Quality of Care for Pelvic Inflammatory Disease: Room for Improvement

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Pelvic inflammatory disease (PID) is a clinical syndrome characterized by upper genital tract inflammation and frequently associated with sexually transmitted or genital tract microorganisms. The Centers for Disease Control and Prevention (CDC) has developed STD treatment guidelines intended to assist health care providers in selecting antibiotic treatment strategies based on objective clinical evidence.[1] Several studies over the past 2 decades have demonstrated poor provider adherence to recommended treatment for PID.[2–5] The authors of these reports called for aggressive quality improvement measures to improve adherence to PID treatment guidelines. With an ongoing focus on improving quality of care, one would expect to see improvement in provider adherence to PID antibiotic regimens over the past decade.

In this issue, Shih and colleagues report on provider adherence to CDC guidelines for outpatient treatment of PID in emergency and urgent care settings.[6] The authors used data from a national database (National Hospital Ambulatory Medical Care Survey; NHAMCS) to determine whether provider selection of antibiotics for outpatient PID was consistent with CDC guidelines during the 1999–2006 period. The authors concluded that a guideline-recommended antibiotic regimen was provided only 30% of the time, with partially appropriate antibiotics provided 47% of the time, and completely inconsistent treatment (or no treatment) provided 22% of the time. The authors conclude that provider adherence to PID antibiotic treatment guidelines remains low and has not improved significantly since the previous studies on this topic.

Why is adherence to the guidelines so low? Although research has consistently shown poor adherence to PID antibiotic treatment guidelines, little is actually known about why providers are not adherent. It could be that many providers are not aware of the latest guidelines from CDC or other major organizations. Ubiquitous internet access now provides healthcare providers with nearly immediate access to latest treatment guidelines (one needs only to type "PID treatment guidelines" into an internet search engine, and the latest CDC guidelines will be the first link). However, many providers may use other sources of information (eg, review articles or text books) or may continue to practice in a manner that they learned previously.

Alternatively, it could be that providers either do not agree with the guidelines, find them impractical, or are aware of new data that has emerged since the latest version of the guidelines were written. For example, the Shih study found that one of the most common reasons for provider nonadherence was the provision of azithromycin, rather than doxycycline, as part of the outpatient antibiotic regimen. Although azithromycin was not included as a recommended treatment for PID in the 2006 CDC guidelines, it appears to be an effective treatment option (although the optional dose and duration remains unknown).[1,7] The recommended oral regimens for PID generally require twice-daily medication for 2 weeks, and young women with PID often have significant challenges with adherence to these antibiotic regimens.[8]

Another possible explanation for the low adherence rates in the Shih study could be measurement error related to misclassification of PID and/or the antibiotic regimens used. In the NHAMCS survey, use of provider-coded diagnosis of PID has not been validated against actual medical records or other means; thus, providers completing the survey could have indicated a PID diagnosis for a variety of pelvic complaints. However, other studies that used chart review or questionnaires to identify PID have found similar rates of nonadherence to CDC guidelines.[2,4,5] Some providers in the NHAMCS did not report providing any antibiotics for PID, and while failure to provide any antibiotics is clearly inappropriate, it is possible that either the PID diagnosis was not correct or that the provider did not accurately list all medications provided on the survey form.

Should antibiotic treatment that is only partially in agreement with guidelines always be classified as poor quality of care? Recent clinical trials provide evidence of efficacy for several

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additional antibiotic regimens for PID that are not currently listed in the guidelines as primary recommendations, perhaps because of insufficient evidence (eg, 1 or 2 small trials).[1,7]

Conducting clinical trials for PID outcomes is challenging and expensive; therefore, observational data may be useful in determining whether treatments ultimately lead to improved long-term outcomes. Clinical trials are often done in carefully selected patients who meet specific diagnostic criteria and who are monitored closely. One advantage of observational epidemiologic studies (eg, the NHAMCS) over clinical trials is that the study sample is often more generalizable to real-world clinical settings. Currently, there is little information from observational studies regarding the long-term outcomes following PID treatments. One small observational study confirmed that women with PID who received an antibiotic regimen without ceftriaxone were more likely to have continued signs and symptoms after 2 weeks, compared to women who receive a ceftriaxone-containing regimen.[9] However, more data from observational studies are needed to identify the long-term impacts of various treatment regimens in more generalized patient populations.

What strategies should be used to improve quality of care for outpatient PID? One study demonstrated that an aggressive training regimen in 1 hospital, including disseminations of treatment algorithms and guidelines, educational sessions for residents, faculty and nursing staff, medication availability, and standardized discharge instructions significantly increased the proportion of patients with PID who were treated according to CDC guidelines.[10] Another study found that a 1-page summary of treatment guidelines attached to a questionnaire significantly improved adherence to treatment guidelines for a written patient scenario for PID.[11] Electronic medical records may also help enhance adherence treatment, as they can provide specific recommendations once a healthcare provider enters a specific diagnosis. Consultation with a specialist was associated with a significantly improved adherence to treatment guidelines in the Shih study,[6] although it is possible that the women who received specialty consultation had more severe symptoms and were treated more aggressively. Each of these strategies has potential merit, but more must be known about the reasons that providers are not adherent to the guidelines in order to devise the optimal strategy. After more than 2 decades with no improvement in PID-related antibiotic guideline adherence, the CDC and others should strongly consider a systematic effort to measure facilitators and barriers to antibiotic guideline uptake and to assess the impact of guidelines on long-term health outcomes in generalizable populations.

In summary, the evidence suggests that the quality of care for outpatient PID is poor, at least in terms of adherence to specific treatment recommendations. When considering the quality of care provided for PID, the correct antibiotic prescription is only a part of the standard of practice for PID. In addition to making the correct diagnosis, providers should recommend partner treatment and notification and should counsel patients about PID prevention.[1] Additional research is needed to better understand provider barriers to treatment adherence, to confirm whether women who receive "off-guideline" treatment indeed have worse outcomes outside of clinical trials, and to evaluate strategies to improve provider adherence to treatment guidelines.

REFERENCES

1. Centers for Disease Control and Prevention. Sexually transmitted diseases treatment guidelines, 2010. MMWR 2010; 59(No. RR-12):1–116.
2. Hessol NA, Priddy FH, Bolan G, et al. Management of pelvic inflammatory disease by primary care physicians. A comparison with Centers for Disease Control and Prevention guidelines. Sex Transm Dis 1996; 23:157–163.
3. Beckmann KR, Melzer-Lange MD, Gorelick MH. Emergency department management of sexually transmitted infections in US adolescents: Results from the National Hospital Ambulatory Medical Care Survey. Ann Emerg Med 2004; 43:333–338.
4. Kane BG, Degutis LC, Sayward HK, et al. Compliance with the Centers for Disease Control and Prevention recommendations for the diagnosis and treatment of sexually transmitted diseases. Acad Emerg Med 2004; 11:371–377.
5. Trent M, Ellen JM, Walker A. Pelvic inflammatory disease in adolescents: Care delivery in pediatric ambulatory settings. Pediatr Emerg Care 2007; 21:431–436.
6. Shih T-Y, Gaydos CA, Rothman RE, et al. Poor provider adherence to the Centers for Disease Control and Prevention Treatment Guidelines in US emergency department visits with a diagnosis of pelvic inflammatory disease. Sex Transm Dis 2011; 38:299–305.
7. Haggerty CL, Ness RB. Newest approaches to treatment of pelvic inflammatory disease: A review of recent randomized clinical trials. Clin Infect Dis 2007; 44:953–960.
8. Dunbar-Jacob J, Sereika SM, Foley SM, et al. Adherence to oral therapies in pelvic inflammatory disease. J Womens Health 2004; 14:285–291.
9. Piyadigamage A, Wilson J. Improvement in the clinical cure rate of outpatient management of pelvic inflammatory disease following a change in therapy. Sex Transm Infect 2005; 81:233–235.
10. Trent M, Judy SL, Ellen JM, et al. Use of an institutional intervention to improve quality of care for adolescents treated in pediatric ambulatory settings for pelvic inflammatory disease. J Adolesc Health 2006; 39:50–56.
11. Balamuth F, Zhao H, Mollen C. Toward improving the diagnosis and the treatment of adolescent pelvic inflammatory disease in emergency departments: Results of a brief, educational intervention. Pediatr Emerg Care 2010; 26:85–92.