related disorders

FairChoices
DCP Analytic Tool

Aspirin for all high-risk chest pain

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Description of condition and intervention

Chest pain can be caused by difficulties in lungs, oesophagus or throat, muscles, ribs, and nerves. The aspirin therapy is the most effective to treat or prevent this health problem for the patients at high-risk chest pain. This treatment helps to prevent the forming of blood clots, and heart attack. The patient with this health problem would receive at least 162 to 325 mg dose of non-enteric coated chewable aspirin. In this evidence brief, we present the effect and cost of the following intervention being analysed in FairChoices:DCP Analytical tool:

Aspirin for all high-risk chest pain

International guidelines

Organization	Indications/recommendations
UK, 2021	Summary of UK guidelines for aspirin

Source: https://cks.nice.org.uk/topics/antiplatelet-treatment/

Intervention attributes

Type of interventions

Curative

Delivery platform

This intervention may be delivered at referral and speciality hospital.

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Equity

In addition to considerations like cost-effectiveness and health systems factors, dimensions of equity can be relevant for priority setting. The opportunity for a long and healthy life varies according to the severity of a health condition that individuals might have, so there are inequities in individuals' opportunities for long and healthy lives based on the health conditions they face. Metrics used to estimate the severity of illness at an individual level can be used to help prioritize those with less opportunity for lifetime health. FairChoices: DCP Analytics Tool uses Health adjusted age of death (HAAD), which is a metric that estimates the number of years lived from birth to death, discounting years lived with disability. A high HAAD thus represents a disease less severe in terms of lifetime health loss, while a low HAAD represents a disease that is severe on average, causing early death or a long period of severe disability. It is also possible to estimate the distribution of HAAD across individuals with a health condition. FairChoices shows for each intervention an average HAAD value of the conditions that are affected by respective interventions that have health effects. Additionally, a plot shows HAAD values for around 290 conditions (Johansson KA et al 2020).

Time dependence

Moderate level of urgency. Treatment outcomes not highly affected by some days of delay.

Population in need of interventions

The population in need consists of 0.5% of all adults aged 40 to 99 years. (Hoorweg et al 2017) for whom chest pain is considered as a main reason for consulting the physician.

Affected population consists of individuals aged 40 to 99 years, both genders.

Disease state addressed

This intervention targets ischaemic heart disease.

Intervention effect and safety

Table 1: Effect and safety of aspirin for high-risk chest pain

Effect of intervention		Certainty of evidence
Mortality (due to condition)	The effect on 28-day mortality of aspirin on acute MI is 22% (Tolla 2016). Assuming approximately 37% of IHD deaths are from acute MI, the mortality reduction for this intervention is 0.22*0.37 = 0.081	See appendix

Model assumptions

Table 2: Summary of model parameters and values used in FairChoices – DCP Analytical Tool

Category	Model parameter	Notes
Intervention	Aspirin for high-risk chest pain	
Cost calculation		
Treated population	Based on prevalence of ischaemic heart disease	Global Burden of Disease Study 2019
Gender	Both male & female	
Age	40-99 years	
Treated fraction	0.005	
Effect calculation		
Affected population	Those with condition	
Affected gender	Both male & female	
Affected fraction age	40 to 99 years	
Affected fraction	37% of IHD deaths are attributable to acute myocardial infraction	Based on rates in England from 1981-1983 (Rahimi K et al 2015)
Comparison	No intervention	
Mortality Reduction (RRR)	0.081	Tolla 2016, Rahimi K et al 2015

Intervention cost

The cost of aspirin (MSH prices for 1 dose of 325mg aspirin/acetylsalicylic acid $0.039) plus 10 min of provider time using level 4 provider from the WHO salary data (population weighted mean monthly wage = $1.090 USD).

References

Johansson KA et al 2020: Johansson KA, Coates MM, Økland JM, Tsuchiya A, Bukhman G, Norheim OF, Haaland Ø. Health by disease categories. Distributional Cost-Effectiveness Analysis: Quantifying Health Equity Impacts and Trade-Offs. 2020 Sep 30:105.

Hoorweg et al 2017: Hoorweg BB, Willemsen RT, Cleef LE, et al. Frequency of chest pain in primary care, diagnostic tests performed and final diagnoses. Heart 2017; 103: 1727–32.

Tolla et al 2016: Tolla et al. Prevention and treatment of cardiovascular disease in Ethiopia:a cost-effectiveness analysis. Cost Eff Resour Alloc. 2016. 14:10

Rahimi K, Duncan M, Pitcher A, Emdin CA, Goldacre MJ. Mortality from heart failure, acute myocardial infarction and other ischaemic heart disease in England and Oxford: a trend study of multiple-cause-coded death certification. J Epidemiol Community Health 2015; 69: 1000–5.

Appendix

Literature Review for effectiveness & safety

This literature search is an example of Level 1 search for intervention inputs taken from DCP3 or generated in an ad hoc manner (e.g., quick google search found one study of cervical cancer screening cost-effectiveness that was used to create an effectiveness parameter for that intervention).

Level of evidence of efficacy studies:

1. low (expert opinions, case series, reports, low-quality case control studies)
2. moderate (high quality case control studies, low quality cohort studies)
3. high (high quality cohort studies, individual RCTs)
4. very high (multiple RCTs, metaanalysis, systematic review, clinical practice guidelines)