Cochrane for Clinicians

Putting Evidence into Practice

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Preventing Unintended Adolescent Pregnancy

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Clinical Question

Which interventions are effective in preventing unintended adolescent pregnancy and its antecedent risk behaviors?

Evidence-Based Answer

Among adolescents, educational interventions increase reported condom use at most recent intercourse (number needed to treat [NNT] = 21; Strength of Recommendation [SOR]: B, based on inconsistent or limited-quality patient-oriented evidence), whereas contraceptive-promoting interventions increase use of hormonal contraception (NNT = 5; SOR: A, based on consistent, good-quality patient-oriented evidence). Combining these interventions lowers the risk of unintended pregnancy compared with existing conventional population-wide activities alone[1] (NNT = 25; SOR: B, based on inconsistent or limited-quality patient-oriented evidence).

Practice Pointers

Unintended adolescent pregnancy is associated with adverse physical and psychological outcomes for mother and child, lower lifelong socioeconomic and educational achievement, and higher medical costs.[2] Births among adolescents have been decreasing over time in most countries, including the United States, primarily because of lower rates of sexual activity and higher rates of contraception use.[2-4] However, the rate of unintended adolescent pregnancy in the United States is higher than in many other industrialized countries and disproportionately affects minority and impoverished youth.[3,4]

This Cochrane review included 53 trials with 105,368 adolescents across community, home, school, and clinic settings in varied cultural and economic contexts.[1] Unintended pregnancy was significantly reduced over medium- and long-term follow-up periods among participants who were randomized to receive a combination of educational and contraceptive-promoting interventions compared with those who received standard sex education, general counseling, or no intervention (relative risk [RR] = 0.66; 95% confidence interval [CI], 0.5 to 0.87; NNT = 25; 95% CI, 17 to 67; n = 1,905). However, among those receiving multiple interventions, the evidence was inconclusive regarding rates of sexually transmitted infections, use of birth control, and abortion.

In cluster randomized controlled trials, the authors found that participants who had received educational interventions (e.g., health education by the parent or peers) were more likely to have used condoms at their most recent intercourse than those who had not received that education (RR = 1.18; 95% CI, 1.06 to 1.32; NNT = 21; 95% CI, 12 to 63; n = 1,431). Education alone did not delay the initiation of sexual intercourse compared with control interventions, and rates of unintended pregnancy were not reported in those studies. Furthermore, individual randomized controlled trials demonstrated that adolescents who were encouraged to use contraception were more likely to use hormonal contraception than those who did not receive that intervention (RR = 2.22; 95% CI, 1.07 to 4.62; NNT = 5; 95% CI, 2 to 91; n = 3,091). Within the analyses, variability among studies and lack of direct comparisons precluded identification of the most effective intervention within each strategy.

The Centers for Disease Control and Prevention recommends that clinicians broadly and confidentially inquire about adolescents' reproductive health care needs and offer services at every encounter.[5] This Cochrane review provides additional evidence that education and concurrent information about contraception can decrease the risk of unintended adolescent pregnancy.[1]

The practice recommendations in this activity are available at http://www.cochrane.org/CD005215.

EDITOR'S NOTE: The numbers needed to treat reported in this Cochrane for Clinicians were calculated by the *AFP* medical editors based on raw data provided in the original Cochrane review.

The views expressed in this article are those of the authors and do not reflect the official policy or position of Fort Belvoir Community Hospital, the Departments of the Air Force or Navy or their respective Medical Departments, the Department of Defense, or the U.S. government.

REFERENCES

1. Oringanje C, Meremikwu MM, Eko H, Esu E, Meremikwu A, Ehiri JE. Interventions for preventing unintended pregnancies among adolescents. *Cochrane Database Syst Rev.* 2016;(2):CD005215.
2. Dalby J, Hayon R, Carlson J. Adolescent pregnancy and contraception. *Prim Care.* 2014;41(3):607-629.
3. Finer LB, Zolna MR. Declines in unintended pregnancy in the United States, 2008-2011. *N Engl J Med.* 2016; 374(9):843-852.
4. The World Bank. Adolescent fertility rate (births per 1,000 women ages 15-19). United Nations Population Division, World Population Prospects. http://data.worldbank.org/indicator/SP.ADO.TFRT. Accessed May 20, 2016.
5. Gavin L, Moskosky S, Carter M, et al. Providing quality family planning services: recommendations of CDC and the U.S. Office of Population Affairs. *MMWR Recomm Rep.* 2014;63(RR-04):1-54.

Effects of Altered Dietary Salt Intake in Patients with Chronic Kidney Disease

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Clinical Question

In patients with chronic kidney disease (CKD), does altering dietary salt intake affect risk factors or delay cardiovascular or renal complications?

Evidence-Based Answer

Reducing salt intake lowers blood pressure and reduces proteinuria in patients with CKD, but there is no evidence to determine whether lowering salt consumption leads to clinically significant reductions in end-stage renal disease, cardiovascular events, or all-cause mortality.[1] (Strength of Recommendation: C, based on a review of limited, though consistent, high-quality disease-oriented studies.)

Practice Pointers

CKD is a progressive condition often encountered by family physicians; it is both a complication of commonly encountered disease (e.g., hypertension, diabetes mellitus)[2] and an independent risk factor for cardiovascular disease.[3] Patients with end-stage renal disease incur dramatically higher costs of care[4] and have markedly increased mortality.[5] Reliable interventions that may delay or prevent progression of CKD have not been fully elucidated. Restriction of dietary sodium (salt) intake is often recommended in these patients. This review sought to evaluate the benefits and harms of this intervention in patients with CKD.

The authors identified eight randomized controlled trials of parallel or crossover design that compared salt-restricted to higher-salt diets in 258 participants.[1] Some of the studies provided supplemental salt tablets to achieve a high-salt diet, and others used dietary counseling as the intervention for the low-salt diet. Patients on a low-salt diet had a reduction in blood pressure, with an effect size comparable to that of a single antihypertensive medication. Systolic blood pressure was reduced by 9 mm Hg (95% confidence interval, 6 to 11) and diastolic blood pressure was reduced by 4 mm Hg (95% confidence interval, 2 to 5).

The two studies conducted in patients with more advanced kidney disease (one study in patients receiving dialysis and one study in patients following transplant) showed similar results. Other biomarkers were assessed as secondary outcomes; only proteinuria showed consistent improvement with salt restriction, with relative risk reductions ranging from 21% to 49% across studies.

This review does not provide long-term evidence that reduced salt intake affects cardiovascular mortality or progression of kidney disease, because it was limited by the small number of studies of relatively short duration (one to 26 weeks)

and heterogeneity among patient populations. Only two of the included studies assessed harms of salt reduction and found a nonsignificant increase in symptomatic hypotension. Other studies have found an increased risk of hospitalization and mortality associated with long-term sustained salt-restricted diets.[6]

This review is consistent with the current state of knowledge that salt restriction has a positive effect on disease-oriented markers such as blood pressure and proteinuria. Long-term effects of sustained dietary salt restriction are unknown. The general lack of data is reflected in the heterogeneity of dietary recommendations. The National Kidney Foundation recommends that dietary sodium intake be limited to less than 2,400 mg per day in patients with CKD and hypertension.[7] A more recent clinical practice guideline issued by Kidney Disease: Improving Global Outcomes recommends lowering sodium intake to less than 2,000 mg per day in patients with CKD.[8] Future work should be directed at clarifying the long-term effects of reduced salt intake and its desired effect on delaying progression of CKD to end-stage renal disease.

The practice recommendations in this activity are available at http://www.cochrane.org/CD010070.

REFERENCES

1. McMahon EJ, Campbell KL, Bauer JD, Mudge DW. Altered dietary salt intake for people with chronic kidney disease. *Cochrane Database Syst Rev.* 2015;(2):CD010070.
2. Coresh J, Selvin E, Stevens LA, et al. Prevalence of chronic kidney disease in the United States. *JAMA.* 2007;298(17):2038-2047.
3. Go AS, Chertow GM, Fan D, McCulloch CE, Hsu CY. Chronic kidney disease and the risks of death, cardiovascular events, and hospitalization [published correction appears in *N Engl J Med.* 2008;18(4):4]. *N Engl J Med.* 2004;351(13):1296-1305.
4. Collins AJ, Li S, Gilbertson DT, Liu J, Chen SC, Herzog CA. Chronic kidney disease and cardiovascular disease in the Medicare population. *Kidney Int Suppl.* 2003;(87):S24-S31.
5. Hunsicker LG. The consequences and costs of chronic kidney disease before ESRD. *J Am Soc Nephrol.* 2004;15(5):1363-1364.
6. Kotchen TA, Cowley AW Jr, Frohlich ED. Salt in health and disease—a delicate balance. *N Engl J Med.* 2013;368(13):1229-1237.
7. NKF K/DOQI clinical practice guidelines on hypertension and antihypertensive agents in chronic kidney disease. http://www2.kidney.org/professionals/KDOQI/guidelines_bp/guide_6.htm. Accessed July 12, 2016.
8. Kidney Disease: Improving Global Outcomes (KDIGO) Blood Pressure Work Group. KDIGO clinical practice guideline for the management of blood pressure in chronic kidney disease. *Kidney Int Suppl.* 2012;2(5):337-414. ■