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Antibiotic Resistance Associated with Selective Decontamination of the Digestive Tract

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DESCRIPTION

Targeted decontamination of the gastrointestinal tract has been shown to prevent severe infections and reduce mortality in critically ill patients. We were unable to identify any historical arguments against its use, such as the development of bacterial resistance or lack of impact on mortality. This review updates the evidence on the efficacy of selective gastrointestinal decontamination and the issue of resistance development using data from randomized controlled trials and meta-analyses. They showed that SDD reduced severe lower respiratory tract infections, bloodstream infections, and mortality while controlling resistance. Surprisingly, SDD is not widely used in clinical practice, although the evidence for SDD use in the Intensive Care Unit (ICU) is high. The SDD has been the subject of intense controversy among critics and supporters of the operation. SDD opponents still cite historical arguments against its use, including the lack of mortality impact and the emergence of resistance. Two studies found that SDDs were used in only 5% and 30% of his ICUs in the UK and the Netherlands, respectively. This is mainly due to insufficient evidence of efficacy and concerns about tolerance. Moreover, SDD was recently ranked as the worst maneuver for preventing ventilator-associated pneumonia by an expert panel, although none have been published on this subject. The reasons for this are multifaceted, but longstanding disagreements between experts and opinion leaders have been a major source of confusion. For example, in the early 1990s, the first meta-analysis on SDD by the Cochrane Italia Center in Milan already showed a significant effect of SDD on mortality, but a biased meta-analysis was subsequently carried out in the influential United States. It took four more meta-analyses and two of his large RCTs before the opinion leader admitted that SDD had a significant effect on mortality. More recently, the National Institutes of Health (NICE), while acknowledging that SDD has an impact on morbidity and mortality, noted that "few studies have been conducted in the UK and are therefore reflective of current national health services." not in favour of SDD. History repeats itself! Evidence-based medicine seems inapplicable to SDD, as did Semmelweis' findings, which were strongly opposed by Virchow, a veteran pathologist, and influential opinion leader at the time. Previous experience with thrombolytics suggests a similar pattern, with an undesirable delay between the emergence of meta-analytical evidence and clinical expert recommendations. DD has never been promoted by pharmaceutical companies because cheap, unpatented, and older drugs such as cefotaxime, polymyxin E, tobramycin, and amphotericin B offer little benefit. Additionally, SDD is not backed by datasheets that appear to be reliable and is not marketed to clinicians in the traditional way. Pastes, gels, or suspensions are not readily available over the counter. Therefore, SDD use requires more involvement and oversight by ICU teams, pharmacists, and microbiologists than simple systemic administration of modern antibiotics on the market. A recent example is the industry-sponsored Surviving Sepsis Campaign, which advocates evidence-based medical interventions for all but SDD. Additionally, critical care physicians are unfamiliar with the pharyngeal and rectal surveillance culture and fear it will increase the burden on the team. However, ICUs with SDDs have a reduced workload due to lower infection rates, reduced use of systemic antibiotics, reduced frequency of tracheal aspiration, and absence of resistant strains requiring patient cohorts or isolation. Finally, there is the interaction between physicians and the pharmaceutical industry. The same clinicians are invited to national and international conferences to report data promoting these new drugs as first-line antibiotics.

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CONFLICT OF INTEREST

The author declares there is no conflict of interest.