Enferm Infecc Microbiol Clin. 2017;35(7):469–473

Enfermedades Infecciosas y Microbiología Clínica

www.elsevier.es/eimc

Letters to the Editor

Relevance of the initial empirical antibiotic prescription in the short-term prognosis of the infected patient☆

Trascendencia de la prescripción antibiótica empírica inicial en el pronóstico a corto plazo del paciente infectado

Dear Editor,

We have carefully read the comments and contributions made by Solis-Ovando et al.[1] and we agree with a number of the appraisals they make on our work regarding the inadequacy of antibiotic therapy.[2] However, we would like to make some comments.

Numerous studies have highlighted that the inadequacy of antibiotic therapy leads to increased mortality, including one by our own group.[3–5] However, these studies have been performed on patients with septic shock and severe sepsis, where decision-making is particularly important due to the severity of the process, which leads to a high mortality. Our study does not focus on these patient profiles. The population included in our work features patients who are complex enough to be admitted onto a conventional hospital ward, but whose conditions are not serious enough to require intensive care. Among this population profile, decision-making might not be so decisive that it has consequences on mortality, as shown by our results. However, it is possible that our study may not have sufficient power to find significant differences in short-term prognoses, due to the fact that the mortality of the series stands at 11%. We believe that new prospective studies on this less severely ill population profile are needed, where all of the factors that may influence the patient's clinical course and all the infection models are taken into account in order to determine the repercussion of an error during the selection of the initial empirical treatment.

Pending future studies, although the main objective when approaching the treatment of infected patients is clearly to improve survival, we must not disregard the importance of reducing the average hospital stay, in order to both reduce health-related costs and to lower the risk of saturating emergency departments.[6,7]

Finally, we totally agree on the importance of implementing tools that assist decision-making as regards the selection of a treatment, including the PROA (antimicrobial use optimisation) programmes and the introduction of clinical guidelines. This is an area for improvement that is specifically recognised in the emergency sector[8,9] and significant efforts have been made to improve and standardise decisions.[10]

Funding

None declared.

Conflicts of interest

The authors declare that they have no conflicts of interest.

References

1. Solis-Ovando F, López-Forero WE, Dionisio-Coronel YB, Julián-Jiménez A. Consideraciones sobre la inadecuación de la antibioterapia en el servicio de urgencias. Enferm Infecc Microbiol Clin. 2017;35:396–7.
2. González-Del Castillo J, Domínguez-Bernal C, Gutiérrez-Martín MC, Núñez-Orantos MJ, Candel FJ, Martín-Sánchez FJ. Effect of the inadequacy of antibiotic therapy in the Emergency Department on hospital stays. Enferm Infecc Microbiol Clin. 2017;35:208–13.
3. Yokota PK, Marra AR, Martino MD, Victor ES, Durão MS, Edmond MB, et al. Impact of appropriate antimicrobial therapy for patients with severe sepsis and septic shock – a quality improvement study. PLoS ONE. 2014;9:e104475, http://dx.doi.org/10.1371/journal.pone.0104475.
4. Zilberberg MD, Shorr AF, Micek ST, Vazquez-Guillamet C, Kollef MH. Multi-drug resistance, inappropriate initial antibiotic therapy and mortality in Gram-negative severe sepsis and septic shock: a retrospective cohort study. Crit Care. 2014;18:596.
5. González-Del Castillo J, Nuñez-Orantos MJ, Llopis F, Martín-Sánchez FJ. Risk stratification of infected patients in emergency department. Crit Care Med. 2016;44:e455, http://dx.doi.org/10.1097/CCM.0000000000001581
6. Urbanos-Garrido RM, López-Valcárcel BG. Sostenibilidad del sistema sanitario y contribución de los servicios de urgencias. Emergencias. 2015;27:197–202.
7. Tudela P, Mòdol JM. La saturación en los servicios de urgencias hospitalarios. Emergencias. 2015;27:113–20.
8. Monclús Cols E, Capdevila Reniu A, Roedberg Ramos D, Pujol Fontrodona G, Ortega Romero M. Manejo de la sepsis grave y el shock séptico en un servicio de urgencias de un hospital urbano de tercer nivel. Oportunidades de mejora. Emergencias. 2016;28:229–34.
9. Martín-Sánchez FJ, González del Castillo J. Sepsis en el anciano: ¿están preparados los servicios de urgencias hospitalarios? Emergencias. 2015;27:73–4.
10. Almela Quilis A, Millán Soria J, Sorando Serra R, Cano Cano MJ, Llorens Soriano P, Beltrán Sánchez A. Proyecto PIPA: Consenso de recomendaciones y propuestas de mejora para el manejo del paciente anciano con sospecha de infección en los Servicios de Urgencias de la Comunidad Valenciana. Emergencias. 2015;27:87–94.

DOI of original article: http://dx.doi.org/10.1016/j.eimc.2016.07.014

☆ Please cite this article as: González del Castillo J, Núñez-Orantos MJ, Candel FJ, Martín-Sánchez FJ. Trascendencia de la prescripción antibiótica empírica inicial en el pronóstico a corto plazo del paciente infectado. Enferm Infecc Microbiol Clin. 2017;35:469–470.

Juan González del Castillo[a,b,*], María José Núñez-Orantos[c], Francisco Javier Candel[b,d], Francisco Javier Martín-Sánchez[a,b]

[a] Servicio de Urgencias, Hospital Clínico San Carlos, Madrid, Spain
[b] Instituto de Investigación Sanitaria, Hospital San Carlos, Madrid, Spain
[c] Servicio de Medicina Interna, Hospital Clínico San Carlos, Madrid, Spain
[d] Servicio de Microbiología Clínica, Hospital Clínico San Carlos, Madrid, Spain

* Corresponding author.
E-mail address: jgonzalezcast@gmail.com (J. González del Castillo).

2529-993X/

Detection of foodborne *Salmonella* Typhimurium outbreaks

Detección de brotes de toxiinfecciones alimentarias por Salmonella *Typhimurium*

To the Editor,

We have read with a great interest the valuable editorial by Dr Ballesté-Delapierre and Dr Vila-Estapé[1] in which they ask about the detection of *Salmonella* foodborne outbreaks (FO) in Spain.

In Spain for the period 2012–2014, el Centro Nacional de Epidemiologia[2] reports that 702 FO of *Salmonella* were notified and *S.* Typhimurium (ST) was the etiologic agents in less than 20% of these outbreaks. By microbiologic culture, there were 4329 reported cases of ST and 135 cases of Monophasic *S.* Typhimurium (MST). However, the most frequent agent (over 50%) of FO was *S.* Enteritidis (SE), and a total of 3656 reported cases of SE. In addition, very few studies of FO caused by ST or MST have been published in Spain in the last 10 years,[3–5] despite the fact that the first description of epidemic MST associated with pork products was made in Spain by Echeita and co-authors in 1997.[6]

However, FO caused by ST in Spain probably are more frequent than the official figures reflect. We put forward some epidemiologic arguments that could explain why these outbreaks are more difficult to detect than FO caused by SE (Table 1):

- The food vehicle for FO caused by SE, the principal reservoir being poultry, is frequently eggs and egg products, which are consumed raw or semi-raw in high quantities and which could have high concentrations of *Salmonella*. The ST food vehicle is more variated in its animal reservoirs, which include cattle, chicken, rodents, and swine; the high prevalence of ST and MST in the Spanish pig farms has been highlighted.[7] Concentrations of ST depend on how the food vehicle has been processed. In the case of pork derivatives, some products are cured and ready to eat, consumption may be low each occasion and ST concentrations are like to be small. In addition, dried pork sausage and chorizo were the food vehicle in the two mentioned FO.[4,5]
- Dependent on exposure, the FO caused by SE may affect a high number of people, and may have a point source epidemic curve. Exposed people of all ages can be infected with symptoms and the severity depends on patient's characteristics. The attack rate is high although the hospitalization rate is usually low. Receptions, family celebrations, and popular festivities are places where these FO originate; they have a short duration and an incubation period of 6–72 h. Presentation, frequently takes the form of clusters of cases. These FO could detect by the epidemiologic surveillance before *Salmonella* microbiological characterization.
- In general, FO caused by ST may be of prolonged duration and the epidemic curve could be a continuing common source. The attack rate may be low and the people affected are children, old people, and adults with immuno-deficiencies; the illness is frequently severe with a high hospitalization rate. Because of the low concentrations of ST in the products, infection in healthy adults could be asymptomatic or involve only mild symptoms. The incubation period is longer and can be up 16 days or more. Presentation usually takes form of sporadic cases.[8] However, ST or MST can produce point source FO when the agent's concentration in the food vehicle is high and more than one *Salmonella* serotype may be associated with the same FO. Detecting these FO requires the microbiological characterization of the *Salmonella* strains, including serotypes, phage types, and more advanced

Table 1
Some differential characteristics of foodborne outbreaks of *S.* Typhimurium and *S.* Enteritidis.

Outbreak characteristics	*S.* Typhimurium	*S.* Enteritidis
Animal reservoirs	Swine, cattle, poultry, birds, rodents, reptiles, pets, etc.	Poultry, birds, reptiles, pets, etc.
Predominant food vehicles	Pork and pork products	Egg and egg products
Salmonella concentration	Low	High
Food characteristics	Cured, ready to eat	Raw or semi-raw
Food preparation	Separate portions (e.g., pork sausages)	Whole food (e.g., mayonnaise)
Food consumption	Low each time	Usually high
Incubation period	6 h to 15 days or more	6–72 h
Attack rate	Low	High
Onset	Gradual	Abrupt
Epidemic curve	Continuing common source	Point source
Outbreak duration	Weeks or months	Days
Persons at risk of symptomatic infection and microbiologic diagnosis	Children, old people, individuals with immuno-deficiencies	All exposed people
Illness	Frequently severe	Depend on patient's characteristics
Hospitalization	20–30% patients or more	Less than 10–20% patients
Place	Geographical dispersion affecting several cities and zones	Receptions, family celebrations, popular festivities, etc.
Predominant seasons	All year	Summer
Usual presentation	Sporadic cases	Clusters of cases
Outbreak extension	Community	Collective
Outbreak reported	Low	High
Outbreak detection	Microbiologic characterization and surveillance	Epidemiologic surveillance