EFFECTIVENESS Matters

ASPIRIN AND MYOCARDIAL INFARCTION

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Aspirin as emergency therapy

- Aspirin is an effective therapy in patients with acute myocardial infarction.
- Patients with suspected acute myocardial infarction should receive 150mg aspirin daily.
- There are very few contraindications for the immediate use of aspirin.

Details p2

Intravenous thrombolytic therapy

- Intravenous thrombolytic therapy is also effective in suitable patients.
- The benefit of thrombolysis reduces as the time from onset of symptoms increases.
- In patients with acute myocardial infarction, combining thrombolysis and aspirin is more effective than using either therapy alone
- Local guidelines on ensuring rapid access to treatment should be developed and implemented.

Details p3

Long-term use of aspirin

- Aspirin protects patients with a history of cardiovascular disease from fatal and non fatal myocardial infarction and stroke.

Details p3

Effectiveness Matters is an update on the effectiveness of important health interventions for practitioners and decision makers in the NHS. It is produced by researchers at the NHS Centre for Reviews and Dissemination at the University of York, in collaboration with subject area experts. ***Effectiveness Matters*** is extensively peer reviewed.

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ASPIRIN AND SUSPECTED ACUTE MYOCARDIAL INFARCTION[1,2]

Mortality is reduced significantly by starting aspirin (150mg daily) promptly after suspected myocardial infarction. Reliable evidence for this benefit comes from clinical trials involving nearly 20,000 patients. [1,2]

This improvement applies to all groups of patients with suspected myocardial infarction. Treatment may be initiated with confidence regardless of age, sex, diagnosis of diabetes or hypertension. Aspirin is so beneficial, and the risks so minimal, it may be given to almost all patients who might be having a myocardial infarction.

Main benefits

- Subsequent myocardial infarctions, strokes or vascular deaths are reduced by about one quarter.
- Deaths from any cause are reduced by about one fifth.
- Among 1,000 patients with acute myocardial infarction, about 40 deaths, myocardial infarctions or strokes will be prevented with aspirin treatment during the first month. About 40 more will be prevented in the next couple of years.
- For every 40 patients with suspected acute myocardial infarction who are treated promptly with aspirin, one early vascular death will be prevented.
- Aspirin is easy to administer.

Main contraindications

- Known hypersensitivity to aspirin.
- Active (ie symptomatic) peptic ulcer.
- Haemophilia and other bleeding disorders.
- Treatment with warfarin or other anticoagulants.

NB: Past history of gastro-intestinal disease is not necessarily a contraindication for aspirin therapy.

Other therapies

A number of other antiplatelet therapeutic agents are available but their benefit has not been as well proven. The majority of well-conducted randomised controlled trials examine the efficacy of aspirin for which there is little risk of adverse side effects.

Conclusion

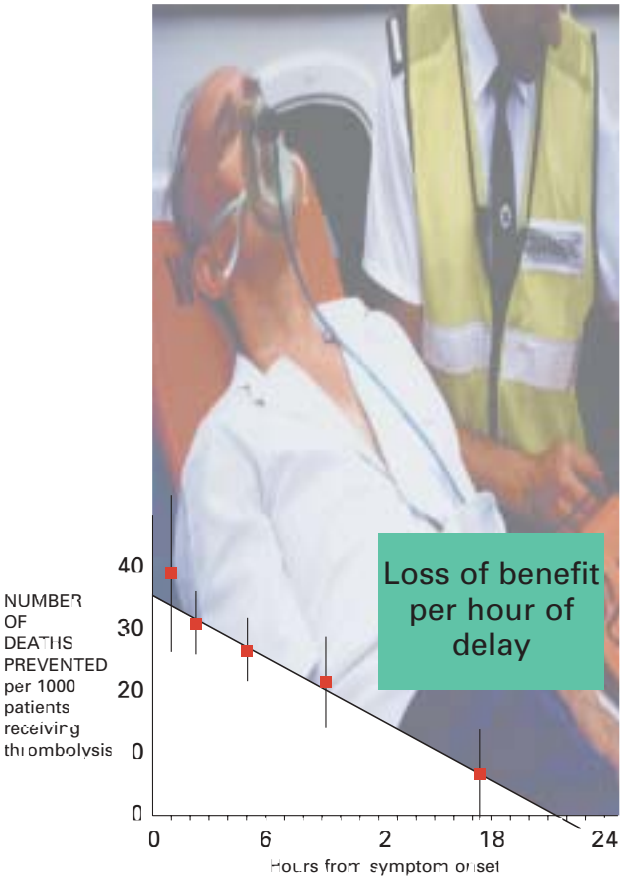
Aspirin therapy should be started promptly as soon as myocardial infarction is suspected and if confirmed, should be continued as long term therapy.

INTRAVENOUS THROMBOLYTIC THERAPY[2,3]

Prompt intravenous thrombolytic therapy benefits most patients with acute myocardial infarction. This benefit declines as the delay increases between the onset of symptoms and the start of treatment. Patients with suspected myocardial infarction should be rapidly admitted to a facility equipped for suitable investigation and treatment.

Intravenous thrombolytic therapy administered soon after myocardial infarction reduces deaths or significant complications by about one fifth in patients with ST elevation or bundle-branch block.

Benefits are greatest when there is only a short delay between the onset of symptoms and treatment (see figure).



Thrombolysis therapy produces substantial benefits in the treatment of myocardial infarction (shown here as reduction in death). These benefits decrease rapidly as the time from the onset of symptoms increases.[3]

Significant advantage remains for up to about 12 hours after the onset of symptoms.

Suitable patients with acute myocardial infarction, who receive aspirin and intravenous thrombolytic therapy, benefit from both treatments. Results from one of the largest trials[2], showed that in those who receive neither treatment, the risk of death in the five weeks following

myocardial infarction was 132 per 1000. In patients treated with both aspirin and thrombolytic therapy the risk was 80 per 1000 - a decrease of 40 per cent.

In other words...

...for every 15 patients with acute myocardial infarction, who are treated promptly with aspirin and receive thrombolysis within four hours of the onset of symptoms, one early vascular death will be prevented.

LONG-TERM USE OF ASPIRIN[1]

Long-term medium dose aspirin therapy (75-325mg/day) protects against myocardial infarction, stroke or vascular death in those patients at high risk of vascular disease. Aspirin is effective among such patients at any age.

High risk patients

Those with a history of:

- unstable angina;
- previous myocardial infarction;
- angina;
- stroke;
- transient ischaemic attack;
- arterial bypass surgery or angioplasty.

How aspirin therapy reduces risk of MI, stroke or vascular death

Patient history	Approximate Reduction
Previous myocardial infarction	25 per cent
Previous stroke / transient ischaemic attack	22 per cent
Unstable angina	33 per cent
Stable angina, vascular surgery, angioplasty, atrial fibrillation, valvular disease, peripheral vascular disease	20 per cent
Low risk of heart disease or stroke	Unproven*

*There is insufficient evidence to support the use of aspirin therapy for primary prevention among patients at lower risk of myocardial infarction, stroke or vascular death ie normal individuals with no history of heart disease or stroke.

The considerable evidence of the effectiveness of aspirin therapy, together with its low cost, makes it the routine first-line choice in the majority of patients. Other antiplatelet agents may be indicated in patients with poor tolerance or hypersensitivity.

Compliance may be improved when patients are informed that aspirin is being given for its antiplatelet properties, rather than as a pain killer.

For every 86 patients at high risk of myocardial infarction, who receive aspirin for around two years, one death will be prevented.

POLICY Recommendations

Rapid access to appropriate treatment may be ensured through the development and implementation of a district wide strategy.

The local strategy should reflect the strong evidence base, summarised in this document, and local circumstances.

Adequate resources should be made available to support clearly defined roles for: GPs; ambulance crews; nurses; hospital doctors.

Premature death will be prevented if clinicians (particularly in primary care) identify all their high risk patients, and initiate aspirin therapy.

NHS CENTRE FOR REVIEWS AND DISSEMINATION

Those delivering care, managing the service or making health care policy may find it difficult to keep up with best research because:

- it is dispersed over many types of publications;
- it varies greatly in quality and reliability;
- it becomes outdated rapidly;
- it may be inconsistently indexed and recorded.

This can mean that much activity in the NHS is not supported by research. Treatments may be initiated or continued even though there is little evidence to support their effectiveness.

The NHS Centre for Reviews and Dissemination (CRD) was recently established to provide the NHS with information on the effectiveness of treatments and the delivery and organisation of health care.

The Centre carries out this role in three main ways.

1. It conducts or commissions systematic reviews of the results of good quality health research.

2. It maintains databases of such reviews and of economic evaluations of health care.

3. It disseminate the results of systematic reviews to the NHS in order to promote awareness and use of the results.

Within the NHS research and development programme, the CRD is the sibling organisation of the UK Cochrane Centre. This is part of an international network - ***the Cochrane Collaboration*** - committed to preparing, maintaining and disseminating systematic reviews of research on the effects of health care. The CRD will play an important role in disseminating the results of Cochrane reviews to the NHS.

The CRD has a role in disseminating the results of reviews it carries out or commissions, the results of other systematic reviews (especially those of the Cochrane Collaboration) and the results of specific pieces of research which are of significance to the NHS.

The nucleus of this activity is the production of a number of core dissemination materials. One such product, the ***Effective Health Care*** series, produced jointly with colleagues in the University of Leeds and the research unit of the Royal College of Physicians, is already well known to many professionals within the NHS.

This new series, ***Effectiveness Matters***, is produced to complement ***Effective Health Care***. It covers topics in a shorter and more journalistic style and may summarise, as in this edition, the results of high-quality systematic reviews that have not been undertaken or commissioned by the CRD. Both ***Effective Health Care*** and ***Effectiveness Matters*** are subject to extensive and rigorous peer review.

In addition, the Centre is providing a database of structured abstracts of good quality systematics reviews of the effectiveness of health care interventions. From 1994, CRD staff have been scanning the published literature for reviews. The studies retrieved are subjected to a series of quality tests and those which meet the criteria have structured abstracts written by CRD staff. The abstracts comment on and describe the methodology and the conclusions of the studies and try to bring out any implications for NHS practice. A database of economic evaluations of treatments is also being developed.

A pilot version of the database of reviews is now available and can be accessed via Janet/Internet or by dial-up access using a modem. For information on accessing the database please contact us using the details below.

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3. Fibrinolytic Therapy Trialists' Collaborative Group. Indications for fibrinolytic therapy in suspected acute myocardial infarction: Collaborative overview of early mortality and major morbidity results from all randomised trials of more than 1000 patients. Lancet 1994;**343**:311-22.

FURTHER INFORMATION

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