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This series is coordinated by Corey D. Fogleman, MD, Assistant Medical Editor.

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Bronchodilators for Bronchiolitis

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Clinical Question

Should a child 24 months or younger who has been diagnosed with bronchiolitis be treated with an inhaled bronchodilator such as albuterol?

Evidence-Based Answer

Albuterol does not improve any clinical outcomes in the outpatient or inpatient setting and should not be used in the treatment of bronchiolitis in a child 24 months or younger. (Strength of Recommendation: A, based on consistent, good-quality patient-oriented evidence.)

Practice Pointers

Bronchiolitis is a lower respiratory tract infection, generally of viral etiology, associated with bronchiolar congestion and inflammation that causes wheezing and oxygen desaturation. In children younger than 24 months, 0.5% will be hospitalized with bronchiolitis; the risk is as high as 2% in infants two months or younger.¹ Other Cochrane analyses have concluded that inhaled racemic epinephrine and inhaled hypertonic saline may improve oxygen saturation or reduce length of hospital stay.^{2,3} Because older children and adults with wheeze can be treated effectively with inhaled bronchodilators, it is reasonable to presume these agents may be useful in the treatment of bronchiolitis.

This updated review added two new studies to bring the number of trials to 30, including a total of 1,992 children. Inpatient and outpatient outcomes were examined. Bronchodilators such as albuterol did not significantly improve the oxygen saturation (mean difference in oxygen saturation = -0.43 ; 95% confidence interval, -0.92 to 0.06). In outpatient studies, bronchodilator treatment did not reduce the rate of

hospitalization, whereas in inpatient studies, treatment did not reduce the duration of hospitalization. Subgroup analysis of the treated children showed an improvement in clinical scores on the Respiratory Distress Assessment Instrument and the Respiratory Assessment Change Score. However, the improvement was small and the authors did not consider that outcome to be clinically relevant. An attempt to reduce heterogeneity by excluding trials considered to be at higher risk of bias did not allow any of these parameters of effectiveness to achieve statistical significance. Two reported adverse effects were statistically significant: children who received inhaled bronchodilators demonstrated increased tachycardia as well as decreased oxygen saturation.

This review concludes that bronchodilators are not an effective treatment for bronchiolitis in children 24 months or younger. The presumption that wheeze in a child may represent asthma and that asthma might respond to such therapy may explain why these agents are used despite the evidence. However, another review showed no benefit of bronchodilator therapy in children 24 months or younger with wheeze of any etiology.⁴ Current guidelines suggest that inhaled bronchodilators such as albuterol may be used in treating bronchiolitis if there is a history of asthma, but even these guidelines caution that such treatment should not be continued in children who do not demonstrate immediate clinical benefit.⁵

SOURCE: Gadomski AM, Scribani MB. Bronchodilators for bronchiolitis. *Cochrane Database Syst Rev*. 2014;(6):CD001266.

The practice recommendations in this activity are available at <http://summaries.cochrane.org/CD001266>.

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Oral Contraceptives Are Not an Effective Treatment for Ovarian Cysts

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Clinical Question

Are oral contraceptives an effective therapy for ovarian cysts?

Evidence-Based Answer

Oral contraceptives are not an effective treatment for ovarian cysts, whether the cysts are spontaneous or associated with medically induced ovulation. Most cysts resolve without intervention within two to three months. Those that do not resolve in this time frame are more likely to be pathologic in nature and should prompt referral for a surgical evaluation. (Strength of Recommendation: B, based on inconsistent or limited-quality patient-oriented evidence.)

Practice Pointers

Oral contraceptives have long been known to be highly effective at suppressing the development of ovarian cysts. In one study, the relative risk of developing ovarian cysts was 0.22 (95% confidence interval, 0.13 to 0.39) for women taking an oral contraceptive compared with those not taking an oral contraceptive.¹ Although oral contraceptives are commonly used to treat ovarian cysts, the authors sought to clarify whether this is appropriate. Eight randomized controlled trials were included in this review. Although the studies were too heterogeneous to conduct meta-analyses for most questions, results from these studies were consistent enough to draw several conclusions.

Five trials looked at spontaneously occurring ovarian cysts, representing a combined total of 398 women. The largest study included 141 women, and four of the studies were conducted in Turkey. The oral contraceptives used in these studies contained ethinyl estradiol combined with desogestrel or levonorgestrel. Individually, none of the five trials found a statistically significant benefit of oral contraceptive use vs. expectant management in expediting resolution of cysts.

Three trials with a total of 288 participants evaluated the effectiveness of oral contraceptives for treating ovarian cysts in women whose ovulation was medically induced. In these studies, ovulation was induced with clomiphene (Clomid), human menopausal gonadotropin, human chorionic gonadotropin, or a combination of these medications. Eligibility criteria for these studies included the presence of an adnexal cyst that was at least 1.5 to 2 cm in diameter. Participants were randomized to monophasic oral contraceptives or expectant management. Problems with randomization, blinding, and sample size estimation were common to all three studies. No benefit of oral contraceptives over expectant management was observed in any trial.

A common finding in the studies included in this review was that ovarian cysts that were not resolving within two to three cycles were often pathologic in nature. For example, in a 2003 study of 62 women randomized to oral contraceptives or expectant management, 19 women had persistent cysts and subsequently underwent laparoscopy.² Six of the cysts were serous cystadenomas, four were endometriomas, two were mucinous cystadenomas, and one was a mucinous cystadenofibroma. The remaining six were follicular cysts. This reflects the general consensus that functional cysts typically resolve in eight to 12 weeks.³ These findings are also consistent with current guideline recommendations that ovarian cysts smaller than 50 mm be managed expectantly for up to three cycles and that oral contraceptives not be used for treatment.⁴

SOURCE: Grimes DA, Jones LB, Lopez LM, Schulz KF. Oral contraceptives for functional ovarian cysts. *Cochrane Database Syst Rev.* 2014;(4):CD006134.

The practice recommendations in this activity are available at <http://summaries.cochrane.org/CD006134>.

The views expressed in this article are those of the authors and do not reflect the official policy or position of the U.S. government, Department of the Army, or the Department of Defense.

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