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Letter to the Editor

Reflections on the consensus document on antibiotic prophylaxis in surgery☆

Reflexiones sobre el documento de consenso en profilaxis antibiótica en cirugía

A consensus document has recently been published by the Spanish Society of Infectious Diseases and Clinical Microbiology (SEIMC) and the Spanish Association of Surgeons (AEC) on antibiotic prophylaxis in surgery.[1]

I thought it would be a good idea to write an update on this topic, since the document itself recognizes, in several parts, that surgical site infection is of enormous importance in the field of surgery due to both its incidence and high healthcare costs it represents (long postoperative period, readmissions, reoperations and increased mortality). It also emphasizes that antibiotic prophylaxis is one of the most effective measures for the prevention of postoperative infections. I could not agree more with the authors of the document, since the prevention of surgical infections today involves reducing surgical trauma, which is achieved more effectively with minimally invasive surgery, strict asepsis and adequate antisepsis before the operation and by administering correct antibiotic prophylMarco Antonio Ayala-García

Coordinación Clínica de Cirugía, Hospital General Regional No. 58 del Instituto Mexicano del Seguro Social, León, Guanajuato, Mexico

E-mail address: drmarcoayala@hotmail.comaxis when indicated.

However, a thorough reading of the complete document from a clinical viewpoint has led me to a series of reflections that I present below:

1. It is striking that this consensus document, which purports to review antibiotic prophylaxis for all areas of surgery, is only signed by general surgeons. This raises doubts about the *auctoritas* necessary to be able to do so, since the term 'consensus' implies the agreement of different parties. When we wanted to create a consensus document within the National Plan for the Control of Surgical Infections (PLANCIR) of the Ministry of Health and Consumer Affairs of Spain, we thought it was essential for all areas of surgery to be represented by opinion leaders from each of them.[2]
2. It is striking that such an extensive bibliographic review (597 citations) does not include a single reference representing the research carried out by the Department of Surgery of Santiago de Compostela,[3,4] nor the research done over 14 years by the National Committee of Surgical Infection—published mainly in *Cirugía Española*, the journal of the Spanish Association of Surgeons—including the recommended protocols for antibiotic prophylaxis,[5,6] nor research included in the National Plan for the Control of Surgical Infections.
3. It is striking that, having carried out a thorough search from 1970 to 2018, when talking about hepatobiliary-pancreatic surgery, for example, the word 'jaundice' was not included as a risk factor for infection. Had it been done, the article we published in 1985 in the journal of the American College of Surgeons, *Surgery, Gynecology and Obstetrics*, on antibiotic prophylaxis in high-risk patients in biliary tract surgery would surely have been found.[7] This article was one of the pioneers in this field and is included in the *Surgical Infection Guidelines* of the world's leading scientific society for surgical infections, the *Surgical Infection Society of North America* (SIS-NA), in the relevant and important clinical practice guidelines document published in 2013 by Bratzler et al.[8] In the

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SEIMC Treatise on infectious diseases and clinical microbiology[9] and in the *Antibiotic Treatment* treatise by Drobnic,[10] we ourselves made it clear at the time that, in the prophylaxis of biliary surgery, the presence or absence of jaundice is of enormous importance, as this factor requires changing from cefazolin to a second- or third-generation cephalosporin.

4. It is striking that the document states that elective colorectal surgery is potentially contaminated surgery. It is well known that it is a clearly contaminated surgery that becomes potentially contaminated precisely when correct antibiotic prophylaxis is used, 'correct' meaning the famous 'Condon preparation', consisting of the use of oral antibiotics (neomycin and erythromycin base) on the eve of surgery, associated with IV antibiotics before the operation. It is likewise strange not to see a single reference referring to Prof. Condon, the world's leading expert in this type of antibiotic prophylaxis at the time. We should all be reminded that Dr. Condon is an honorary member of the Spanish Association of Surgeons.
5. It is striking that, in 2021, the recommendation is made to continue to administer antibiotic prophylaxis within 2 h before surgery. Back in 2008, Whitman et al.[11] from the famous Temple Hospital in Philadelphia, PA, United States, made clear the preferred concept of 'intraoperative timeout', consisting of administering antibiotic prophylaxis in the time spent by surgeons preparing the operative field with the patient already anesthetized. The advantage of this is that it guarantees the maximum concentration of the antibiotic(s) during the surgical procedure. We know that the start of an operation can be delayed for several reasons, and much more if it is scheduled after other surgeries. On the other hand, this concept of 'universal timeout' is linked to the modern 'checklist' found in any surgical block in the Western world. The aim, therefore, is to ensure that antibiotic prophylaxis is administered at the right time.
6. In elective surgery for uncomplicated cholelithiasis, it is true that antibiotic prophylaxis is not systematically indicated. Its appropriate use is only in patients at high risk of postoperative infection, and especially in those patients in whom the gallbladder is opened during the operation, be it laparotomy or laparoscopy. According to Condon and Wittmann,[12] we are within the 'vulnerable period' in which antibiotic prophylaxis is effective. This period is within 3 h from the time of bacterial contamination, as demonstrated by Prof. Burke, head of the Harvard Department of Surgery, in an experimental study in rabbits.[13]
7. Elective surgery for uncomplicated hernia is considered clean surgery. Therefore, the administration of antibiotic prophylaxis is not necessary. However, when using mesh for hernioplasty or laparoplasty, the administration of a single dose of cefazolin is recommended as a safety measure.
8. Regarding elective colorectal surgery, I agree with the words of the Editor of the *Surgical Infections* journal, Donald Fry, when he stated in 2016 that mechanical preparation of the colon together with oral antibiotics and systemic antibiotics before the operation, ''are the standard of care for elective colon surgery.''[14]
9. I also concur with the statements by Malangoni (member of the Board of Regents of the American College of Surgeons) when, in a magnificent editorial, he asserted, ''Appropriately given antimicrobial prophylaxis works,'' and that ''surgeons need to take ownership of the situation and give it correctly.''[15] The term 'ownership' could not be clearer or more forceful. It is obvious that antibiotic prophylaxis is one of the legs that support the operating table, and surgeons must accept their responsibility for it.
10. Along the same line of responsibility and with a vision of the future, Miranda et al.[16] call the attention of all surgeons in the sense of our role as managers of antibiotic prophylaxis and the management of antibiotics in the surgical arena to avoid the development of microbial resistances: ''Surgeons practicing antibiotic stewardship today will keep the antibiotic resistance lane clear for tomorrow's surgeons.''

The conclusion is clear: we are facing one of the main issues in surgery — the prevention of infectious complications during the postoperative period. As surgeons, we must feel the prevention of postoperative infections as a part of our responsibility. Antibiotic prophylaxis is a very effective tool that can significantly reduce surgical morbidity and mortality, making surgery much safer. Of course, it is a tool that needs to be managed intelligently.

REFERENCES

1. Del Toro López MD, Arias J, Balibrea JM, et al. Resumen Ejecutivo del Documento de Consenso de la Sociedad Española de Enfermedades Infecciosas y Microbiología Clínica (SEIMC) y de la Asociación Española de Cirujanos (AEC) en profilaxis antibiótica en Cirugía. Cir Esp. 2021;99:11–26.
2. Cainzos Fernández M. Asepsia y antisepsia en cirugía. Protocolos de profilaxis antibiótica. Plan Nacional para el Control de las Infecciones Quirúrgicas. Ministerio de Sanidad y Consumo; 1999. C-958-1999.8. 8.
3. Caínzos M, Potel J, Puente JL. Infecciones de la herida operatoria. Barcelona: Salvat Editores, S.A.; 1982. ISBN: 84-345-2106-7.
4. Cainzos M. Surgical Infection Society — Europe presidential address surgical infection control. Surg Infect. 2005;6:7–17.
5. Caínzos M. Infección en cirugía. Comité Nacional de Infección Quirúrgica. Asociación Española de Cirujanos. Barcelona: Mosby/Doyma Libros S.A.; 1994. ISBN: 84-8174-010-1.
6. Cainzos M, Lozano F, Dávila D, et al. Protocolos recomendables de profilaxis antibiótica. Cir Esp. 1996;59:3–16.
7. Cainzos M, Potel J, Puente JL. Prospective randomized controlled study of prophylaxis with cefamandole in high risk patients undergoing operations upon the biliary tract. Surg Gynec Obstet. 1985;160:27–32.
8. Bratzler DW, Dellinger EP, Olsen KM, et al. Surgical Infection Society Guidelines. Clinical practice guidelines for antimicrobial prophylaxis in surgery. Surg Infect. 2013;14:73–156.

9. Cainzos M, Garcia Riestra C. Infecciones postoperatorias y profilaxis antimicrobiana (capítulo 149). In: Ausina V, Moreno Guillén S, editors. Tratado SEIMC de enfermedades infecciosas y microbiología clínica Madrid: Editorial Médica Panamericana S.A.; 2006; p. 1535–42. ISBN: 84-7903-921-3.
10. Caínzos M. Profilaxis antibiótica en cirugía (capítulo 52). In: Drobnic L, editor. Tratamiento antimicrobiano Madrid: EMISA; 1997; p. 621–7.
11. Whitman G, Cowell V, Parrisk K, et al. Prophylactic antibiotic use: hardwaring of physician behavior, not education, leads to compliance. J Am Coll Surg. 2008;207:88–94.
12. Condon RE, Wittmann DH. The use of antibiotics in general surgery. Curr Prob Surg. 1991;28:805–949.
13. Burke JF. The effective period of preventive antibiotic action in experimental incisions and dermal lesions. Surgery. 1961;50:161.
14. Fry DE. Antimicrobial bowel preparation for elective colon surgery. Surg Infect. 2016;17:269–74.
15. Malangoni MA. Timing is everything. Ann Surg. 2009;250:17–8.
16. Miranda D, Mermel LA, Dellinger EP. Perioperative antibiotic prophylaxis: surgeons as antimicrobial stewards. J Am Coll Surg. 2020;231:766–9.

Miguel A. Caínzos Fernández

Catedrático de Cirugía de la Universidad de Santiago de Compostela, Hospital Clínico Universitario, miembro de honor de la Surgical Infection Society of Europe (SIS-E), Santiago de Compostela, Spain

E-mail address: miguelangel.cainzos@usc.es

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Reply to the Letter 'Reflections on the consensus document on antibiotic prophylaxis in surgery' about to the article 'Executive summary of the Consensus Document of the Spanish Society of Infectious Diseases and Clinical Microbiology (SEIMC) and of the Spanish Association of Surgeons (AEC) in antibiotic prophylaxis in surgery'☆

Respuesta a la Carta al Director «Reflexiones sobre el documento de consenso en profilaxis antibiótica en cirugía», referente al artículo «Resumen ejecutivo del Documento de Consenso de la Sociedad Española de Enfermedades Infecciosas y Microbiología Clínica (SEIMC) y de la Asociación Española de Cirujanos (AEC) en profilaxis antibiótica en cirugía»

We appreciate the opportunity to reply to the Letter to the Director by Prof. Miguel A. Caínzos[1] referring to the Consensus Document of the Spanish Society of Infectious Diseases and Clinical Microbiology (SEIMC) and the Spanish Association of Surgeons (AEC) about antibiotic prophylaxis[2]. Likewise, we want to thank the author for the interesting comments contributed and for the possibility of discussing and clarifying some of the controversial aspects of the article.

We agree with the author on the special relevance of antibiotic prophylaxis to reduce surgical site infection (SSI), which is what prompted the creation of the consensus document, the subject of the comments that we will now respond to:

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