

# ACFASP Advisory

## Aspirin Administration for Chest Pain

### by Lay Responders



**Question:** *Should the American Red Cross teach First Aid and CPR providers / rescuers to administer aspirin in the setting of chest pain suspected of being a heart attack?*

#### **Overview:**

The incidence of heart attacks in the United States is one per 1000 population per year. Chest pain is a major manifestation of heart attacks. There has been popular press and advertising attention rendered to the common medical practice of administering aspirin in the setting of chest pain thought to be of cardiac origin. Thus it is very important that Red Cross First Aid personnel be advised on the implementation of this therapy which has been shown to be of benefit in the early response to heart attacks. Aspirin is a safe and effective treatment for heart attacks in combination with many other methods of care.

#### **Review Process:**

A search of the literature was completed in 2001. The results of these studies were critically appraised for applicability to the question of efficacy and low complication rates for aspirin use. A second literature search was conducted of MEDLINE in 2006, using the keywords: aspirin and heart attack, myocardial infarction and stroke.

Several comprehensive reviews of the use of aspirin in cardiovascular disease along with scientific statements by the American Heart Association and the American Stroke Association were consulted.

#### **Scientific Foundation:**

Current literature supports the theory that unstable atherosclerotic plaques not only narrow vessels and retard blood flow but can rupture.

There is extensive evidence that aspirin has significant activity that interferes with the clotting actions of platelets. There is convincing data to support the use of aspirin to prevent myocardial occlusion and thus myocardial infarction both acutely and as a preventive measure. Studies have shown long-term aspirin therapy reduces the risk of coronary occlusive disease by as much as 25%. (1-3).

Aspirin has a rapid onset of action within 30 minutes. There is great therapeutic range and safety to aspirin use in the setting of acute ischemic chest pain patients. The risk of overdose is very low if two chewable baby aspirin tablets are stocked at a low level in personal first aid kits (two tablets, 81 mg each).

The acute coronary setting is accepted as being recognized if the lay rescuer notices that the patient displays:

- Chest pain or pressure (usually constant, heavy, squeezing)
- Shortness-of-Breath (air hunger, dyspnea)
- Sweating
- Weakness
- Radiation of unusual feelings or pain down the left arm or into the neck
- Nausea
- Fear of “impending doom”
- Change in the patient’s usual pattern of “Angina”

The "lay rescuer" should immediately call 9-1-1 or activate the local EMS unit; and make the patient as comfortable as possible.

If the patient is conscious and able to take oral medication and the patient denies

- Allergy to aspirin
- Stomach ulcer disease, or,
- Taking “blood thinners” (Coumadin, Warfarin, or other anti-platelet drugs)

the lay rescuer should offer two chewable (162 mg) baby aspirins or up to as much as one five grain (325 mg) adult aspirin tablet with a small amount of water.

If a patient has been revived or resuscitated from a suspected cardiac event, then the "lay rescuer" should offer aspirin treatment if the patient is able to ingest oral medications and does not have any of the above listed contraindications.

NOTE: Tylenol, Acetaminophen, Motrin, Advil, Ibuprofen and other pain killers are NOT equivalent to Aspirin. Combination and enteric-coated aspirin products are NOT supported by this advisory because the literature does not contain studies of efficacy of these specific aspirin formulations in the acute chest pain setting.

## Summary:

There have been several large treatment trials that have shown that there is a significant benefit to treating acute ischemic cardiac patients with aspirin. In several trials aspirin has been shown to be equivalent to thrombolytic agents in increasing survival rates. The American College of Cardiology, the American Heart Association, and several other scientific bodies have recommended the routine administration of aspirin in the setting of suspected heart attack. Emergency Medical Services routinely administer aspirin to non-traumatic chest pain patients who do not have contraindications to taking aspirin. Aspirin is relatively safe to administer to those who are not known to be allergic to the drug and who do not suffer from stomach problems that may be worsened by the ingestion of aspirin. Those with peptic ulcer disease or gastritis due to alcohol may suffer increased gastrointestinal bleeding if they take aspirin. Aspirin should not be given to patients on Coumadin or other “blood thinners” or anti-platelet drugs without physician direction. Ibuprofen should not be given at least 8 hours before or for 30 minutes after administration of immediate release aspirin as Ibuprofen has been shown to interfere with aspirin’s anti-platelet effect (15)

The required dose of aspirin is low with recommended amounts ranging from two chewable baby aspirins (162 mg) to one adult tablet (325mg). Its effect occurs within 1/2 hour.

There are local rules throughout the United States that prohibit the use of aspirin by first responders. In these instances, the local rules must be adhered to; however, these exceptions should not dictate the recommendations for scientifically appropriate care nationally. Care that will probably be of benefit to the majority of people who are experiencing ischemic chest pain should not be withheld.

First responders and lay rescuers look to the Red Cross for the best possible recommendations for care of signals of distress in victims of cardiac ischemia and potential myocardial infarction. The most potential for harm to patients is if they are allergic to aspirin.

Aspirin is an over the counter medication, simple to give, safe in low doses, and very cost effective. (4)

**Recommendations:****Standard:**

Aspirin is of documented benefit to patients with acute coronary syndromes. Its onset of action is within 30 minutes of administration. To those without known contraindications, the risk is clearly out-weighed by the potential benefit.

**Options:**

1. Red Cross First Aid courses should teach the use of aspirin for those patients who are experiencing chest pain that might be symptomatic of a heart attack.
2. Aspirin should be offered to those who appear to be suffering from ischemic chest pain after ascertaining that the patient has no contraindications to its use. The required dose of aspirin is low, with recommended amounts ranging from two chewable baby aspirins (162 mg to one adult tablet (325mg).
3. If a patient has been successfully been resuscitated from a cardiac arrest, and if the patient is conscious and able to safely swallow, the patient should be offered 2 chewable 81 mg."baby aspirin".
4. Two each, chewable, 81 mg tablets be included in First Aid Kits for use in the setting of acute chest pain.

## **Algorithm for Aspirin Use by Lay Rescuers**

1. Evaluate patient for symptoms suggesting heart attack.
2. Call 911 or activate local EMS system.
3. Make patient as comfortable as possible.

### **Is the patient conscious and able to swallow normally?**

No - DO NOT PROCEED WITH ASPIRIN THERAPY

Yes - Ask the patient the following questions:

### **Do you have a known allergy to aspirin?**

Yes - DO NOT PROCEED WITH ASPIRIN THERAPY

### **Has any physician ever told you not to take aspirin?**

Yes - DO NOT PROCEED WITH ASPIRIN THERAPY.

### **Do you have any stomach ulcer disease or history of vomiting blood?**

Yes - DO NOT PROCEED WITH ASPIRIN THERAPY

### **Do you take any blood thinners such as coumadin, warfarin or anti-platelet drugs?**

Yes - DO NOT PROCEED WITH ASPIRIN THERAPY

If the answer to ALL four questions is NO, the lay rescuer should offer two chewable (162 mg) baby aspirins or up to one five grain (325 mg.) adult aspirin tablet with water.

## References:

1. N.E.J.M. 1991; 325:1261-1266.
2. B.M.J. 1994; 308:81-106.
3. McEvoy(Ed), *American Hospital Formulary Service 98 Drug Information*. Bethesda, Maryland: American Society of Health System Pharmacists; 1998.
4. “Anticoagulation and Antiplatelet Therapy in Emergency Medicine: An Evidence Based, State-of-the-Art Review Part I: Aspirin, Glycoprotein Iib/IIIa Inhibitors, and ADP Platelet Receptor Antagonists”; *Emergency Medicine Reports*; 19(24), Nov 23, 1998 p.25
5. Hart RG, Harrison JG. *Stroke* 1996; 4: 585-587.
6. Second International Study of Infarct Survival Collaborative Group(ISIS II), *Lancet* 1988;2:349-360. and Hennekens, C.H., et. Al, *Arch Intern Med* 154(1): 37, January 10, 1994.
7. *Emergency Medicine News*, Vol 21(4), p.1 &20, April, 1999.
8. Jaffy, MB, Meischke H. Eisenberg MS: “Prevalence of aspirin use among patients calling 9-1-1 for chest pain”, *Academic Emergency Medicine* 5:146; p.1149 (1998).
9. GUSTO Group Report: *N. Engl J Med.* 1993; 329:673-682..
10. ISIS-2 (Second International Study of Infarct Survival, Collaborative Group) *Lancet.* 1988;2:349-360).
11. ISIS-3; *Lancet.* 1992;339;753-770).
12. Eric H. Awtry and Joseph Loscalzo “Aspirin”; *Circulation*, 2000;101:1206-1218.
13. Marciniak TA, Ellerbeck EF, et.al., “Improving the Quality of Care for Medicare Patients with Acute Myocardial Infarction: results from the Cooperative Cardiovascular Project”, *J.A.M.A.* 1998; 279:1315-1317.
14. 14. Stafford, RS; “Aspirin Use Is Low Among United States Outpatients with Coronary Artery Disease”; *Circulation*, 2000;101:1097-1101.
15. USFDA, New Information for Healthcare Professionals on the Concomitant Use of Ibuprofen and Aspirin, [www.fda.gov/cder/drug/InfoSheets](http://www.fda.gov/cder/drug/InfoSheets), 2006.
16. American Heart Association, Aspirin as a Therapeutic Agent in Cardiovascular Disease, *Circulation*, 96: 2751-2753, 1997.
17. Rhoden-Jullig, A. M. Britton, K. Malmquist, B. Leijd, Aspirin int the prevention of progressing stroke: a randomized controlled study, *J. Internal Med.*, 254: 584, 2003.
18. Ridker, PM, Cook, NR., Lee, IM., et al., A Randomized Trial of Low Dose Aspirin in the Primary Prevention of Cardiovascular Disease in Women, *NEJM.*, 352: 1293-1303, 2005

19. Patrono, C., LA Garcia Rodriguez, R. Landolfi C., Baigent, Low-Dose Aspirin for the Prevention of Atherothrombosis, NEJM., 353: 2373-2383, 2005.
20. US Food and Drug Administration, Concomitant Use of Ibuprofen and Aspirin: Potential for Attenuation of the Anti-Platelet Effect of Aspirin, Science Paper, 2006.