



Medical Bulletin

News You Can Use

Angry outbursts increase risk of heart attack and stroke

In the two hours following intense road rage or another type of angry outburst, a person has a nearly four-fold increased risk of stroke and a nearly five-fold increased risk of MI compared with times when he or she is not angry, researchers report. Their review of nine case-crossover studies was published online March 4, 2014 in the *European Heart Journal*.



“Based on the totality of the evidence, there is a higher risk of MI, ACS, ischemic and hemorrhagic stroke, and arrhythmia in the two hours following outbursts of anger,” Dr Elizabeth Mostofsky (Harvard School of Public Health, Boston, MA) and colleagues write.

“If clinicians ask patients about their usual levels of anger and find that it is relatively high, they may want to consider suggesting either psychosocial or pharmacologic interventions,” senior author Dr Murray Mittleman (Harvard School of Public Health) said in a statement.

Beta-blockers, paroxetine, other serotonin-specific reuptake inhibitors (SSRIs), and psychosocial interventions may turn out to be helpful to “sever the link between anger episodes and cardiovascular events,” but this remains to be determined in future studies, they write.



Greetings from Blue Cross!

As we enter yet another brand new financial year (FY 15), I send my best wishes to all my fellow colleagues for a very fruitful and satisfying year. May you achieve everything you have planned for yourself – “professional excellence.”

It gives me immense pleasure and satisfaction that **Blue Cross ‘Medical Bulletin’** has completed its infancy and is now stepping into its second year. We are happy to present you with the first issue of Medical Bulletin for the current financial year.

In this issue, we have included **two tutorials** covering common clinical diagnosis – **Dysmenorrhea and Myocardial Infarction (MI)**. I am sure you would go over these as intently as the ones that we brought to you in our previous issues.

Lastly, I sincerely thank you for your profuse praises for the past issues. We accept these in all humility. Indeed, your feedback is what we crave for so that we are pushed further into raising the bar for our **Medical Bulletin**. Please do continue to provide us with your comments.

Best regards,

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WHO advises drastic cuts to sugar intake

WHO recommends that adults and children should consume “free sugars” less than 5% of total calorie intake. The “free sugars” referred to in the guidelines mean all

fruit juices, and fruit concentrates. The guidelines do not limit sugar consumed in whole fruit or milk.

Cutting Sugar Will Slash Obesity, Limit Dental Caries: For an adult

consuming 2000 calories daily, the 5% guideline would mean consuming no more than roughly 2 tablespoons (25 g) of sugar daily – less than the amount of sugar contained in a single soft drink.

The guidelines are designed to address both obesity and dental caries. Obesity now affects half a billion people in the world, and it is on the rise in all age groups and particularly in low- and middle-income

countries. Caries is one of the most common non-communicable diseases, and it creates lot of discomfort and pain.

(Contd on pg. 4)



monosaccharides and disaccharides added to foods by a manufacturer, a cook, or a consumer, as well as sugars that are naturally present in honey, syrups,

TUTORIAL

Myocardial Infarction (Heart Attack)

What is a heart attack?

A heart attack (also known as a myocardial infarction or MI) is the **damage and death of heart muscle from the sudden blockage of a coronary artery by a blood clot**. Coronary arteries are blood vessels that supply the heart muscle with blood and oxygen. Blockage of a coronary artery deprives the heart muscle of blood and oxygen, causing injury to the heart muscle. Injury to the heart muscle causes chest pain and chest pressure sensation. If blood flow is not restored to the heart muscle within 20 to 40 minutes, irreversible death of the heart muscle will begin to occur. Muscle continues to die for six to eight hours at which time the heart attack usually is "complete." The dead heart muscle is eventually replaced by scar tissue.

Growing number of adults suffer from heart attack. Indeed, MI is now an important cause of premature deaths.

Heart attack facts

- A heart attack results when a blood clot 'completely' obstructs a coronary artery supplying blood to the heart muscle and the heart muscle dies.
- The blood clot that causes the heart attack usually forms at the site of rupture of an atherosclerotic, cholesterol plaque on the inner wall (endothelium) of a coronary artery.
- The most common symptom of heart attack is chest pain.
- The most common complications of a heart attack are heart failure and arrhythmias (atrial tachycardia and ventricular fibrillation).
- The risk factors for atherosclerosis and heart attack include elevated cholesterol levels, increased blood pressure, tobacco use, diabetes, male gender, and a family history of heart attacks at an early age.

- Heart attacks are diagnosed with electrocardiograms (ECG) and measurement of cardiac enzymes (Troponin I, CPK-MB) in blood.
- Treatment guidelines emphasize treatment at a hospital capable of doing PCI (percutaneous coronary intervention) also termed as stenting or stent placement.
- Early re-opening of blocked coronary arteries reduces the amount of damage to the heart and improves the prognosis.
- Medical treatment for heart attacks may include oxygen, anti-platelet, anti-coagulant, and clot dissolving drugs (thrombolytic) as well as angiotensin converting enzyme (ACE) inhibitors and beta blockers.
- Interventional treatment for heart attacks may include coronary angiography with percutaneous transluminal coronary angioplasty (PTCA), coronary artery stents, and coronary artery bypass grafting (CABG).
- Patients suffering a heart attack are hospitalized for several days to detect heart rhythm disturbances (arrhythmias), shortness of breath, and chest pain.
- Further heart attacks can be prevented by aspirin, beta blockers, ACE inhibitors, discontinuing smoking, weight reduction, exercise, good control of blood pressure and diabetes, following a low cholesterol and low saturated fat diet that is high in omega-3-fatty acids, taking multivitamins with an increased amount of folic acid, decreasing LDL cholesterol, and increasing HDL cholesterol.

What causes a heart attack?

Atherosclerosis is a gradual process by which plaques (collections) of cholesterol are deposited in the walls of arteries. Cholesterol plaques cause hardening of the arterial

walls and narrowing of the lumen of the artery. Arteries that are narrowed by atherosclerosis cannot deliver enough blood to maintain normal function of the parts of the body they supply.

In many people, atherosclerosis can remain 'silent' (causing no symptoms or health problems) for years or decades. Atherosclerosis can begin as early as the teenage years, but symptoms or health problems usually do not arise until later in adulthood when the arterial narrowing becomes severe. Smoking cigarettes, high blood pressure, elevated cholesterol, and diabetes mellitus can accelerate atherosclerosis and lead to the earlier onset of symptoms and complications, particularly in those people who have a family history of early atherosclerosis.

Coronary atherosclerosis (or **coronary artery disease/CAD**) refers to the atherosclerosis that causes hardening and narrowing of the coronary arteries. Diseases caused by the reduced blood supply to the heart muscle from coronary atherosclerosis are called **coronary heart diseases (CHD)**. Coronary heart diseases include **heart attacks, sudden unexpected death, chest pain (angina), abnormal heart rhythms, and heart failure** due to weakening of the heart muscle.

Atherosclerosis and angina pectoris

Angina pectoris (or angina) is chest pain or pressure that occurs when the blood and oxygen supply to the heart muscle cannot keep up with the needs of the muscle. When coronary arteries are narrowed by more than 50 to 70%, the arteries may not be able to increase the supply of blood to the heart muscle during exercise or other periods of high demand for oxygen. **An insufficient supply of oxygen to the heart muscle causes angina.** Angina that occurs with

exercise or exertion is called exertional angina. In some patients, especially in people with diabetes, the progressive decrease in blood flow to the heart may occur without any pain or with just shortness of breath or **unusually early fatigue**.

Exertional angina usually feels like a pressure, heaviness, squeezing, or aching across the chest. This pain may travel to the **neck, jaw, arms, back, or even the teeth**, and may be accompanied by shortness of breath, nausea, or a cold sweat. Exertional angina typically lasts from one to 15 minutes and usually is relieved by rest or by placing a tablet of nitroglycerin under the tongue. **Both, rest and nitroglycerin, decrease the heart muscle's demand for oxygen, thus relieving angina.** Exertional angina may be the first warning sign of advanced coronary artery disease. **Chest pains that just last a few seconds rarely are due to coronary artery disease.**

Angina also can occur at rest. Angina at rest more commonly indicates that a coronary artery has narrowed to such a critical degree that the heart is not receiving enough oxygen even at rest. **Angina at rest, infrequently, may be due to spasm of a coronary artery (a condition called Prinzmetal's or variant angina).**

Unlike a heart attack, there is no permanent muscle damage with either exertional or rest angina although the angina is a warning sign that there is an increased risk of a heart attack in the future.

Atherosclerosis and heart attack

Occasionally, the surface of a cholesterol plaque in a coronary artery may rupture, and a blood clot forms on the surface of the plaque. The clot then blocks the flow of blood through the

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Capsules

TUTORIAL

Dysmenorrhea

Dysmenorrhea (menstrual cramps) is dull, throbbing or cramping pain in the lower abdomen. Many women experience menstrual cramps just before and during their menstrual periods. While for some women, the discomfort is merely annoying, for the rest it can be severe enough to interfere with daily routine activities for a few days *each* month.

Incidence of Dysmenorrhea

Dysmenorrhea is the most common gynecologic disorder among female adolescents, with a reported prevalence of 60% to 93%. Dysmenorrhea is the leading cause of periodic school/college/work absenteeism among these ladies. Longer duration of menses, early menarche, smoking, alcohol and obesity are all risk factors associated with dysmenorrhea. Females who are depressed and/or have poor social support networks are also more likely to experience pain. Also, a dysmenorrheic mother is more likely to have a dysmenorrheic daughter.

Types of Dysmenorrhea

There are basically two types of dysmenorrhea: Primary dysmenorrhea and Secondary dysmenorrhea.

Primary Dysmenorrhea

Primary dysmenorrhea is also called as **spasmodic dysmenorrhea**. Primary dysmenorrhea is defined as painful menses in women with normal pelvic anatomy, usually begins during adolescence.

Primary dysmenorrhea is a type of painful periods commonly occurring in *young* girls and ladies who are under 25 years of age. It usually begins within couple of years after the first menstrual period (menarche) and seldom

continues past 25 years. This type of *recurrent* cyclical pain occurs despite there being no pathology within reproductive tract. Pain of spasmodic dysmenorrhea is sharp, colicky in nature and causes the girl / lady to “double up”. Often there is associated nausea and vomiting. Most times the pain is so intense that the patients have to stay away from schools / colleges and their workplaces. This leads to absenteeism that can be avoided if spasmodic dysmenorrhea is taken care of or treated properly.

Secondary Dysmenorrhea

Secondary dysmenorrhea is also called as **congestive dysmenorrhea**. By contrast, this type occurs in *elderly* ladies (30 – 40 years) and is due to some disease of the reproductive organs – fibroids, endometriosis, adenomyosis etc. In secondary dysmenorrhea, the pain is usually in the form of dull ache or heaviness in lower abdomen (pelvis). It starts a week prior to onset of menstrual bleeding, and gradually passes off within 5 to 7 days of start of menstrual bleeding.

Causes of Spasmodic Dysmenorrhea

Spasmodic dysmenorrhea is due to intense contraction of smooth muscles of uterus (myometrium). It causes pain similar to ‘anginal’ pain. The severe uterine contractions are induced by remarkably high levels of prostaglandins (PGF₂).

Following ovulation, the ovaries secrete progesterone that converts proliferative endometrium into secretory endometrium. It is known that secretory endometrium produces higher levels of PGs (almost 3-fold) compared to proliferative endometrium.

Difference between Primary and Secondary Dysmenorrhea

	Primary Dysmenorrhea	Secondary Dysmenorrhea
Age group	Girls and Young ladies (Age 14-25 years)	Elderly ladies (Age 30-40 years)
Type of pain or its description	Sharp, intermittent pain usually concentrated in the suprapubic area. Pain may radiate to the back of the legs or the lower back.	Dull ache or heaviness in lower abdomen (pelvis).
Etiology	No pathology within reproductive tract. (Excessive prostaglandins – PGF ₂ α – induce pain).	Diseases of reproductive organs such as fibroids, endometriosis, PID, adenomyosis etc.
Onset of pain	Pain beginning shortly before or at the onset of menses and usually lasts for 1 to 3 days.	Starts a week prior to onset of menstruation, and continues up to 5 to 7 days past onset of menses.
Effect on Quality of Life	School/college/work absenteeism. Social withdrawal	Social and psychological interference.
Incidence	Approximately 90-95% of dysmenorrhea patients.	Approximately 5-10% of dysmenorrhea patients.

Management of Dysmenorrhea

- Apply a heating pad or light circular massage to lower belly area.
- Drink warm beverages.
- Eat light but frequent meals.
- Follow a diet rich in complex carbohydrates such as whole grains, fruits, and vegetables, but low in salt, sugar, alcohol, and caffeine.
- Keep legs raised while lying down, or lie on side with knees bent.
- Practice relaxation techniques such as meditation or yoga.
- Take warm showers or baths.
- Walk or exercise regularly. Get regular, aerobic exercise.
- **Use NSAIDs**, such as mefenamic acid. Start treatment early for best results.
- Oral contraceptive pills (OCPs) are also used. It is thought that the mechanism of action is reduced prostaglandin release during menstruation. OCPs may be given by the oral or vaginal route for the treatment of dysmenorrhea.

Dysmenorrhea facts

- Dysmenorrhea is periodic abdominal and pelvic pain experienced by women.
- More than half of all menstruating women have dysmenorrhea.
- Dysmenorrhea is severe in at least one in seven of these women.
- Primary dysmenorrhea is common without an identifiable cause.
- Secondary dysmenorrhea results from an underlying abnormality that usually involves the woman’s reproductive system.
- Physical exercise can help alleviate dysmenorrhea.
- Dysmenorrhea tends to improve with age.
- Non-steroidal anti-inflammatory drugs (NSAIDs) most commonly mefenamic acid is used to treat dysmenorrhea.
- NSAIDs including **MEFTAL (Mefenamic acid)** are useful in treatment of spasmodic dysmenorrhea. They act by inhibiting an enzyme cyclooxygenase (COX) that is necessary for production of PGs. PGs are powerful constrictors of uterine myometrium causing pain. When COX is inhibited, there is absence of PGs leading to pain relief from spasmodic dysmenorrhea.

MEFTAL-SPAS[®]

Mefenamic Acid 250 mg + Dicyclomine HCl 10 mg

Tablets

MEFTAL-SPAS[®] DS

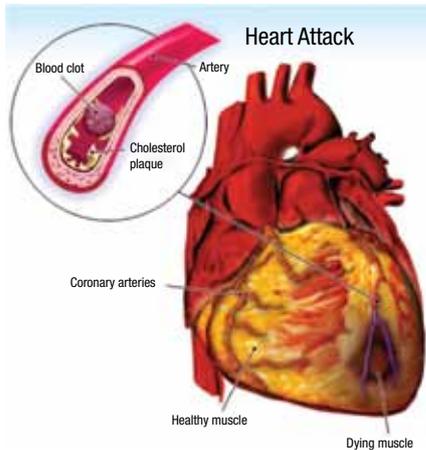
Mefenamic Acid 500 mg + Dicyclomine HCl 20 mg

Tablets

Mycardial Infarction (Contd from pg 2)

artery and results in a heart attack (see picture below). The cause of rupture that leads to the formation of a clot is largely unknown, but contributing factors may include cigarette smoking or other nicotine exposure, elevated low-density lipoprotein (LDL) cholesterol, elevated levels of blood catecholamines (adrenaline), high blood pressure, and other mechanical and biochemical stimuli.

Unlike exertional or rest angina, heart muscle dies during a heart attack and loss of the muscle is permanent, unless blood flow can be promptly restored, usually within one to six hours.



While heart attacks can occur at any time, **more heart attacks occur between 4:00 A.M. and 10:00 A.M.** because of the higher blood levels of adrenaline released from the adrenal glands during the morning hours. Increased adrenaline may contribute to rupture of cholesterol plaques.

Only approximately 50% of patients who develop heart attacks have warning symptoms such as exertional angina or rest angina

prior to their heart attacks, but these symptoms may be mild and ignored as unimportant.

What are the symptoms of a heart attack?

Although **chest pain or pressure is the most common symptom of a heart attack**, heart attack victims may experience a **variety of symptoms including:**

- Pain, fullness, and/or squeezing sensation of the chest
- Jaw pain, toothache, headache
- Shortness of breath
- Nausea, vomiting, and/or general epigastric (upper middle abdomen) discomfort
- Sweating
- Heartburn and/or indigestion
- Arm pain (more commonly the left arm, but may be either arm)
- Upper back pain
- General malaise (vague feeling of illness)
- **No symptoms (Approximately one quarter of all heart attacks are silent, without chest pain or new symptoms. "Silent" heart attacks are especially common among patients with diabetes mellitus.)**

Even though the symptoms of a heart attack can be vague and mild at times, it is important to remember that heart attacks producing no symptoms or only mild symptoms can be just as serious and life-threatening as heart attacks that cause severe chest pain. **Too often patients attribute heart attack symptoms to "indigestion," "fatigue," or "stress," and consequently delay seeking prompt medical attention.**

One cannot overemphasize the importance of seeking "prompt" medical attention in the presence of new symptoms that suggest a heart attack. Early diagnosis and

treatment saves lives, and delays in reaching medical assistance can be fatal. A delay in treatment can lead to permanently reduced function of the heart due to more extensive damage to the heart muscle. **Death also may occur as a result of the sudden onset of arrhythmias such as ventricular fibrillation.**

How is a heart attack diagnosed?

When there is severe chest pain, suspicion of a heart attack is usually high. Hence, tests can be performed quickly to confirm the heart attack. A problem arises, however, when the symptoms of a heart attack do not include chest pain. A heart attack may not be suspected, and the appropriate tests may not be performed. Therefore, **the initial step in diagnosing a heart attack is to be suspicious that one has occurred so that the appropriate tests can be done.**

Electrocardiogram (ECG). Abnormalities in the electrical activity usually occur with heart attacks and can identify the areas of heart muscle that are deprived of oxygen and/or areas of muscle that have died.

In a patient with typical symptoms of heart attack (such as crushing chest pain) and characteristic changes of heart attack on the ECG, a secure diagnosis of heart attack can be made quickly in the emergency room and treatment can be started immediately.

If a patient's symptoms are vague or atypical and if there are pre-existing ECG abnormalities (for example, from old heart attacks or abnormal electrical patterns), the diagnosis of a heart attack may be less secure. In these patients, the diagnosis can be made only hours later through blood tests.

Blood tests: Cardiac enzymes are proteins that

are released into the blood by dying heart muscles. These cardiac enzymes are creatine phosphokinase (CPK), special sub-fractions of CPK (specifically, the MB fraction of CPK), and troponin, and their levels can be measured in blood. **These cardiac enzymes typically are elevated in the blood several hours after the onset of a heart attack.**

Currently, troponin levels are considered the preferred lab tests to use to help diagnose a heart attack, as they are indicators of cardiac muscle injury or death. A series of blood tests for the enzymes performed over a 24-hour period are useful not only in confirming the diagnosis of heart attack, but the changes in their levels over time also correlates with the amount of heart muscle that has died.

The most important factor in diagnosing and treating a heart attack is prompt medical attention. The more rapidly blood flow is reestablished, the more heart muscle that is saved.

At this time, mechanical reperfusion with angioplasty and/or stenting to increase the flow of blood to the heart is the preferred way to preserve heart muscle if it can be performed within 90 minutes of arrival to the hospital; if there will be a delay, thrombolytic agents (clot busters) are preferred.

Large and active medical centers often have a "chest pain unit" where patients suspected of having heart attacks are rapidly evaluated. If a heart attack is diagnosed, prompt therapy is initiated. If the diagnosis of heart attack is initially unclear, the patient is placed under continuous monitoring until the results of further testing are available.

(We will take up the remaining portions of this topic in our next issue)

WHO advises drastic cuts to sugar... (Contd from pg 1)

The results showed that cutting sugar consumption was associated with reduced body weight, while increasing dietary sugar led to weight gain. And children who drank the most sugar-sweetened beverages were most likely to be overweight or obese.

Also, the authors noted that reduction of sugar consumption to 10% of calories in children would result in fewer than 3 teeth affected by decay by age 12. Halving that limit would have even more dramatic benefits.

Laugh
Out
Loud

पहले एक रुपया में
अनाज मिलता था।
इस लिए सिक्के के उपर
अनाज रहता था।



अब 1 रुपया में कुछ नहीं
मिलता।
इस लिए सिक्के के उपर
वेंगा रहता है।

