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This alert highlights some of the key health care conclusions and their implications for practice as published this week in The Cochrane Library, 2006, Issue 3.

To receive a full copy of the reviews highlighted in this newsletter, or to arrange an interview with an author, contact Julia Lampam (+44 (0)1243 770668 or by email, jlampam@wiley.co.uk).

Reviews highlighted in this newsletter:

- **Taking calcium supplements during pregnancy halves the risk of pre-eclampsia**

Worldwide pre-eclampsia accounts for 40,000 maternal deaths a year and can trigger premature birth which is extremely dangerous for the child. A Cochrane Review of trials found that taking calcium supplements during pregnancy is a safe and cheap means of reducing the risk of pre-eclampsia.

- **Drugs given to stop nausea and vomiting after surgery help only a few people**

Between 10 - 28% of people benefit from taking an anti-emetic drug to prevent nausea or vomiting after surgery – this means that if everyone was given the drug the majority of patients would be exposed to the risk of side-effects without gaining any benefit.

- **Amethocaine better than Eutectic Mixture of Local Anaesthetics (EMLA) at preventing pain from needle insertion in children**

Local anaesthetic creams can make blood tests and intravenous drips pain free, but only if the creams are used properly. A Cochrane Review comparing different anaesthetic creams, showed that both practitioners and children found Amethocaine better than EMLA.

- **Don't bother with intravenous rehydration for diarrhoea – oral rehydration works just as well**

In wealthy countries it is fashionable to prefer intravenous therapy (IVT) over oral rehydration therapy (ORT). A Cochrane Review published, however, shows that ORT is just as effective as IVT.

- **Treating water at home is effective in preventing diarrhoea, a major cause of death in young children in developing countries**

Supplying clean water to a community helps reduce gastrointestinal diseases, but interventions that kill disease-causing waterborne micro-organisms (or microbes) once it has reached the home can be even more effective. These are the conclusions of a systematic review that considered the outcome of 38 field trials involving more than 53,000 participants.

- **Acupuncture can help clear a chronic pain in the neck**

There is moderate evidence that acupuncture can relieve chronic neck pain. Between 26 – 71% of the adult population claims to have had at least one episode of neck pain or stiffness during their life. In many cases, this can last for months and has a large impact on life style, work and health care expenditure.

- **Exercise helps control type 2 diabetes**

People with type 2 diabetes mellitus who perform regular exercise improve their blood sugar control and have reduced body fat. This reduction in fat occurs even if they don't lose weight, suggesting that some of the fat may have been replaced by muscle.

- **Anti-histamines cannot be recommended as a general therapy for non-specific coughs in children**

Children with a cough that lasts more than 3-4 weeks and is not associated with an identifiable illness are sometimes given anti-histamines. In adults with chronic cough, anti-histamines are recommended as an empirical treatment, but a systematic review of research failed to find evidence that it works for children. Anti-histamines do, however, have well known side-effects.

Taking calcium supplements during pregnancy halves the risk of pre-eclampsia

Worldwide pre-eclampsia accounts for 40,000 maternal deaths a year and can trigger premature birth which is extremely dangerous for the child. A Cochrane Review of trials found that taking calcium supplements during pregnancy is a safe and cheap means of reducing the risk of pre-eclampsia.

This conclusion is published in an updated Cochrane Review and by including new data the Review Authors have modified their conclusions from pointing to the possibility of benefits, to a conclusive decision.

“We found no evidence of adverse effects, but we do need more research to find the ideal dosage of calcium,” says lead Review Author Prof Justus Hofmeyr, who works at the East London Hospital Complex, in South Africa.

This line of enquiry started after the chance observation that Mayan Indians in Guatemala have a low incidence of pre-eclampsia. One aspect of their lifestyle is that they soak their corn in lime before cooking and consequently have a high calcium diet. Similarly pre-eclampsia rates in Ethiopia are low – again a culture that has a high calcium intake. One theory is that high calcium levels in the blood stream may help muscles surrounding blood vessels to relax –which would tend to reduce blood pressure.

“The reduction in pre-eclampsia, and in maternal death or severe morbidity, support the use of calcium supplementation, particularly for those with low dietary intake”, says Hofmeyr.

Review Title: Hofmeyr GJ et al Calcium supplementation during pregnancy for preventing hypertensive disorders and related problems. *Cochrane Database of Systematic Reviews 2006, Issue 3*. Art. No.: CD001059.

Drugs given to stop nausea and vomiting after surgery help only a few people

Between 10 - 28% of people benefit from taking an anti-emetic drug to prevent nausea or vomiting after surgery – this means that if everyone was given the drug the majority of patients would be exposed to the risk of side-effects without gaining any benefit.

A Cochrane Review that included 737 studies involving 103,237 participants concludes that most patients given a drug to prevent nausea or vomiting after surgery will not benefit from it. While 10% to 28% of people benefit, between 90% and 72% don't.

But between 1% and 5% of experience side-effects that can include headache, sedation, or dry mouth.

“A clinician and patient together need to balance the benefits and risks before giving anti-emetics,” says lead Review Author Dr John Carlisle, who is a consultant anaesthetist and intensivist at Torbay Hospital, in Torquay, UK.

Of the 60 drugs considered, nine were most effective: droperidol, metoclopramide, ondansetron, tropisetron, dolasetron, dexamethasone, cyclizine, ramosetron and granisetron. There was no evidence of difference between these drugs.

Review Title: Carlisle J B et. al: Drugs for preventing postoperative nausea and vomiting. *Cochrane Database of Systematic Reviews 2006, Issue 3*. Art. No.: CD004125.

Amethocaine better than Eutectic Mixture of Local Anaesthetics (EMLA) at preventing pain from needle insertion in children

Local anaesthetic creams can make blood tests and intravenous drips pain free, but only if the creams are used properly. A Cochrane Review comparing different anaesthetic creams, showed that both practitioners and children found Amethocaine better than EMLA.

When EMLA arrived on the market it gave the option of pain free blood tests for children, but it is only fully effective if the cream is applied for between one and three hours before the procedure. In emergency situations this not feasible, and in the clinic it often does not occur. The more recently introduced amethocaine requires only 30-45 mins to reach full effect.

“We found that amethocaine was superior at reducing overall needle insertion pain experience by children not only when the full application times for each cream were

used, but particularly when it was not possible to wait for the full time,” said lead Review Author Professor Janice Lander who works at the University of Alberta, in Edmonton, Canada.

The researchers were not, however, able to say whether either cream was better than the other at enabling a practitioner to insert a needle.

Review Title: Lander J A et. al: EMLA and Amethocaine for reduction of children’s pain associated with needle insertion. *Cochrane Database of Systematic Reviews* 2006, Issue 3. Art. No.: CD004236.

Don’t bother with intravenous rehydration for diarrhoea – oral rehydration works just as well

In wealthy countries it is fashionable to prefer intravenous therapy (IVT) over oral rehydration therapy (ORT). A Cochrane Review however, shows that ORT is just as effective as IVT.

The World Health Organization estimates that in low-income and middle-income countries about 1.8 million children below the age of five years die of diarrhoea each year. Almost 50% of these deaths are due to dehydration and most affect children less than one year of age. Children in high-income countries are not exempt. In the USA, for example, each year roughly 22 to 38 million episodes of diarrhoea occur among the 16.5 million children under the age of five years. Diarrhoea accounts for an estimated 2.1 to 3.7 million physician visits per year and 9% to 10% of all hospital admissions.

The issue is how best to provide these children with fluids and salts – IVT or ORT?

Despite the fact that the American Academy of Pediatrics and the Centers for Disease Control recommend ORT, pediatricians in North America tend to use IVT.

By studying the data from 18 trials, nine of which took place in high income countries, a group of Cochrane researchers found that for every 25 children treated with ORT, only one would need to move on to IVT. If the low osmolarity solution recommended by the WHO is used, then this drops to one in a hundred.

The Review Authors also point out that IVT is much more technically demanding, as the clinicians need to calculate flow rates, whereas with ORT the child’s thirst mechanisms will help to regulate intake.

“It seems reasonable that children presenting for medical care with mild to moderate dehydration secondary to acute gastroenteritis should initially be treated with ORT. Should treatment fail, then IVT may be used,” says senior Review Author, Dr William Craig who works at University of Alberta, in Edmonton, Canada

Review Title: Hartling L et al. Oral versus intravenous rehydration for treating dehydration due to gastroenteritis in children. *Cochrane Database of Systematic Reviews* 2006, Issue 3. Art. No.: CD004390.

Treating water at home is effective in preventing diarrhoea, a major cause of death in young children in developing countries

Supplying clean water to a community helps reduce gastrointestinal diseases, but interventions that kill disease-causing waterborne micro-organisms (or microbes) once it has reached the home can be even more effective. These are the conclusions of a systematic review that considered the outcome of 38 field trials involving more than 53,000 participants.

Among infectious diseases, diarrhoea ranks as the third leading cause of both mortality and morbidity (after respiratory infections and HIV/AIDS), placing it above tuberculosis and malaria. Many of the micro-organisms that cause diarrhoea are caused by contaminated drinking water.

In high income communities, the problem is reduced by delivering clean water to homes, but this demands considerable expenditure on infrastructure that is both difficult and costly to maintain. The World Health Organization estimates that 1.1 billion people do not have access to clean water¹; many more rely on water supplies that are unsafe. The UN Millennium Development Goals seek to reduce by half the portion of the population without access to safe drinking water by 2015.

The Cochrane Systematic Review, which was completed by researchers from the London School of Hygiene & Tropical Medicine, shows that interventions to improve the microbiological quality of water are effective in preventing diarrhoea. However, treating water in the home (chlorination, filtration, solar disinfection, combined flocculation/disinfection and improved storage) is considerably more effective in preventing diarrhoea than traditional interventions at the water source or point-of-distribution (wells, boreholes and communal stand posts).

“While the provision of safe piped-in water is an important long-term goal, our results demonstrate that the health gains associated with safe drinking water can be achieved by providing people with simple, affordable technologies to treat their water at home,” says lead Review Author Thomas Clasen, a Lecturer in Household Water Management at the London School of Hygiene & Tropical Medicine. “Our challenge now is to show that these interventions can be disseminated at scale on a sustainable basis”.

Review Title: Clasen T et al. Interventions to improve water quality for preventing diarrhoea. *Cochrane Database of Systematic Reviews* 2006, Issue 3. Art. No.: CD004794.

Notes

1. World Health Organization. *The World health report: 2005: Make every mother and child count*. Geneva: World Health Organization, 2005.

Acupuncture can help clear a chronic pain in the neck

There is moderate evidence that acupuncture can relieve chronic neck pain. Between 26 – 71% of the adult population claims to have had at least one episode of neck pain or stiffness during their life. In many cases, this can last for months and has a large impact on life style, work and health care expenditure.

Acupuncture is one of the complementary medicines that is frequently used. A group of Canadian-led Cochrane Review Authors completed a systematic review of the research literature to see whether there is evidence that it works.

They found 10 trials, with a total of 661 participants, which investigated whether acupuncture alleviated neck pain. In nine of the trials, participants had suffered neck pain for three or more months, while one included people who had had pain for at least six weeks.

To assess whether acupuncture reduces pain at all, some trials compared acupuncture with “sham” or “placebo” treatments. In other trials, the researchers were trying to see how well acupuncture worked compared to another treatment.

Overall, people who received acupuncture reported better pain relief immediately after treatment than those who received sham treatments such as TENS or laser that had the machines switched off, or acupuncture with the needles inserted in the wrong place. People who had acupuncture also reported that their pain went away to a greater extent than those who were just on a list waiting for treatment. In one small trial, people who received acupuncture reported better pain relief in the short-term than those who received massage therapy. There were no serious side effects reported in any of these trials.

“What we need now are some trials that include greater numbers of people and look at the long-term effect of the treatment,” says lead Review Author Dr Kien Trinh who works in McMaster University, Hamilton, Canada.

Review Title: Trinh KV et al. Acupuncture for neck disorders. *Cochrane Database of Systematic Reviews* 2006, Issue 3. Art. No.: CD004870.

Exercise helps control type 2 diabetes

People with type 2 diabetes mellitus who perform regular exercise improve their blood sugar control and have reduced body fat. This reduction in fat occurs even if they don't lose weight, suggesting that some of the fat may have been replaced by muscle.

'Do exercise' is one of the recommendations given to people with type 2 diabetes, alongside advice about diet and medication. By carefully analysing data from 14 randomised controlled trials that involved a total of 377 participants, the Cochrane Researchers managed to tease out the component of benefit that can be attributed to the exercise component.

Exercise decreased glucose levels in haemoglobin by 0.6%, enough to have a clinically significant benefit for the person. For someone with a diagnosed value of 9% who needs to reduce to 7%, this represents a simple way of making one third of the change.

The benefits were seen in as little as eight weeks from the start of exercise.

The sorts of exercise that could help do not need to be extreme. It could include cycling to work, using stairs instead of a lift, or deliberately parking far from the shops when going shopping and then carrying your goods back to the car.

Exercise can therefore be recommended as one of the ways of managing type 2 diabetes and can help a patient use less, or maybe even totally avoid, medication.

Review Title: Thomas DE et al. Exercise for type 2 diabetes mellitus. *Cochrane Database of Systematic Reviews* 2006, Issue 3. Art No: CD002968

Anti-histamines cannot be recommended as a general therapy for non-specific coughs in children

Children with a cough that lasts more than 3-4 weeks and is not associated with an identifiable illness are sometimes given anti-histamines. In adults with chronic cough, anti-histamines are recommended as an empirical treatment, but a systematic review of research failed to find evidence that it works for children. Anti-histamines do, however, have well known side-effects.

Balancing the small chance of benefit against the known risks, caused the researchers to conclude that; “antihistamines cannot be recommended as empirical therapy for children with chronic cough; very young children are particularly vulnerable to the adverse events”.

There are two broad classes of anti-histamines – the first generation H1 receptor antagonists (eg. diphenhydramine, hydroxyzine, chlorpheniramine, brompheniramine and clemastine), and the second generation non sedating antihistamines (terfenadine, astemizole, loratadine and cetirizine). The first generation drugs are less specific in their action and tend to have more side-effects.

One study that the researchers looked at found that cetirizine did reduce coughing within 2 weeks of starting treatment.

“There is a surprising lack of high quality evidence in this area, given that millions of children around the world have chronic coughs each year,” according to lead Review Author Associate Professor Anne Chang. “What we need are well designed randomised controlled trials of anti-histamines that are designed so that neither the child nor carers know which treatment is being given – this will help rule out any placebo effect that could confuse the results.”

Review Title: Chang et al. Anti-histamines for prolonged non-specific cough in children. *Cochrane Database of Systematic Reviews* 2006, Issue 3. Art No: CD005604

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Notes for editors

1. 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 .
2. The Cochrane Library can be accessed at <http://www.thecochranelibrary.com>. Guest users may access abstracts for all Reviews in the database, and members of the media may request full access to the contents of the Library. For further information, see contact details below.

3. A number of countries have national provisions by which some or all of their residents are able to access The Cochrane Library for free. These include:

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4. There are also several programmes, such as the Health InterNetwork Access to Research Initiative (HINARI) that provide access in developing countries. To find out whether your country is included in any of these programmes/provisions, or to learn how to get access if you don't already have it, please visit: <http://www.thecochranelibrary.com>.

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^a Jadad AR, Cook DJ, Jones A, Klassen TP, Tugwell P, Moher M, et al. Methodology and reports of systematic Reviews and meta-analyses: a comparison of Cochrane Reviews with articles published in paper-based journal.