Putting Prevention into Practice

An Evidence-Based Approach

Screening for Adolescent Idiopathic Scoliosis

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Case Study

A 10-year-old girl with no significant medical history presents to your clinic for a school physical and well visit. She will begin fifth grade in the fall and actively participated in a summer soccer program at a local sports club. She reports no associated injuries or pain; however, her mother expresses concern that she wore a heavy backpack with her sports equipment every day during the summer and asks about screening for scoliosis.

Case Study Questions

1. Which one of the following statements accurately summarizes the U.S. Preventive Services Task Force (USPSTF) findings about screening for idiopathic scoliosis in healthy, asymptomatic children and adolescents?

- ☐ A. The USPSTF has high certainty that the net benefit of screening is substantial.
- ☐ B. The USPSTF has high certainty that the net benefit of screening is moderate.
- ☐ C. The USPSTF has at least moderate certainty that the net benefit of selectively screening patients is small.
- ☐ D. The USPSTF recommends against screening because it has moderate to high certainty that screening has no net benefit or that the harms outweigh the benefits.
- ☐ E. The USPSTF concludes that the current evidence is insufficient to assess the balance of benefits and harms of screening.

2. Which one of the following statements about screening for and treatment of idiopathic scoliosis in children and adolescents is correct?

- ☐ A. Exercise is not recommended for children and adolescents with a Cobb angle measuring 10° or greater who are being monitored conservatively.
- ☐ B. The USPSTF found adequate evidence that treatment with exercise has benefit among adolescents with a Cobb angle measuring less than 50° at diagnosis.
- ☐ C. The USPSTF found adequate evidence that treatment with bracing may decrease curvature progression among adolescents with mild or moderate curvature severity.
- ☐ D. An angle of trunk rotation of 10° on the scoliometer is the threshold for referral for radiography.
- ☐ E. Children and adolescents with scoliosis typically present with back pain.

3. Which of the following statements about idiopathic scoliosis disease progression and morbidity are correct?

- ☐ A. Most patients with a spinal curvature of greater than 40° at skeletal maturity will likely experience curvature progression in adulthood.
- ☐ B. The goal of treatment is to decrease or stop progression of spinal curvature during the period of adolescent growth before skeletal maturity.
- ☐ C. Adults with a higher degree of spinal curvature experience more back pain.
- ☐ D. There is convincing evidence that reduction in spinal curvature during adolescence is associated with long-term health outcomes in adulthood.

Answers appear on the following page.

See related U.S. Preventive Services Task Force Recommendation Statement at https://www.aafp.org/afp/2018/0515/od1.html.

This PPIP quiz is based on the recommendations of the USPSTF. More information is available in the USPSTF Recommendation Statement and the supporting documents on the USPSTF website (https://www.uspreventiveservicestaskforce.org). The practice recommendations in this activity are available at https://www.uspreventiveservicestaskforce.org/Page/Document/UpdateSummaryFinal/adolescent-idiopathic-scoliosis-screening1.

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CME **This clinical content** conforms to AAFP criteria for continuing medical education (CME). See CME Quiz on page 634.

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Answers

1. The correct answer is E. The USPSTF found no direct evidence on the effects of screening for adolescent idiopathic scoliosis on health outcomes, and no evidence on the direct harms of screening (such as psychological impact or harms from radiography). The USPSTF found inadequate evidence on treatment with exercise (two studies) and surgery (no studies), and inadequate evidence on harms of treatment. Therefore, the USPSTF concludes that the current evidence is insufficient and that the balance of benefits and harms of screening for adolescent idiopathic scoliosis cannot be determined.[1]

2. The correct answer is C. The USPSTF found adequate evidence that treatment with bracing decreases curvature progression in adolescents with mild or moderate curvature severity. However, there is insufficient evidence on the association between reduction in spinal curvature during adolescence and long-term health outcomes in adulthood. There is inadequate evidence that treatment with exercise has a benefit on the degree of spinal curvature and adult health among adolescents who have a Cobb angle less than 50° at diagnosis. Current guidelines consider the threshold for diagnostic radiography referral to be an angle of trunk rotation of 5° to 7° on scoliometer.[2] Most children and adolescents with scoliosis are asymptomatic, and patients with a Cobb angle of less than 20° generally are observed without treatment; however, exercise may be recommended.

3. The correct answers are A and B. Most patients with a spinal curvature of greater than 40° at skeletal maturity will likely experience curvature progression in adulthood. Treatment of adolescent idiopathic scoliosis is determined by the degree of spinal curvature and the potential for further growth, and typically includes observation, bracing, surgery, and exercise. The goal of treatment is to decrease or stop progression of spinal curvature during the period of adolescent growth before skeletal maturity. Current evidence suggests that the presence of back pain does not necessarily correlate with the degree of spinal curvature in adulthood. Furthermore, there is inadequate evidence on the association between reduction in spinal curvature in adolescence and long-term health outcomes in adulthood.

The views expressed in this work are those of the authors, and do not reflect the official policy or position of the Department of Health and Human Services or the Icahn School of Medicine at Mount Sinai.

References

1. US Preventive Services Task Force. Screening for adolescent idiopathic scoliosis: US Preventive Services Task Force recommendation statement. *JAMA*. 2018;319(2):165-172.
2. Dunn J, Henrikson NB, Morrison CC, Blasi PR, Nguyen M, Lin JS. Screening for adolescent idiopathic scoliosis: evidence report and systematic review for the US Preventive Services Task Force. *JAMA*. 2018; 319(2):173-187. ■