In an interesting review, Toh and colleagues¹ have provided evidence for the superiority of a combination of oral antibiotics (OA) with mechanical bowel preparation (MBP) on the day before a colorectal operation together with intravenous antibiotics immediately before surgery for the reduction of surgical site infection (SSI). This is the first meta-analysis that I have seen that examines and compares all approaches, including MBP with OA, OA alone, MBP alone, or no preparation, all combined with intravenous antibiotic prophylaxis before incision. They conclude that MBP with OA is most effective, followed by OA alone and MBP alone, with no preparation last.

This is a controversy that has been going on for almost 30 years now, and the inability of the surgical community to come to a common understanding on it is puzzling. In the 1970s, at a time when all colorectal operations were preceded with MBP and before widespread adoption of intravenous or oral antimicrobial prophylaxis, 4 randomized, prospective studies² of preoperative OA covering both gram-negative and anaerobic bowel flora were performed, demonstrating a 57% to 88% reduction in SSI. The study by Washington et al² also demonstrated convincingly that a third arm with gram-negative activity only (neomycin without an agent active against anaerobes) was equivalent to placebo. During the same period, the value of intravenous antimicrobial prophylaxis for intestinal operations became widely accepted, beginning with the landmark trial by Polk and Lopez-Mayor³ and followed by multiple additional studies. By the 1980s, essentially all surgeons had adopted intravenous prophylaxis for colorectal operations, and for reasons not entirely clear, most American and Canadian surgeons had adopted oral prophylaxis in addition, while most European surgeons did not adopt oral prophylaxis. In the 1990s, 3 studies⁴-⁶ in the British Journal of Surgery demonstrated no benefit of MBP without OA and with intravenous prophylaxis, and multiple subsequent studies have confirmed this.⁷ As this information became available and as practice in the United States moved toward admission hours rather than days before operation and MBP had to be performed before admission, some surgeons began dropping MBP and also OA.

Meanwhile, beginning in 1979, a large number of well-controlled studies comparing MBP with OA vs MBP alone (both with intravenous prophylaxis) demonstrated a consistent approximately 50% reduction in SSI when OA were used.⁸⁹ More recently, the availability of large, accurate observational databases in the United States have permitted multiple analyses of practice and outcomes in colorectal surgery (references 49, 50, 52, 57, and 59 in the article by Toh and colleagues¹) that all demonstrate an approximate 50% reduction in SSI rate for patients receiving MBP with OA compared with MBP alone or no preparation. What is astonishing is that these articles also show that 33% to 47% of patients receive MBP without OA, the one approach demonstrated in all studies to have no value except to inconvenience the patient. It is slightly encouraging to see that the most recent article had the lowest rate of MBP alone, but still at 33%.

An intriguing observation in these recent studies (see reference 65 by Klinger et al and reference 67 by Garfinkle et al in the article by Toh and colleagues¹) is the small number of patients recorded as receiving OA alone without MBP and with significantly better results than MBP without OA. However, only 2% to 6% of patients fall into this category in the observational studies, and a suspicion is that in these medical record review studies it is possible that the MBP done at home may

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not have been captured in the database. Nevertheless, these hints, along with the data from the meta-analysis by Toh and colleagues,\(^1\) suggest that a proper, prospective study of this question would be valuable. It should compare MBP with OA vs OA alone without MBP. There is no need for an MBP-alone arm.

It is generally understood that there is a substantial time lag between the development and dissemination of new evidence and its introduction into widespread clinical practice, often estimated at an average of 17 years.\(^10\) Data on the unequivocal superiority of preoperative OA have been available since the turn of the century, so we can anticipate that practicing surgeons will soon be adopting at least preoperative OA with or without MBP. In addition, a trial to examine the value (or lack of value) of MBP combined with OA may be conducted in the near future.

**ARTICLE INFORMATION**

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Corresponding Author: E. Patchen Dellinger, MD, Department of Surgery, University of Washington, 1959 NE Pacific St, Seattle, WA 98195 (patch@uw.edu).

Author Affiliation: Department of Surgery, University of Washington, Seattle.

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