

Oral Antibiotics for Endocarditis!

Long-Awaited Novel Approach for an Old Diagnosis

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Abstract

Endocarditis has traditionally been treated with intravenous (IV) antibiotic therapy for up to six weeks (1). This creates the burden of long term IV access in patients, financial cost and time-consuming IV medication administration. Iversen and colleagues (2) published in the August 28th 2018 issue of the New England Journal of Medicine findings of the POET study (Partial Oral vs. Intravenous Antibiotic Treatment of Endocarditis), a multicenter, unblinded, noninferiority study that compared IV treatment of endocarditis with changing to oral antibiotic treatment. The end point was a composite of all-cause mortality, cardiac surgery, embolic events, or relapse of bacteremia at 6 months after treatment ended. Out of the 400 adults with left-sided endocarditis, 199 received continuous IV antibiotic treatment, and 201 patients were changed to oral antibiotic therapy. Both groups received IV antibiotics for 10 days initially. The IV therapy group continued to receive treatment for 19 days, whereas the oral therapy group continued to receive therapy for 17 days.

The inclusion criteria were:

- At least 18 years of age
- Hemodynamically stable

- Endocarditis of left sided native or prosthetic valves
- Blood cultures positive for streptococcus, *Enterococcus faecalis*, *Staphylococcus aureus*, or coagulase-negative staphylococci
- No abscess or valve abnormalities that would require surgery

Transesophageal echocardiography was done at specified intervals to assure that patients had responded adequately to treatment. All patients were followed up in clinic at 1 week, and at 1,3, and 6 months after treatment completion.

Of note, 4 patients crossed over from the oral treatment group to the IV treatment group (1 patient due to nausea, 1 due to bacteremia with a new pathogen, and 2 due to patient choice); 22% of the IV treatment group were changed to a different IV regimen, and 12% of the oral treatment group were changed to a different oral regimen.

Results

The primary outcome (composite of all-cause mortality, unplanned cardiac surgery, embolic events, or relapse of bacteremia with the primary pathogen, from the time of randomization until 6 months after antibiotic treatment was completed) occurred in 12.1% of the IV treatment group (24 patients), and in 9% (18 patients) of the oral treatment group, making the change from IV to oral treatment a noninferior option to the traditional continuation of IV antibiotic treatment.

The median length of hospital stay after randomization was 19 days in the intravenous

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treatment group and only 3 days in the oral treatment group ($P < 0.001$).

Adverse effects were reported in 12 patients (6%) in the intravenous treatment group and 10 patients (5%) in the oral treatment group ($P = 0.66$); these included allergy (50%), bone marrow suppression (27%), and gastrointestinal effects (14%), with no significant differences between groups.

Discussion

In the hemodynamically stable patient without high risk features of endocarditis, the switch to oral antibiotic treatment is an attractive option. This potentially allows for a shorter hospital stay, less complications and more patient comfort compared with long-term IV antibiotic therapy. The absence of IV line in outpatient therapy may also decrease the risk of relapse of IV drug use (albeit, IV drug use population may have right-sided rather than left-sided endocarditis). Careful consideration must be taken prior to

changing to oral therapy; these patients require close follow up (since 12% had to change their regimen) and they must have intact gastrointestinal function so as to guarantee successful treatment. Nevertheless, POET shows a promising step forward in the treatment of a devastating disease that historically required prolonged course of IV therapy with antibiotics.

References

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