

Health & Science

Meningitis targets youth

Bacterial meningitis is not solely a childhood disease, but a disproportionate number of its victims are infants and children. The symptoms and the speed of their onset can strike terror in the heart of a parent.

It may happen something like this: A child may have been suffering from a cold or a sore throat or, perhaps, nothing at all. Suddenly, the youngster is irritable, running a high fever, complaining of headache, and vomiting.

Infants develop an eerie, high-pitched cry. Muscles in the neck and elsewhere may stiffen. The child may become delirious, slip into a coma, or have convulsions.

An alarmed parent's first impulse under these circumstances is to seek emergency medical care. It is precisely the right response. Without treatment, the disease may be lethal, and the danger increases with youth; a very young child could die within hours of the time the first signs of illness appear.

Whenever meningitis is suspected — in a child or adult — the patient should be rushed to the nearest hospital. Before the advent of antibiotics, the vast majority of bacterial meningitis cases, in those of all ages, proved fatal.

Now, with prompt diagnosis and treatment, more than 90 percent survive; among those who receive timely medical care, the relatively few fatalities now occur mostly among the extremely young and the extremely old.

Multiple Causes

Meningitis is an inflammation of the meninges, the membranes surrounding the brain and spinal cord. Sometimes, perhaps even most of the time, the infectious agent is a virus. Those cases, however, are cause for far less concern than the ones resulting from bacterial infection.

According to experts, there are probably more cases of viral meningitis than bacterial, but many mild cases go undiagnosed and unreported. Bacterial meningitis, however, is a serious infection for which individuals usually seek medical attention.

That serious infection may be

caused by any of a number of bacteria. Many people would assume, from its name, that the bacterium called *Neisseria meningitidis* (also known as meningococcus) is the major cause of the disease. In fact, it ranks second to another organism.

The leading cause of bacterial meningitis is actually a strain, type b, of the confusingly named *Haemophilus influenzae* (Hib), so called because, when it was first identified, it was erroneously believed to be the cause of influenza or "flu" (which is actually caused by a virus).

These two bacteria, together with the pneumococcus *Streptococcus pneumoniae*, account for four out of five cases of bacterial meningitis.

"Now, with prompt diagnosis and treatment, more than 90 percent survive; among those who receive timely medical care, the relatively few fatalities now occur mostly among the extremely young and the extremely old."

Diagnosis And Treatment

Hospital diagnosis of bacterial meningitis begins with a lumbar puncture ("spinal tap") to obtain a sample of the cerebrospinal fluid that bathes the brain and flows down through the spinal canal.

Normally clear, the fluid is analyzed for the presence of bacteria and other evidence of infection. Samples of blood, urine, and respiratory secretions may also be taken.

But since the disease can progress so quickly, treatment — with intravenous antibiotics — is started even before any test results are available.

Among those drugs currently widely used to treat bacterial meningitis are a class of antibiotics called cephalosporins, especially cefotaxime (Claforan) and

ceftriaxone (Rocephin), and various members of the penicillin family.

At least a week of treatment, and sometimes more, is needed. When *H. influenzae* type b or meningococcal meningitis has been diagnosed, household members and other close contacts may be placed on a short course of prophylaxis (prevention) with the antibiotic rifampin (Rifadin, Rimactane).

The dread of bacterial meningitis, whatever the cause, is based not only on its reputation as a killer but on the possibility of neurological complications—lingering deficits that can be especially devastating in infants and children, who are still growing and developing.

Those complications may include persistent hearing loss, mental retardation, and recurrent convulsions, and they occur in 20 to 30 percent of those who survive a bout of bacterial meningitis.

An additional type of therapy has been proposed for children with bacterial meningitis, based on the possibility of staving off one of these neurological aftereffects.

One group of researchers has suggested that adding dexamethasone, a corticosteroid hormone, to the antibiotic treatment may help prevent subsequent deafness. This treatment, however, is controversial. Corticosteroids are powerful medications that can have serious, adverse side effects.

The Special Hib Threat

Over the past few years, there have been about 2,400 to 2,900 cases of meningococcal infection reported annually to the national Centers for Disease Control in Atlanta. Some 46 percent to 47 percent are in children and teens (who compose 27 percent of the population).

These figures show that Hib cases outnumber meningococcal meningitis cases by about 3 to 1. Among small children, the comparative attack rate has been far higher.

According to CDC, before the introduction of the first vaccine, 1 in 200 children in the United States developed an invasive Hib infection by the age of 5; 60 percent of those children had meningitis, and 3 to 6 percent died.

Why Do We Use Drugs?

While the disease of addiction is complicated, a core issue is that the use of most addictive substances is pleasurable for some period of time. Not only that, but as anyone who has ever experienced relapse can tell you, the initial use of a drug or alcohol led to the second use, and then the third use, and so on and so on. We refer to this property as reinforcement. Indeed, this is often the key element in the persistence of any addictive behavior. Although the range of addictive substances includes a variety of different chemicals with different biological activities, it seems that reinforcement, leading to continued use, is the result of a common physiology which exists for all drugs of abuse.

To understand how this works, you must know a little of how the brain works. The brain is bunches of individual nerves that communicate with each other and which are arranged into distinct areas to serve

specific functions. When one nerve communicates with a second, it releases a chemical called a neurotransmitter into the space between them; this space is called a synapse. The second nerve reacts after its receptor binds to this chemical. Depending on which chemical is released, the activity of the second nerve can either increase or decrease. All drugs act either by affecting how much of a neurotransmitter is in the synapse, or interacting directly with a receptor. Whole areas of the brain can be excited or depressed in this fashion.

There is an area of the brain in which increased activity will be perceived as pleasurable. We know that lab animals with electrodes planted in this area of their brains, giving small electric shocks, will continue to seek this stimulation. They will ignore all other bodily needs such as eating. The pleasure they are apparently feeling reinforces whatever behavior is needed to continue the shocks. This area is called the nucleus

accumbans and may be thought of as the pleasure center. Nerves originating from other areas of the brain project to this area. By releasing a neurotransmitter called dopamine, these nerves will increase the activity in the nucleus accumbans giving pleasure. Almost all drugs of abuse have been implicated in increasing activity in this area. Cocaine and other stimulants directly increase the amount of dopamine in the synapse and quickly increase the activity of this area. Heroin, pills, alcohol and even marijuana have been shown to increase activity as well.

Research needs to be done to find out how the various drugs do this with the hope that treatments may be developed to block the reinforcing properties of drugs. This has already begun with the use of a drug called Revia, which affects the way heroin and alcohol work and is useful in preventing continuing use of these drugs.

Yoga as Positive Addiction

BY LONNY J. BROWN, PhD

The ancient Eastern self-care discipline of yoga sure has come a long way in a short time in America. Not so long ago the word "yoga" automatically evoked images of eccentric gurus or hippies performing bizarre contortions in pursuit of spiritual bliss. But today, world-class athletes, media celebrities, harried housewives and business people are all discovering the many health benefits of this gentle art in our competitive and stressful society.

One very promising development is the use of yoga in therapeutic and recovery settings. Though a relatively new application, rehabilitative yoga is proving to be a highly effective therapy for substance abuse and its related problems. For the recovering addict, yoga offers some distinct advantages: It is low-cost, safe, easy to learn, and requires no special equipment or environment. Whenever yoga has been utilized regularly in recovery programs, the results achieved have been impressive.

For nearly two years, in a class I conducted at Beech Hill — an alcohol rehabilitation hospital in Dublin, New Hampshire — I had the unique opportunity of introducing scores of recovering alcoholics of all ages

and backgrounds to the possibility of a new lease on life through "hatha" yoga, the approach based on stretching, deep breathing exercises, and relaxation techniques. Despite the many obstacles that one would expect in such an unlikely setting, the results were most encouraging.

The institutionalized alcoholic is a perfect candidate for a modified ("E-Z Does It") beginner's yoga class. Years of stress and physical deterioration have left his or her body impaired and weak. Muscle tone, concentration and will power are all typically quite diminished. Yoga provides a mild therapeutic movement routine. When performed properly, the benefits can be felt immediately. Upon experiencing the relaxation and energy of just one class, patient motivation for self-care often increases. Even minimal effort — a few slow deep breaths, some expansive stretching — creates noticeable corrections, and makes the value of the exercise self-evident. Were this not the case, I'm certain that yoga would quickly prove inaccessible and irrelevant to these over-stressed folks, who often have short attention spans and a conditioned expectation of instant gratification. Magically, yoga delivers.

What causes acne?

Pimples. Nearly everyone has suffered through them—some more than others. They are an almost universal affliction of adolescence.

Even one or two "zits" can cause much posturing and worrying in front of a mirror. A handful may cause panic. And a face full can result in permanent scarring — both of the skin and the psyche.

Although acne can't be cured, it can be treated successfully in the vast majority of people. Some cases, especially the mild types, can be cleared up completely. Vigorous treatment of the more severe types of acne can help prevent facial scarring.

Technically called acne vulgaris, this skin disease affects millions of

Americans annually. It can vary from quite mild to extremely severe.

About 80 percent of all teenagers develop acne, but the disease may also start as late as age 25 or 30, particularly in women.

No one knows for sure exactly what causes acne, or why it usually begins in adolescence. But a number of factors, most importantly heredity, play a role.

If a parent had acne, there's a good chance the child will.

Acne develops when the sebaceous glands and the lining of the skin duct surrounding hair follicles (pilosebaceous units) begin to work overtime, as they do in adolescence. The glands produce more sebum, making the skin more oily.

Normally the lining of the duct sheds cells that are carried to the surface of the skin by the sebum. When the duct is blocked, cells and sebum accumulate, forming a plug (comedo).

If the plug stays below the surface of the skin, it is called a "closed" comedo or whitehead. If the plug enlarges and pops out of the duct, it is called an "open" comedo or blackhead because the tip is dark. This is not dirt and will not wash away.

The discoloration is due to a buildup of melanin, the dark pigment in the skin. Pilosebaceous units are found all over the body, but there are more on the face, upper chest, and back, which explains why acne usually occurs in these places.

Arthritis pain: causes & relief

In many diseases of the arthritis family, a malfunctioning and hyperactive immune system is to blame. In the development of many of these diseases, the distinction between the body's own tissues and those of a foreign invader (such as a virus or a bacteria) is weakened or destroyed, resulting in misguided immune system attacks. Sometimes, as in rheumatoid arthritis, researchers now believe that a virus or bacterium can trick the body into launching an inappropriate response through "molecular mimicry." Certain bacterial proteins, for example, may mimic the shape or amino acid sequence of other proteins involved in a normal immune response. The result is an aberrant attack that leads to progressive joint destruction, and for some individuals, decades of disability. More recently, researchers have theorized that rheumatoid arthritis may arise from a defect in the central nervous system's response to inflam-

mation and stress. This theory has not been proven in people.

Osteoarthritis, which is also sometimes called degenerative joint disease, is primarily associated with the wear and tear on weight-bearing joints (the hips or the spine) as we age. However, in recent years, scientists have identified at least one genetic link to osteoarthritis and other genetic flaws such as a defect in the way joints fit together, are suspect. Also, increasing evidence has shown that obesity places too much stress on the joints, contributing to the development of this disease.

Relieving arthritis pain often involves a combination of exercise, medications, rest, and ways to protect the joints.

Much depends on which type of arthritis is causing the pain, how many joints are involved, how severe the disease is, and the age of the patient.

What experts stress most, how-

ever, is that relieving arthritis has the best shot if the disease is caught early.

When these diseases are diagnosed early, modest exercises can delay long-term degenerative changes and move patients closer to normal mobility and function. Exercises are also important to improving patients' mental attitudes.

Because early intervention is so important, the Arthritis Foundation, a major voluntary organization devoted to arthritis in Atlanta, Ga., lists the following warning signs if they persist for more than two weeks:

- Swelling in one or more joints
- Early morning stiffness
- Recurring pain or tenderness in any joint
- Inability to move a joint normally.
- Obvious redness and warmth in a joint
- Unexplained weight loss, fever, or weakness, combined with joint pain.

BURNS BROS.

TRAVEL STOPS

621 S.E. MLK, Blvd. and 620 S.E. Grand Ave.

(503) 238-7343 or (503) 238-7347

- Open 24 hours
- Great gas prices
- Convenient store
- Propane
- Wet & dry ice

Serving the greater Portland area for 50 years.

THOMASON'S

OK



- ✓ BANKRUPTCY
- ✓ REPO
- ✓ GOOD CREDIT
- ✓ BAD CREDIT
- ✓ NO CREDIT

5-MINUTE LOAN APPROVAL

OVER
1500
CARS & TRUCKS
AVAILABLE



ALL THE POPULAR MAKES & MODELS
CALL NOW FOR
YOUR APPROVAL*

Deal Direct with a
Finance Manager

653-7900

or 1-800-666-0598

OREGON'S LARGEST INVENTORY

*Subject to lender approval Thomason Toyota
Special Finance