ASTHMA DRUGS SUPPRESS GROWTH

Corticosteroid drugs that are given by inhalers to children with asthma may suppress their growth, evidence suggests. Two new systematic reviews published in The Cochrane Library focus on the effects of inhaled corticosteroid drugs (ICS) on growth rates. The authors found children's growth slowed in the first year of treatment, although the effects were minimised by using lower doses.

Inhaled corticosteroids are prescribed as first-line treatments for adults and children with persistent asthma. They are the most effective drugs for controlling asthma and clearly reduce asthma deaths, hospital visits and the number and severity of exacerbations, and improve quality of life. Yet, their potential effect on the growth of children is a source of worry for parents and doctors. Worldwide, seven ICS drugs are currently available: beclometasone, budesonide, ciclesonide, flunisolide, fluticasone, mometasone and triamcinolone. Ciclesonide, fluticasone and mometasone are newer and supposedly safer drugs.

The first systematic review focused on 25 trials involving 8,471 children up to 18 years old with mild to moderate persistent asthma. These trials tested all available inhaled corticosteroids except triamcinolone and showed that, as a group, they suppressed growth rates when compared to placebos or non-steroidal drugs. 14 of the trials, involving 5,717 children, reported growth over a year. The average growth rate, which was around 6-9 cm per year in control groups, was reduced by about 0.5 cm in treatment groups.

“The evidence we reviewed suggests that children treated daily with inhaled corticosteroids may grow approximately half a centimetre less during the first year of treatment,” said lead author of the review, Linjie Zhang, who is based at the Faculty of Medicine at the Federal University of Rio Grande in Rio Grande, Brazil. “But this effect is less pronounced in subsequent years, is not cumulative, and seems minor compared to the known benefits of the drugs for controlling asthma and ensuring full lung growth.”

In the second review, the same authors, working with two others, reviewed data from 22 trials in which children were treated with low or medium doses of inhaled corticosteroids. These trials tested different doses of all drugs except triamcinolone and flunisolide. Only three trials followed 728 children for a year or more, with one of these trials testing three different dosing regimens. In the three trials, using lower doses of the inhaled corticosteroids, by about one puff per day, improved growth by a quarter of a centimetre at one year.

The researchers found that growth suppression varied across studies, and so they looked at the relationship between a variety of factors and their effects on growth. Some of the variation could be explained by the drugs used, although since this was an indirect comparison the authors say more evidence is needed. “Conclusions about the superiority
of one drug over another should be confirmed by further trials that directly compare the drugs,” said Zhang.

More long-term trials and trials comparing different doses are also needed, particularly in children with more severe asthma requiring higher doses of inhaled corticosteroids, the researchers conclude. “Only 14% of the trials we looked at monitored growth in a systematic way for over a year. This is a matter of major concern given the importance of this topic,” said Francine Ducharme, one of the authors of both reviews and senior author of the second review, based at the Department of Paediatrics at the University of Montreal in Montreal, Canada. “We recommend that the minimal effective dose be used in children with asthma until further data on doses becomes available. Growth should be carefully documented in all children treated with inhaled corticosteroids, as well in all future trials testing inhaled corticosteroids in children.”

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SHIFT WORKERS: EVIDENCE FOR SLEEP INDUCING AND ALERTNESS DRUGS IS WEAK

Shift workers are taking drugs to help them stay awake or get to sleep despite weak evidence for their benefit, according to a new Cochrane review. The authors of the review found only small numbers of trials testing over-the-counter and prescription drugs used by shift workers, and the results suggest that for some people they might do more harm than good.

In most developed countries, at least 10% of the workforce is involved in some form of shift work. European statistics suggest that as many as three quarters of the population have ‘non-standard’ working hours. Disturbances to normal sleeping and waking patterns increase the risk of accidents and affect shift workers’ health. It is therefore important to avoid shift work where possible and improve shift work schedules to help shift workers achieve more normal sleeping and waking patterns. In jobs where shift work cannot be avoided, such as health care, the police force or the military, drugs can potentially offer short-term benefits.

The review included 15 trials involving a total of 718 people. In nine trials, the over-the-counter hormone drug melatonin helped shift workers sleep for around 24 minutes longer during the night or day, compared to placebos. However, it did not help them get to sleep any quicker. Data from only one trial of the hypnotic drug zopiclone was available. The drug was no more effective than placebos for helping shift workers sleep during the day.

The remaining trials focused on caffeine and two drugs, modafinil and armodafinil, that are prescribed for sleepiness during night shifts. In one trial, caffeine reduced sleepiness during night shifts, when workers also napped before shifts. Modafinil and armodafinil, used by shift workers in one and two trials respectively, increased alertness and reduced sleepiness. However, they also caused headaches, nausea and a rise in blood pressure in a substantial number of people. Due to the limited benefits and frequent side effects, neither of these drugs is approved for shift workers in Europe.