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infosheet
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HOME FORTIFICATION OF FOODS WITH MULTIPLE MICRONUTRIENT POWDERS FOR IMPROVING HEALTH AND NUTRITION IN CHILDREN UNDER TWO YEARS OF AGE

Approximately 45% of deaths in children are as a result of undernutrition[1]. Undernutrition includes a range of conditions such as wasting, stunting, underweight and vitamin and mineral deficiencies. Vitamins and minerals are needed by the body in small quantities, but their deficiencies can have severe and life-threatening impact on the lives of children. Globally, the most common micronutrient deficiencies, especially in women and children, are vitamin A, iron and iodine deficiencies. Infants and children are particularly susceptible to micronutrient deficiencies because they need a high level of vitamins and minerals to support their rapid growth and development.

In 2011, approximately 300 million children had anaemia; the majority of these children live in Africa where 62% percent of children aged 6-59 months suffer from anaemia. Anaemia can be caused by a number of factors including micronutrient deficiency (iron, vitamin B12, folic acid and vitamin A), malaria, hookworm, human immunodeficiency virus (HIV) and genetic disorders such as sickle cell. Iron deficiency, however accounts for the majority of anaemia cases. Anaemia in children can lead to poor physical and cognitive (mental) development affecting school performance and increased risk of death.[2]

Vitamin A deficiency is the leading cause of preventable blindness in children. Sub Saharan Africa bears the highest burden globally, with approximately 48% of children aged 6–59 months being vitamin A deficient. In addition, to visual impairment and blindness, children who suffer from vitamin A deficiency are at an increased risk of severe illness and death from common childhood infections.[3]

One of the strategies used for preventing micronutrient deficiencies in children is fortification of foods with multiple micronutrient powders (MNPs). Micronutrient powders are "single-dose packets of vitamins and minerals in powder form that can be sprinkled onto any ready to eat semi-solid food consumed at home, school or any other point of use.[4] A recently updated Cochrane Systematic review by Suchdev et al.[5] sought to assess the effects and safety of home (point-of-use) fortification of foods with MNPs on nutrition, health, and developmental outcomes in children under two years of age. The review included a total of 29 studies (randomized controlled trials and quasi-randomized controlled trials) conducted in low and middle income countries of Asia, Africa, Latin America, and the Caribbean.

The participants included 27,051 children aged 6-23 months of age who were given one of the following: MNP versus no intervention or placebo; MNP versus an iron-only supplement of iron drops or syrup; or MNP versus iron and folic acid supplements. The period for which the MNP were given ranged from 2 months to 44 months in the various studies.

The results of the review showed that compared with no intervention or a placebo, the fortification of foods with MNPs at the point of use, reduced the risk of anaemia by 18% (moderate-certainty evidence) and iron deficiency by 53% (high-certainty evidence). Children receiving MNP were also found to have higher haemoglobin concentrations (low-certainty evidence) and higher iron status (moderate-certainty evidence) than children who received no intervention or placebo. The authors did not find an effect of MNPs on weight-for-age (moderate-certainty evidence) and they found that MNPs did not increase the incidence of diarrhoea, upper respiratory infection, malaria, or all-cause morbidity.

When MNP was compared to daily iron supplementation, the results for anaemia and haemoglobin were similar in the children that had MNP and those that had iron. Children who received MNPs, however, had fewer cases of diarrhoea than those that had iron. The certainty of the evidence ranged from low to very low.

Very few trials reported on death, side effects or morbidity. The authors concluded that irrespective of the duration of administration, MNPs appears to be efficacious among infants and young children aged 6 to 23 months living in settings with different prevalences of anaemia and malaria endemicity.

Based on the results of this review, the World Health Organization recommends the fortification of complementary foods with iron-containing micronutrient powders at the point-of-use, to reduce anaemia and improve the iron status of children aged 6-23 months in populations where the prevalence of anaemia among children under 2 years of age or under 5 years of age is 20% or more.

References

1. https://www.who.int/health-topics/micronutrients
2. World Health Organization. Nutritional anaemias: tools for effective prevention and control. Geneva: World Health Organization; 2017.
3. https://www.who.int/elena/titles/vitamina_infants/en/
4. Multiple micronutrient powders for home fortification of foods consumed by children 6–23 months of age. https://www.who.int/elena/titles/duplicate-error/en/
5. Suchdev PS, Jefferds MED, Ota E, da Silva Lopes K, De-Regil LM. Home fortification of foods with multiple micronutrient powders for health and nutrition in children under two years of age. Cochrane Database of Systematic Reviews 2020, Issue 2. Art. No.: CD008959. DOI: 10.1002/14651858.CD008959.pub3.

EVIDENCE AT YOUR FINGERTIPS

(From the Cochrane Library)

TECHNICAL SUMMARY

DRUGS FOR PREVENTING LUNG CANCER IN HEALTHY PEOPLE

Background

Lung cancer is one of the most prevalent and lethal cancers in the world. It is the leading cause of death from cancers in men and the second-leading cause of death from cancers in women globally. Faced with this scenario, and considering the low average survival rate at five years after diagnosis for people diagnosed at a late stage, prevention emerges as an important strategy.

Dietary supplements are commonly used to prevent chronic diseases, mainly cardiovascular disease and cancer and their use has increased over time.

Objectives

To determine whether vitamins and minerals and other potential agents, alone or in combination, reduce lung cancer incidence and lung cancer mortality in healthy populations.

Main Results

- The authors included a total of 12 randomized controlled

trials in the Cochrane systematic review.

- Eight of the studies were conducted in the USA, one in China, and two in Europe. One study was a multi-country trial conducted in the USA, Canada and Puerto Rico.
- The participants in the studies were male and/or female aged 35 to 84 years.

- The interventions assessed in the studies were vitamin A, vitamin C, vitamin D3 plus calcium, vitamin E, selenium supplements, or a combination of two or more of these products. These were compared to placebo.
- Outcomes assessed by the review authors were lung cancer incidence, lung cancer mortality, adverse events, total cancer incidence, total cancer mortality, total mortality.

Effects of interventions

- **Vitamin A**

In healthy adults, vitamin A compared to placebo:

◊ results in little to no difference in lung cancer incidence (RR 1.09, 95% CI 1.00 to 1.19; 5 RCTs, 212314 participants; high-certainty evidence); lung cancer mortality (RR 1.06, 95% CI 0.81 to 1.38; 3 RCTs, 190118 participants; high-certainty evidence)

◊ increases the risk of minor side effects, such as yellowing of the skin and minor gastrointestinal symptoms (high-certainty evidence).

In smokers or asbestos workers vitamin A

◊ increases the risk of lung cancer incidence (RR 1.10, 95% CI 1.01 to 1.20; 3 RCTs, 43995 participants; high-certainty evidence), lung cancer mortality (RR 1.18, 95% CI 1.01 to 1.38; 2 RCTs, 29426 participants; high-certainty evidence) and all-cause mortality (RR 1.09, 95% CI 1.05 to 1.13; 2 RCTs, 32883 participants; high-certainty evidence).

- **Vitamin C**

◊ Likely results in little to no difference in lung cancer incidence (RR 1.29, 95% CI 0.67 to 2.49; 2 RCTs, 14953 participants; moderate-certainty evidence). However, in women, vitamin C increases the risk of lung cancer incidence (RR 1.84, 95% CI 1.14 to 2.95; 1 RCT, 7627 women; high-certainty evidence).

◊ results in little to no difference in mortality for lung cancer in men (RR 0.81, 95% CI 0.53 to 1.23; 1 RCT, 7326 men; high-certainty evidence).

- **Vitamin D + Calcium**

◊ may result in little to no difference in lung cancer incidence in postmenopausal women (RR 0.90, 95% CI 0.39 to 2.08; 3 RCTs, 37601 women; low-certainty evidence).

- **Vitamin E**

◊ results in little to no difference in lung cancer incidence (RR 1.01, 95% CI 0.90 to 1.14; 3 RCTs, 36841 participants; high-certainty evidence) or lung cancer mortality (RR 0.96, 95% CI 0.77 to 1.18; 2 RCTs, 29214 participants; high-certainty evidence),

◊ increases the risk of haemorrhagic strokes (hazard ratio (HR), 1.74, 95% CI 1.04 to 2.91; 1 RCT, 14641 participants; high -certainty evidence).

Authors Conclusion

Vitamin A, C, E, D or selenium supplements, taken alone or in various combinations do not prevent lung cancer, or death from lung cancer in healthy people. Rather there is evidence that vitamin A increases lung cancer incidence, lung cancer mortality and all-cause mortality in smokers and people exposed to asbestos. Vitamin C increases the risk of lung cancer in women and Vitamin E increases the risk of haemorrhagic strokes.

Reference

Cortés-Jofré M, Rueda JR, Asenjo-Lobos C, Madrid E, Bonfill Cosp X. Drugs for preventing lung cancer in healthy people. Cochrane Database of Systematic Reviews 2020, Issue 3. Art. No.: CD002141. DOI: 10.1002/14651858.CD002141.pub3.

PLAIN LANGUAGE SUMMARY

METFORMIN FOR PREVENTION/ DELAY OF TYPE 2 DIABETES MELLITUS (T2DM) AND ASSOCIATED COMPLICATIONS IN PERSONS AT INCREASED RISK FOR DEVELOPMENT OF T2DM

Review question

Is the antidiabetic drug metformin able to prevent or delay the development of type 2 diabetes and its associated complications in people with moderately elevated blood sugar levels?

Background

People with moderately elevated blood sugar levels (often referred to as 'prediabetes') are said to have an increased risk for developing diabetes. Metformin is a blood sugar-lowering medicine which has been used for a long time to treat people with type 2 diabetes. Type 2 diabetes, also known as adult-onset diabetes, is the most common type

of diabetes and prevents the body from using insulin properly (insulin resistance). Type 2 diabetes can have bad effects on health in the long term (diabetic complications), such as severe eye or kidney disease or 'diabetic feet', eventually resulting in foot ulcers.

We investigated whether metformin can also be used to prevent or delay type 2 diabetes in people at increased risk. We examined the effects of metformin on patient-important outcomes, such as complications of diabetes, death from any cause, health-related quality of life and side effects of the drug.

Study characteristics

To be included, people had to have blood sugar levels higher than normal, but below the levels that are used to diagnose diabetes. We found 20 randomised controlled trials (clinical studies where people are randomly put into one of two or more treatment groups) with a total of 6774 participants. The comparator group consisted of diet and exercise, intensive diet and exercise or another blood sugar-lowering drug. One study dominated the evidence (48% of the total number of all participants). Twelve studies were performed in China. We only included studies with a treatment duration of one year or more. The treatment duration in the included studies varied from one to five years.

This evidence is up to date as of March 2019.

Key results

Fifteen studies compared metformin against diet and exercise. Eight studies compared metformin against intensive diet and exercise and three studies compared metformin plus intensive diet and exercise against intensive diet and exercise only. When compared to standard diet and exercise metformin slightly reduces or delays development of diabetes. However, when compared to intensive diet and exercise, metformin does not provide an additional benefit in reducing or delaying development of diabetes.

Seven studies compared metformin with another glucose-lowering drug: three studies compared metformin with acarbose. Three studies compared metformin with a thiazolidinedione (such as pioglitazone). There was neither an advantage or disadvantage when comparing metformin with these drugs with respect to the development of diabetes. One study compared metformin with a sulphonylurea (glimepiride). The trial did not report patient-important outcomes.

In general, the reporting of serious side effects was sparse. Few participants died and we did not detect a clear difference between the intervention and comparator groups. We also did not detect an advantage or disadvantage of metformin in relation to health-related quality of life. Our included studies did not report on non-fatal heart attacks, strokes or complications of diabetes such as kidney or eye disease. Few studies estimated the direct medical costs. When compared to diet and exercise, metformin was more expensive. When compared to intensive diet and exercise, metformin was less expensive.

We identified 11 ongoing studies which potentially could provide data for this review. These studies will add a total of 17,853 participants in future updates of our review.

Future studies should investigate more patient-important outcomes such as complications of diabetes and especially the side effects of the drugs. We do not know whether 'prediabetes' is just a condition defined by laboratory measurements, or whether it is in fact a real risk factor for diabetes. It is also unknown whether treatment of this condition translates into better patient-important outcomes.

Certainty of the evidence

All included studies had problems in the way they were conducted or reported.

Reference

Madsen KS, Chi Y, Metzendorf MI, Richter B, Hemmingsen B. Metformin for prevention or delay of type 2 diabetes mellitus and its associated complications in persons at increased risk for the development of type 2 diabetes mellitus. Cochrane Database of Systematic Reviews 2019, Issue 12. Art. No.: CD008558. DOI: 10.1002/14651858.CD008558.pub2.

RECENT EVENTS

COCHRANE DISSEMINATION CHECKLIST TRAINING - LONDON 2020

Knowledge translation is the process of supporting the use of high quality health evidence by those who need it to make health decisions. People who need evidence to make decisions range from policy makers, health professionals, researchers to the general public/ consumers. Many volunteers work hard to produce high quality Cochrane systematic reviews, but in order for this research to get to those that need it, it must be packaged in a suitable form and disseminated to the intended audience. In recognition of this Cochrane recently launched a dissemination checklist to guide the preparation of dissemination products (any piece of communication that aims to present the findings of a Cochrane Review to any target audience with the aim of supporting an informed decision. Some examples include social media posts, blog shots, press releases, review summaries and podcasts). The aim of the guidance is to improve the quality of dissemination products that present the findings of Cochrane intervention reviews (i.e. reviews of effectiveness). However, many of the items on the checklist are useful when disseminating other types of Cochrane Reviews or other research.

As part of steps to facilitate the use of the dissemination list, Cochrane conducted a two-day training on the checklist with a group of dissemination champions from different Cochrane entities around the world. The training took place from 16-17 January at the Goodenough College in London. Claire Glenton and Sarah Rosenbaum were the main facilitators for the training sessions. Both Claire and Sarah played key roles in the development of the checklist along with a team from Cochrane Norway. Jo Anthony, Stephanie Lagosky, Karen Head, Katie Abbotts, Sarah Chapman and Selena Ryan Vig also facilitated sessions at the training.

The training consisted of some presentations and plenty of practical sessions on the use of the new checklist.

The checklist consists of 18 items which cover various areas of effective dissemination such as identifying and involving your target audience, using plain language, presentation of results in a way that is clear, non-offensive, easy-to -read and not misleading. Cochrane is encouraging the use of the checklist, not only by those responsible for

Small group discussions

Small group discussions

Some of the Facilitators (Front table: Jo Anthony (Speaking), Claire Glenton and Sarah Rosenbaum.

dissemination of Cochrane reviews in various Cochrane entities, but by everyone preparing a dissemination product based on a Cochrane intervention review.

Sarah Rosenbaum facilitating a session.

INTRODUCTION TO COCHRANE SYSTEMATIC REVIEWS WORKSHOP AT LASUTH

Workshop Session

Group Photo of Participants with the Chief Medical Director (CMD) of LASUTH (Prof. Adetokunbo Fabamwo) (CMD -Front row – 3rd from right)

Cochrane Nigeria recently held an Introduction to Cochrane Systematic reviews workshop in Collaboration with the Lagos State University Teaching hospital (LASUTH). The workshop, which took place from 3-5 February 2020, was attended by 23 participants, who are researchers in obstetrics and gynaecology. Dr. Olabisi Oduwole (*Senior Research Associate, Cochrane Nigeria* and *Senior Lecturer, Department of Medical Laboratory Science, Achievers University, Owo*) and Dr. Ekpereonne Esu (*Senior Research Associate, Cochrane Nigeria* and *Lecturer, Department of Public Health, University of Calabar*) facilitated the workshop. The workshop took the participants through each of the steps of a Cochrane systematic review and included presentations and practical sessions on developing a review question, writing a Cochrane systematic review protocol, searching for evidence, data extraction, risk of bias assessment, meta analysis among others. Quite heart-warming was the presence of the Chief Medical Director of the teaching hospital at the workshop. The participants found the workshop helpful.

New and Updated Reviews from the Cochrane Library

The following new or updated reviews, published recently in the Cochrane Library, were authored or co-authored by Nigerians.

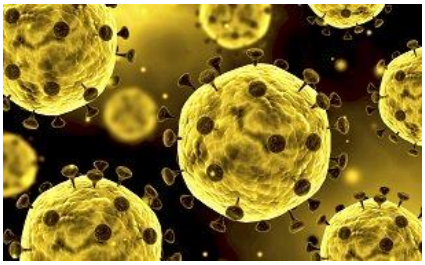
New or Updated Review

- Multiple drug combinations of bortezomib, lenalidomide, and thalidomide for first-line treatment in adults with transplant-ineligible multiple myeloma: a network meta-analysis **by** *Vanessa Piechotta, Tina Jakob, Peter Langer, Ina Monsef, Christof Scheid, Lise J Estcourt,* ***Sunday Ocheni,*** *Sebastian Theurich, Kathrin Kuhr, Benjamin Scheckel, Anne Adams, Nicole Skoetz.* Issue 5, 2020.
- Intermittent preventive treatment for malaria in infants by *Ekpereonne B Esu, Chioma Oringanje, Martin M Meremikwu*. Issue 12, 2019.

Other Recent Reviews

- Clonazepam monotherapy for treating people with newly diagnosed epilepsy **by** *Francesco Brigo,* ***Stanley C Igwe****, Nicola Luigi Bragazzi, Simona Lattanzi*. Issue 11, 2019.
- Vaccines for preventing rotavirus diarrhoea: vaccines in use **by** *Karla Soares-Weiser, Hanna Bergman, Nicholas Henschke,* ***Femi Pitan****, Nigel Cunliffe*. Issue 10, 2019.
- Artemether for Severe Malaria **by** ***Ekpereonne B Esu, Emmanuel E Effa, Oko N Opi*** **and** ***Martin M Meremikwu.*** Issue 6, 2019.
- Palliative interventions for controlling vaginal bleeding in advanced cervical cancer by ***George U Eleje, Ahizechukwu C Eke, Gabriel O Igberase , Anthony O Igwegbe ,*** **and** ***Lydia I Eleje***. Issue 3, 2019.
- Ethosuximide, sodium valproate or lamotrigine for absence seizures in children and adoles- cents by *Francesco Brigo,* ***Stanley C Igwe*** and *Simona Lattanzi*. Issue 2, 2019.

ANNOUNCEMENTS



- **Covid-19 Resources from Cochrane:** Cochrane has a put together a number of resources on COVID-19. These can be accessed at https://www.cochranelibrary.com/covid-19
- **Cochrane Dissemination Checklist and Guidance:** Cochrane has launched an 18-item Dissemination Checklist and accompanying guidance to improve the quality, consistency and translatability of dissemination products that present findings of Cochrane intervention reviews. The checklist will be useful for anyone who produces, or wants to produce, dissemination products or dissemination product templates. Webinars on how to use the checklist and a PDF copy of the checklist may be accessed at https://www.cochrane.org/news/launch-cochranes-dissemination-checklist-and-guidance

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