Best Evidence from the Cochrane Library

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The Cochrane Library contains high quality health care information, including Systematic Reviews from The Cochrane Collaboration.

These reviews bring together research on the effects of health care and are considered the gold standard for determining the relative effectiveness of different interventions. The Cochrane Collaboration (http://www.cochrane.org) is a UK registered international charity and the world's leading producer of systematic Reviews. It has been demonstrated that Cochrane Systematic Reviews are of comparable or better quality and are updated more often than the Reviews published in print journals.

The following synopses highlight some of the key health care conclusions and their implications for practice as published in The Cochrane Library, 2008, Issue 4.

Bad Breath? Mouth rinses Work, But Some Cause Temporary Staining

Over-the-counter mouth rinses really do put a stop to bad breath. The first systematic review on the effectiveness of mouth rinses shows that they play an important role in reducing levels of bacteria and chemicals that cause mouth odors. Pick which one you use though, because some can temporarily stain your tongue and teeth, warns this new review from The Cochrane Library.

Bad breath is a very common complaint affecting around half the population in developed countries. The smell is generated by bacteria that accumulate on the tongue and produce sulfur compounds including hydrogen sulfide. This same compound makes rotten eggs smell bad. To combat this, mouth rinses are classified in two categories, those that kill the bacteria producing the sulfur compounds and those that neutralize or mask the odor of these compounds. Antibacterial mouth rinses are widely used to treat bad breath, despite some uncertainty about their effectiveness.

"We found that antibacterial mouth rinses, as well as those containing chemicals that neutralize odors, are actually very good at controlling bad breath,' says lead researcher, Zbys Fedorowicz, who works at the Ministry of Health in Bahrain.

Although the different mouth rinses had similar effects on odors, the researchers point out that products containing chlorhexidine resulted in noticeable but temporary staining of the tongue and teeth, and can temporarily alter taste sensations.

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The review, carried out by a team of Cochrane Researchers from Bahrain, included the results of five separate trials involving 293 participants. The team found that mouth rinses containing antibacterial agents such as chlorhexidine and cetylpyridinium were significantly more effective than placebos in reducing mouth odors, as judged by human noses. Mouth rinses containing chlorine dioxide and zinc were more effective in neutralizing odor compounds.

Researchers also noted that more studies are needed to compare the effectiveness of different mouth rinses in treating bad breath. And they say that despite the growing trend for electronic assessment of mouth odors, the human nose should remain the gold standard.

Fedorowicz Z, Aljufairi H, Nasser M, et al. Mouth rinses for the Treatment of Halitosis. Cochrane Database of Systematic Reviews 2008; Issue 4.

Probiotic Bacteria Do Not Make Eczema Better – and May Have Side Effects

There is no evidence that probiotics can relieve the symptoms of eczema, but there is some evidence that they may occasionally cause infections and gut problems. These findings from The Cochrane Library come at a time when the use of probiotics to treat eczema is increasing.

Eczema is an itchy skin condition that affects more than 1 in 20 people at some time in their lives and is especially common in children. Its cause is complex and not well understood, but sufferers do have different bacteria in their guts compared to unaffected people. Consequently, some nutritionists have suggested that eating live gut-dwelling bacteria, such as those found in probiotic yoghurts and some infant formulas could be beneficial.

The Cochrane Researchers looked at 12 studies that together involved 781 children diagnosed with eczema. These studies compared severity of the disease in children given live bacteria to severity in those given a placebo. The researchers found that probiotics provided no significant health improvement. Similar bacteria were given across all studies, so the researchers could not rule out the possibility that other strains might be beneficial. Moreover, they found that in separate studies 46 patients had been reported to suffer side effects from using probiotics, including infection and bowel problem.

“There is no evidence that probiotics are a worthwhile treatment for eczema, and they may be harmful for certain groups of people,” says Boyle. “However, further studies of new probiotics are needed, because it is possible that different types of probiotics which have not yet been studied in eczema treatment could be more effective.”

Boyle RJ, Bath-Hextall FJ, Leonardi-Bee J, et al. Probiotics for Treating Eczema. Cochrane Database of Systematic Reviews 2008, Issue 4.

St. John’s Wort Relieves Symptoms of Major Depression

New research provides support for the use of St. John’s wort extracts in treating major depression. A Cochrane Systematic Review backs up previous research that showed the plant extract is effective in treating mild to moderate depressive disorders.

“Overall, we found that the St. John’s wort extracts tested in the trials were superior to placebos and as effective as standard antidepressants, with fewer side effects,” says lead researcher, Klaus Linde of the Centre for Complementary Medicine in Munich, Germany.

Extracts of the plant *Hypericum perforatum*, commonly known as St. John's wort, have long been used in folk medicine to treat depression and sleep disorders. The plant produces a number of different substances that may have anti-depressive properties, but the whole extract is considered more effective.

Cochrane Researchers reviewed 29 trials which together included 5,489 patients with symptoms of major depression. All trials employed the commonly used Hamilton Rating Scale for Depression to assess the severity of depression. In trials comparing St. John's wort to other remedies, not only were the plant extracts considered equally effective, but also fewer patients dropped out of trials due to adverse effects. The overall picture is complicated; however, by the fact that the results were more favorable in trials conducted in German speaking countries, where St. John's extracts have a long tradition and are often prescribed by doctors.

"Using a St. Johns wort extract might be justified, but products on the market vary considerably, so these results only apply to the preparations tested," says Linde.

Linde K, Berner MM, Kriston L. St John's Wort for Major Depression. Cochrane Database of Systematic Reviews 2008, Issue 4.

Belt and Braces Approach May Prevent Deep Vein Thromboses (DVT)

Combining short periods of leg compression with medications such as heparin is more effective at preventing blood clots in high-risk patients than using either preventative measure alone. A team of Cochrane Researchers believe that this 'belt and braces' approach can significantly decrease a patient's risk of deep vein thrombosis (DVT).

DVT can be fatal if the clot breaks free and travels to the lungs (pulmonary embolism). They can also cause severe leg swelling and ulcers – a condition known as post-thrombotic syndrome.

While DVTs have grabbed media attention when they occur in people who have sat in cramped conditions (e.g. economy class syndrome), they are much more common in patients undergoing surgery, hospitalized with severe illnesses or with leg fractures. Most occur in the legs. Healthcare providers often recommend anticoagulant medications such as heparin, as preventative measure for patients at high risk of DVT. Alternatively, using a pump to inflate an airtight bag around the leg can also prevent blood "pooling" and reduce the risk.

By analyzing data from eleven trials involving 7,431 patients, Cochrane Researchers found that a combined approach to prevention reduced the risk of DVT from 4 in 100 to less than 1 in 100 when compared to anticoagulants alone. When compared to compression alone, the risk of DVT was reduced from 4 in 100 to 1 in 100.

"Our results support guidelines that already recommend the combined use of medication and leg compression to prevent deep vein blood clots," says lead researcher, Stavros Kakkos of the Henry Ford Hospital in Detroit, Michigan.

There is, however, still some uncertainty as to whether the combined approach reduces patient's risk of a life-threatening pulmonary embolism caused by a clot travelling to the lungs.

Kakkos SK, Caprini JA, Geroulakos G, et al. Combined Intermittent Pneumatic Leg Compression and Pharmacological Prophylaxis for Prevention of Venous Thromboembolism in High-risk Patients. Cochrane Database of Systematic Reviews 2008, Issue 4.

Early Breast Cancer: LHRH Agonists Show Considerable Promise

Women who have had early stage breast cancer surgically removed, and whose tumor cells are stimulated by the hormone estrogen, can benefit from taking Luteinizing hormone releasing hormone (LHRH) antagonists, a Cochrane Systematic Review has concluded. This medication may be taken alone or alongside the use of tamoxifen.

Developing effective treatment regimes is important because approximately 30% of women diagnosed with early stage breast cancer eventually die of the disease.

In over half of the premenopausal women who develop breast cancer, the cells in the tumors grow faster in the presence of estrogen. Their tumors are said to be ER+. Treatment often starts with the surgical removal of the tumor, but some cancer cells may be left behind. The challenge then is to slow down their rate of growth.

A well recognized chain of events leads to stimulated-stimulated tumor cell growth. First LHRH causes the pituitary gland to release luteinizing hormone (LH). This LH travels to the ovaries and triggers the release of estrogen. The estrogen moves to the region of the tumor where it locks on to receptors on the cells and stimulates tumor growth.

There are two possible ways of preventing estrogen from stimulating growth. One is to block the estrogen receptors that are present on the cells so that they can not respond to the hormone. Tamoxifen works this way. The second is to reduce the amount of estrogen that is present in the bloodstream. This can be done by blocking LHRH's ability to cause a release of LH.

A team of Cochrane Researchers searched for evidence on the value of using LHRH antagonists. They identified 14 randomized trials that involved nearly 12,000 premenopausal women with operable breast cancer, most of whom were ER+. The LHRH agonist in most trials was goserelin.

"While we cannot yet recommend using ovarian suppression as the standard therapy for these women, it is possible that LHRH antagonists may reduce the risk of cancer reoccurring and extend survival times in premenopausal women who have early breast cancer that is not known to be ER negative. Given this potential, we eagerly await the results of current clinical trials that could answer this important issue," says lead researcher Rohini Sharma, who works in the Department of Medical Oncology, Hammersmith Hospital, London, UK.

The researchers point out that they were able to determine whether tamoxifen or the LHRH antagonist was better if used alone. They did find that women who used LHRH alone had fewer, or less severe, adverse effects than those on tamoxifen.

Sharma R, Hamilton A, Beith J. LHRH Agonists for Adjuvant Therapy of Early Breast Cancer in Premenopausal Women. Cochrane Database of Systematic Reviews 2008, Issue 4.