

PSORIATIC ARTHRITIS NEWS AND VIEWS

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PSORIATIC ARTHRITIS MEDICAL NEWS

ARTHRITIS DRUG OK FOR PSORIASIS 05-03-04 WASHINGTON (Reuters Health)

The FDA has approved the drug Enbrel for the treatment of moderate to severe psoriasis. Enbrel had been previously approved for treating rheumatoid arthritis, ankylosing spondylitis (a form of chronic inflammation of the spine and the sacroiliac joints), and psoriatic arthritis (a form of arthritis associated with psoriasis).

Enbrel (etanercept) works by blocking tumor necrosis factor alpha (TNF alpha), a protein that promotes inflammation. Enbrel binds to TNF alpha and prevents it from promoting inflammation.

Comment: Drugs such as Enbrel, are now designed with a particular molecular target in mind. The molecular target in this case is TNF alpha, which is involved not only in rheumatoid arthritis and ankylosing spondylitis but also in

psoriasis. One drug is made to hit one molecular target of importance in multiple diseases.

Amgen Inc., the world's biggest biotechnology company, won U.S. approval on Friday to market its rheumatoid arthritis drug Enbrel for treating the skin disorder psoriasis.

A U.S. Food and Drug Administration spokeswoman said Enbrel had been approved for moderate to severe psoriasis, an inflammatory condition that causes red, scaly patches of skin and afflicts more than 7 million people in the United States.

The injected drug has been sold for several years, in partnership with Wyeth, as a treatment for the painful joint disorder rheumatoid arthritis and a form of arthritis accompanied by psoriasis. Copyright © 2004 Reuters Limited. All rights reserved.

UNDERSTANDING YOUR PRESCRIPTION SLIP

By Robert H. Shmerling, M.D. Beth Israel Deaconess Medical Center

Somehow, I never thought to question the assumption that knowing Latin would help me understand medical terms I would need to learn in medical school. So when I got to college, I abandoned the Spanish I'd taken for two years in high school and signed up for Latin.

In fact, while many medical terms have their roots in Greek or Latin, I'd have been much better off continuing with Spanish or learning Russian, since the

hospital where I trained and continue to work attracts a large number of people who speak those languages. But there I was, trying to memorize a language I

would never actually speak so that I could be readily fluent by the time I got to medical school – a misguided approach to say the least! You don't need to go to such lengths – read on to learn some of the Latin terms doctors use every day when writing prescriptions.

WRITING A PRESCRIPTION

Never mind the handwriting; even if you could read it, the terms that appear on most prescriptions are probably incomprehensible. A tradition has developed about how to specify the dose of a medication, whether to take it by mouth or in some other way, how often it should be taken, and other details. In a way, it's like writing a check – certain information goes in certain places in a format that is unlike your usual way of writing.

The patient's name should be easy to read. To better identify the patient for whom the prescription is intended, the patient's date of birth and/or address is sometimes included. Many doctors and hospitals are using typed or computer-generated prescriptions that eliminate hand-written information (except for the doctor's signature);

For most medications, the date of the prescription must be within a year to today's date. However, for certain medications, such as narcotics, the prescription may need to be much closer to the present date (for example, within 30 days).

Name of the medication: To avoid names that sound alike, the generic name may appear here rather than the brand name you know. Because many medications sound alike, and are spelled alike, care must be taken to make this important information clear. If a generic version or a brand name is preferred by the ordering physician, the words "no substitution" or "brand name medically necessary" may appear near the medication's name. Some prescriptions offer a choice where the physician signs, one for generic and another for brand name.

The dosage might be in milligrams (mg), micrograms (mcg), grams (g) or other unit of measure. The number of doses (pills, injections, and so on) to be taken at one time, denoted as "i, ii, iii or iiiii" for 1,2,3 or 4; often the term "sig" will appear just in front of these (short for the Latin, signetur, or "let it be labeled").

THE MODE OF ADMINISTRATION:

po – from the Latin per os, or "by mouth" or "orally"

pr – from the Latin per rectum, or "by way of the rectum," meaning by suppository

sl – sublingual (under the tongue)

IV – intravenous

IM – intramuscular (in the muscle)

SQ – short for subcutaneous (meaning under the skin)

THE FREQUENCY OF ADMINISTRATION:

qd – every day, from the Latin quaque die,

bid ' twice a day, from the Latin bis in die
tid ' three times a day, from the Latin ter in die
qid ' means four times a day, from the Latin quater in die

If the medication is to be taken in a particular way ' for example, at night or after food ' that comes next:

pc ' after meals or not on an empty stomach, from the Latin post cibum
qhs ' each night, from the Latin quaque hora somni, or "at bedtime"
prn ' as needed, from the Latin pro re nata, "as circumstances may require"

A number sign and the number of doses for the entire prescription follows. If it is a one-month supply of a medicine taken three times each day, it will read "#90"; sometimes doctors use "Disp" as shorthand for "dispense," instructing the pharmacist to provide that number of doses.

The number of refills allowed is next. For example, it might say "3RF" for three refills. Some prescription pads have a box for the number of doses and number of refills to be entered directly.

For some prescriptions, but not all, additional information is required, including doctor's Drug Enforcement Agency (DEA) number. For example, certain controlled substances, including narcotics, require a valid DEA number.

Finally, the doctor's name, printed and signed, complete the prescription.

MUST IT BE THIS WAY?

Perhaps prescriptions are written this way because it carries on a tradition that organizes information in a standard way that pharmacists and other health-care providers will understand. But there are so many ways for it to go wrong (and so often it does go wrong) that the case could be made to require plain language instead of abbreviated Latin on medication orders. It's easy to see how "Celexa" and "Celebex", two drugs that were approved around the same time, could be mistaken if written or read quickly; how "i tid" could be mistaken for "i bid"; or how "i qid" and "i qd" could be confused. Computer programs that "translate" into more understandable language and a requirement that all information is printed using both brand and generic drug names are other suggestions that might make the prescriptions you get from your doctor easier to understand.

Using our hospital's computer system, when I type "ii po qid", the prescription reads "2 by mouth 4 times daily." As time goes by, I'm amazed not only by how helpful a computerized prescription-entry system is but how unnecessary my struggles in Latin class were. The advantages to a computer-assisted prescription system go well beyond making the writing legible.

Now you know why the prescription you take to the pharmacist often reads like gibberish. Fortunately, the pharmacist is in on the "code" doctors use when they write prescriptions ' and now you are, too.

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WOMEN WORSE AFTER HEART BYPASS SURGERY

Quality of Life Just as Important as Survival - By Jeanie Lerche Davis

Reviewed By Brunilda Nazario, MD

Women are often sicker than men going into heart bypass surgery -- and their quality of life is often worse afterward.

A woman's emotional state, ability to function in daily life, even her thought processes are significantly worse than men who have had the same surgery, writes Barbara Phillips Bute, PhD, a researcher in anesthesiology, psychiatry, behavioral sciences, and surgery at Duke University Medical Center in Durham, N.C. Her report appears in the journal *Psychosomatic Medicine*.

In it, Bute addresses quality-of-life issues surrounding women who have heart bypass surgery. Women who undergo bypass surgery tend to be older, less educated, hypertensive, diabetic, and obese, she writes. They also are more likely to be single, unemployed, and living alone -- as well as depressed and anxious -- than men who have the surgery.

While the goal of heart bypass surgery is to improve quality of life -- including physical functioning, social functioning, and psychological well-being -- not everyone reaps these benefits, writes Bute.

Other studies have found that women are more likely to die after the surgery, they stay longer in intensive care units, and they continue to have more heart problems. In fact, studies have indicated that women appear to do worse because they come into the hospital in worse condition than men.

WOMEN MORE ANXIOUS, DEPRESSED

Bute's study sheds more light on this pattern, following 280 men and women for one year after their heart bypass surgery. Before surgery, each completed several questionnaires to assess their quality of life.

Each patient was about 60 years old. Each was asked about his or her ability to take care of themselves: personal care, walk, do household tasks, drive a car, fix their own meals. They were also asked about work activities, social interaction, anxiety, social support, and heart-related symptoms.

One year later, each took the same set of questionnaires -- which showed that, as a whole, all had improved. Depression and anxiety levels were significantly lower, they perceived their health to be better, they could do more work, and they were better able to get around and take care of themselves.

However, women did not have the same degree of improvement as men did, Bute writes. "Women are at greater risk for [thinking] difficulties, increased anxiety, decreased ability to perform tasks for daily living, diminished

work-related activities, and reduced exercise capacity."

Quality of life -- not just survival -- is an issue that should be addressed when discussing heart bypass surgery and is suggested by the American College of Cardiology and the American Heart Association, she says. She also adds that quality of life at baseline was the strongest predictor of quality of life one year after surgery.

"It is generally assumed that relief of physical symptoms, such as angina after surgery, should by itself lead to improvements in quality of life," Bute writes. "But it is clear that mental health status also significantly affects quality of life."

Even though depressive symptoms may not always worsen after heart bypass surgery, depression greatly increases a woman's risk of having more heart problems.

SOURCE: Bute, B. Psychosomatic Medicine, vol 65.

STUDY FINDS SEASONS AFFECT CHOLESTEROL CHICAGO (AP)

Cholesterol levels tend to rise in the winter and fall in the summer -- variations that in some cases could affect treatment decisions, researchers say.

Their study found the biggest seasonal changes occurred in women and in people with already elevated cholesterol, whose levels fluctuated as much as 18 points.

"It's important for physicians to know this because they need to factor it into how they treat patients," said lead author Dr. Ira Ockene, a University of Massachusetts cardiologist.

Ockene said the findings could be useful to patients who want to try lowering their cholesterol through lifestyle changes instead of drugs. He said many patients could end up getting discouraged if they started diets in the summer and did not see much change or even an increase by wintertime.

The study did not examine whether seasonal changes in cholesterol affected participants' overall health. Without that evidence, there is no way of knowing whether the fluctuations are medically important or "just an isolated chemical observation," said Cleveland Clinic cardiologist Dr. Steven Nissen, who was not involved in the research.

The study appears in the Archives of Internal Medicine.

Ockene said the changes are probably due to an increase in blood volume that naturally occurs during warm months. Cholesterol measurements reflect how much cholesterol there is in the bloodstream; greater blood volume results in a relative decrease in cholesterol.

Physical activity and weight loss can reduce cholesterol levels, and people often gain weight in the winter as they become more sedentary. But Ockene found minimal seasonal changes in weight and said the study participants were too

sedentary year-round for him to gauge the role of physical activity on cholesterol counts.

The study involved 517 men and women ages 20 to 70 from Worcester County, Mass., who started out with an average total cholesterol level of 222 milligrams

per deciliter of blood for men and 213 for women. Levels of 240 and above are considered high.

Participants' levels were measured every three months for a year.

Average levels were about 4 points higher in winter than in summer in men and 5.4 points higher in winter in women -- relatively modest changes, Ockene said.

But seasonal variations of up to almost 11 points and 18 points were found in men and women respectively with initial cholesterol levels above 240 - substantial changes that would probably affect treatment decisions, he said.

Blood tests showed evidence that participants' blood volume also increased in the summer.

Ockene said more research is needed to determine why women had greater seasonal fluctuations.

The results bolster evidence from smaller studies also showing seasonal variations in cholesterol levels, said Dr. Ronald Krauss of the American Heart Association. They also underscore recommendations that doctors measure patients'

cholesterol levels more than once before prescribing medication, Krauss said.

Krauss called the study "a reminder that a single cholesterol reading at any given point in time is only a snapshot in a moving picture that can vary over time." Copyright 2004 The Associated Press.

â€STATINSâ€ - Pharmacy Author: Omudhome Ogbru, Pharm.D. Medical Editor: Jay Marks, MD

"Statins" are a class of drugs that lowers the level of cholesterol in the blood by reducing the production of cholesterol by the liver. Statins block the enzyme in the liver that is responsible for making cholesterol. This enzyme is called hydroxy-methylglutaryl-coenzyme A reductase (HMG-CoA reductase for short). Scientifically, statins are called HMG-CoA reductase inhibitors.

Cholesterol is critical to the normal function of every cell in the body. However, it also contributes to the development of atherosclerosis, a condition in which cholesterol-containing plaques form within the arteries. These plaques block the arteries and reduce the flow of blood to the tissues the arteries supply. When plaques rupture, a blood clot forms on the plaque, thereby further blocking the artery and reducing the flow of blood. When blood flow is reduced sufficiently in the arteries that supply blood to the heart, the result is angina (chest pain) or a heart attack. If the clot occurs on plaques in the brain, the result is a stroke. Clots occurring on plaques in the leg cause

intermittent claudication (pain in the legs while walking). By reducing the production of cholesterol, statins are able to reduce the formation of new plaques and occasionally can reduce the size of plaques that already exist. In addition, through mechanisms that are not well understood, statins also stabilize plaques and make them less prone to rupturing and forming clots.

Although the important role of cholesterol in atherosclerosis is widely accepted by scientists, research also shows that atherosclerosis is a complex process that involves more than just cholesterol. For example, scientists have discovered that inflammation in the walls of the arteries may be an important factor in atherosclerosis. New research shows that statins reduce inflammation, which could be another mechanism by which statins beneficially affect atherosclerosis. This reduction of inflammation does not depend on statins' ability to reduce cholesterol. Further, these anti-inflammatory effects can be seen as early as two weeks after starting statins.

FOR WHAT CONDITIONS ARE STATINS USED?

Statins are used for preventing and treating atherosclerosis that causes chest pain, heart attacks, strokes, and intermittent claudication in individuals

who have or are at risk for atherosclerosis. Risk factors for atherosclerosis include abnormally elevated cholesterol levels, a family history of heart attacks (particularly at a young age), increasing age, and diabetes. Most individuals are placed on statins because of high levels of cholesterol. Though cholesterol reduction is important, heart disease is complex and, as discussed previously, other factors such as inflammation may play a role. Thirty-five percent of individuals who develop heart attacks do not have high blood cholesterol levels, yet most of them have atherosclerosis. This means that high levels of cholesterol are not always necessary for atherosclerotic plaques to form.

Because it is not clear which effect of statins is responsible for their benefits, the goal of treatment with statins should not be only the reduction of

cholesterol to normal levels, but rather the prevention of the complications of atherosclerosis - angina, heart attacks, stroke, intermittent claudication, and death. This concept is important because it allows for individuals who have or are at risk for atherosclerosis, but do not have high levels of cholesterol, to be considered for treatment with statins. Statins, like ACE inhibitors, are an important class of drugs because some of these drugs have been shown to reduce the incidence of heart attacks, strokes, and death.

ARE THERE DIFFERENCES AMONG STATINS?

Statins differ in several ways. The most obvious difference is in their ability to reduce cholesterol. Currently, atorvastatin (Lipitor) is the most potent and fluvastatin (Lescol) is the least potent. A new statin, rosuvastatin (Crestor), which is under development, may be more potent than atorvastatin. The

statins also differ in how strongly they interact with other drugs. For example, pravastatin levels in the body are less likely to be elevated by other drugs because the enzymes in the liver that eliminate pravastatin (unlike the enzymes that eliminate other statins) are not blocked by most other drugs.

Another difference is that only three of the statins--pravastatin, simvastatin, and lovastatin--have been shown in large studies to actually reduce heart attacks. In addition, simvastatin and pravastatin have demonstrated the ability to reduce death. Pravastatin also reduces the occurrence of strokes. Interestingly,

these three statins are derived from natural sources and have similar chemical structures. The other statins are completely synthetic and have chemical structures that differ greatly from the natural statins.

Statins differ in the frequency with which they cause a rare side effect called rhabdomyolysis, in which muscles are damaged. Cerivastatin (Baycol) was withdrawn from pharmacies worldwide because it causes rhabdomyolysis more often than other statins. In contrast, the results from three large studies of pravastatin and over ten years of experience with pravastatin have proven that pravastatin is safe. Finally, statins also differ in how they affect fibrinogen,

a protein that is important in the clotting of blood and the growth of smooth muscle cells (which, like inflammation, also may be involved in atherosclerosis). The importance of this difference is unclear. However, in view of the complexity of the process of atherosclerosis and the possibility that the beneficial

effects of statins are due to effects other than their lowering of cholesterol, these differences could be quite important. Moreover, since it is not yet

clear exactly how statins bring about their beneficial effects, it is important to demonstrate that each statin reduces heart attacks, strokes, and deaths in addition to comparing their effects. One such study now underway is comparing the effects of pravastatin and atorvastatin in reducing heart attacks, strokes, and death.

WHAT ARE THE SIDE EFFECTS OF STATINS?

Statins have few important side effects. The most common side effects are headache, nausea, vomiting, constipation, diarrhea, headache, rash, weakness, and

muscle pain. The most serious (but fortunately rare) side effects are liver failure and rhabdomyolysis. Rhabdomyolysis is a serious side effect in which there is damage to muscles. Rhabdomyolysis often begins as muscle pain and can progress to loss of muscle cells, kidney failure, and death. It occurs more often when statins are used in combination with other drugs that themselves cause

rhabdomyolysis or with drugs that prevent the elimination of statins and raise the levels of statins in the blood. Since rhabdomyolysis may be fatal, unexplained joint or muscle pain that occurs while taking statins should be brought

to the attention of a healthcare provider for evaluation.

WITH WHICH DRUGS DO STATINS INTERACT?

Statins have some important drug interactions. The first type of interaction involves the elimination of statins by the liver. Liver enzymes (specifically the cytochrome P-450 liver enzymes) are responsible for eliminating all statins from the body with the exception of pravastatin. Therefore, drugs that block

the action of these liver enzymes increase the levels of simvastatin, lovastatin, fluvastatin, and atorvastatin (but not pravastatin) in the blood and

can

lead to the development of rhabdomyolysis. Drugs or agents that block these enzymes include protease inhibitors (used in treating AIDS), erythromycin, itraconazole, clarithromycin, diltiazem, verapamil, and grapefruit juice.

Another

important drug interaction occurs between statins and niacin or fibric acids, e.g., gemfibrozil (Lopid), clofibrate (Atromid-S), and fenofibrate (Tricor). Fibric acids and niacin can cause rhabdomyolysis or liver failure when used alone and combining them with statins increases the likelihood of rhabdomyolysis

or liver failure. Nevertheless, fibric acids and niacin are often used with caution in combination with most statins. Cholestyramine (Questran) as well as colestipol (Colestid) bind statins in the intestine and reduce their absorption into the body. To prevent this binding within the intestine, statins should be taken one hour before or four hours after cholestyramine or colestipol.

WHICH STATINS ARE AVAILABLE?

Statins that are approved for use in the United States include lovastatin (Mevacor), simvastatin (Zocor), pravastatin (Pravachol), atorvastatin (Lipitor), and fluvastatin (Lescol).

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NEW THERAPY FOR RHEUMATOID ARTHRITIS

Contributed by Michael Szczygiel from London, England

A promising new therapy for rheumatoid arthritis (RA) developed by researchers at the University of California, San Diego (UCSD) School of Medicine

re-educates the body's immune system to prevent an attack against healthy joint tissue.

In patients with RA, the immune system that is supposed to protect the body, instead attacks it for unknown reasons. In a Phase I/IIa clinical trial recently described in Proceedings of the National Academy of Sciences*, the UCSD

researchers report that a peptide called dnaJP1, taken orally for six months by a group of patients with early RA, caused no side effects and actually changed the action of the immune system's T cells, preventing them from attacking the body's own tissues

The new therapy is currently in Phase II clinical trials with 160 RA patients at UCSD, Johns Hopkins University, the Mayo Clinic, and Virginia Mason Medical Center in Seattle. It is expected to be completed by the end of 2004, with enrollment still open for interested study participants.

RA is a chronic, painful disease that causes joint inflammation and destruction, progressive disability and premature death. Affecting an estimated 2.1

million Americans, RA causes substantial economic burden, with 50 percent of patients unable to work within 10 years of onset, and lifetime costs of the

disease rivaling those of coronary artery disease or stroke.** RA is incurable, with most therapy focused on symptom relief. Unfortunately, current therapies can have serious side effects and work by suppressing the immune system, which increases the risk of infection.

While the precise cause of the disease is unknown, researchers believe that RA is influenced by an abnormal reaction to environmental factors such as infection, which initiate the autoimmune response in genetically susceptible individuals.

The immune-modulation therapy developed by Salvatore Albani, M.D., Ph.D., UCSD professor of medicine and pediatrics, takes advantage of both the genetic and environmental components of RA. In studies over the past 12 years, he has focused on the immune system's T cells, which trigger inflammation to kill and clear foreign pathogens from the body. Albani reasoned that if the immune system of RA patients could be altered, T cells might be less likely to cause chronic inflammation.

His research involved several components of the immune response, beginning with a sequence of amino acids (segments that comprise proteins) expressed on the surface of cells during an immune response. Called a human leukocyte antigen

(HLA), this sequence is designed to recognize self- from non-self cells. In a normal immune response, HLA acts as a "natural dimmer" to prevent over-stimulation of the inflammatory response. In RA patients, however, the dimmer is broken and excessive inflammation ravages tissue and joints. Interestingly, researchers have determined that 70 percent of RA patients, and not normal individuals, share a specific sequence of five amino acids within their HLA.

Albani's current findings were further supported by previous studies he conducted with Dennis Carson, M.D., UCSD professor of medicine and director of the Sam and Rose Stein Institute on Aging at UCSD, that showed immune-system T cells in RA patients become confused by the body's natural HLA sequence on cell surfaces, thinking it is a foreign invader. In an attempt to protect the body, the T cells attack the HLA sequence by inducing inflammation.

To prevent T cells from attacking the body's own HLA sequence, Albani sought to develop a vaccine therapy that could re-educate the diseased immune system in RA patients to prevent rampant inflammation. He focused on a naturally occurring protein called dnaJ that is used by T cells to help initiate the inflammation process. A section of the dnaJ protein, called dnaJP1, contains the same sequence of five amino acids as those within the HLA of RA patients. Bacterial, non-human forms of the dnaJP1 peptide also contained the same sequence of RA-susceptible HLA amino acids, and were found by the UCSD team to be targets of pro-inflammatory T cell responses in RA patients.

"Therefore, we believed that if we could administer the bacterial dnaJP1 as a vaccine to patients with early RA, it would affect the autoimmune inflammation," Albani said. "A key to the treatment was oral administration of dnaJP1."

The researchers determined that an injection of dnaJP1 caused a typical RA-inflammatory immune response, because T cells recognize the peptide as a foreign invader. When the peptide was ingested by patients, however, the special properties of the digestive system's mucosal cells recognized dnaJP1 as a "self-peptide," rather than foreign, and tolerated it. It's the same mechanism the digestive system uses with food, which is also a foreign invader to the body. The mucosal system is designed to tolerate the food, or medications, that enter the body in this manner.

"In essence, we re-educated the immune system T cells in RA patients to be tolerant of the dnaJP1 amino acid sequence that would usually trigger inflammation," Albani said. "In turn, the immune system became tolerant of the HLA sequence, thus avoiding a T cell attack against the body's own tissue."

He added that "the findings with dnaJP1 offer a strategy and the tools to develop a new therapy for RA that focuses on immune modulation rather than immune suppression."

Immune modulation may be particularly helpful in delaying, or possibly abolishing the need for RA patients to take currently available drugs called disease modifying antiarthritic drugs (DMARDs), which provide significant improvements in RA but have potentially serious side effects such as skin rash; mouth sores; stomach, eye and kidney problems; and low blood counts.

The University of California has licensed to Androclus Therapeutics, a biotechnology company located in Milan, Italy and San Diego, California, exclusive rights to further develop a new therapy based on these discoveries

The Phase I study was funded by the National Institutes of Health (NIH), the Royal Netherlands Academy of Arts and Sciences, and the Dutch Organization for Scientific Research. The current Phase II trial is funded by the NIH.

* Proceedings of the National Academy of Sciences, March 23, 2004, Vol. 101, No. 12, pages 4228-4233.

** Journal of the American Medical Association, Vol. 285, No. 5, Feb. 7, 2001, pages 648-650.

GOOD NEWS FOR NEEDLE PHOBICS (HealthDayNews)

Here's good news for people who quake at the sight of a doctor or dentist wielding a needle.

A report in this week's issue of BMC Medicine describes an experimental technique called microscission, which uses a stream of gas to bombard small areas

of the skin with tiny crystals of inert aluminum oxide.

These tiny sharp crystals remove the rough outer layer of skin and create tiny holes (microconduits) in the skin's underlying layers. The gas flow removes

the crystals and loosened skin. The process takes about 20 second and feels like a gentle stream of air against the skin.

Microscission may provide an alternative to needles for taking blood samples and delivering drugs through the skin.

In this study, researchers from the Harvard-MIT Division of Health Sciences and Technology tested whether microscission could be used to administer a local anesthetic to human volunteers.

The researchers first used microscission to open four microconduits within a small area of skin and then applied a pad soaked with anesthetic to the area. Within two minutes, the volunteers experienced loss of feeling in that area, proving successful delivery of the anesthetic.

Robert Preidt - SOURCE: BioMed Central, news release, Copyright © 2004 ScoutNews, LLC.

Good Health to All,

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