

**Manuscript by: C Almeida, D Moreira, Machado A, Terra I, Vieira L, Cunha J. Gastroenteritis in paediatric age caused by *Salmonella*. Acta Med Port 2012; 25:219-23**

**Letter to the Editor:** Acute gastroenteritis (AGE) in paediatric age still remains one of the most important global public health challenges due to associated morbidity and mortality. Non-typhi *Salmonella* is one of its main etiologic agents, clearly associated to significant widespread morbidity.<sup>1</sup> A high prevalence and incidence of AGE due to *Salmonella* has been noticed in the developing as well as in industrialized countries, in the last few years. This may be due to nutritional habits changes and globalization. It is estimated that 93.8 million cases of *Salmonella* related AGE occur per year, leading to 155.000 deaths. This constitutes a major impact on public health, beyond hospitalization sequels and economic costs.<sup>1</sup> The importance of this problem has prompted the WHO to recently establish a work group – The Foodborne Disease Burden Epidemiology Reference Group -, with the purpose of reaching a global estimate of foodborne diseases and promote selective prevention strategies.<sup>2</sup>

The study of C. Almeida, et al.,<sup>3</sup> represents a relevant contribution to the national epidemiological and clinical profile of *Salmonella* gastroenteritis, all the more worthwhile in view of the previous scarcity of information in this area. Although it is a retrospective descriptive study, it has the benefit of including a representative sample/period, allowing the integration of a thorough and detailed clinical characterization of *Salmonella* AGE in paediatric population samples (children admitted in an emergency department), in a predominantly rural context.

The clinical profile and temporal distribution were similar to those described in other series (including two national studies). Major conclusions have emerged: a high complication (dehydration in 51%) and admission (83.5%) frequency, reflecting the population characteristics (half of the patients were less than three months of age); an apparent aggregation between (i) the age groups (< 3 years vs. > 3 years), (ii) the epidemiological profile (presumed contagious form – non drinkable water consumption vs. egg consumption) and (iii) serogroup distribution (*S. typhi*-murium vs. *S. enteritidis*), respectively, were highly consistent with other studies. We emphasize the fact that this study allowed for allocation to a putative foodborne origin in 45% of the cases and that among these, non-drinkable water was responsible in 68.8% of the cases (as evidenced by the use of artificial milk preparation in children less than three months of age).

We refer to the high diversity of identified serogroups and serotypes (with a predominance of those more frequently described in other European countries). The potential

association between septic complications and specific serogroups remains unclear. In a recent study of small children with bacteraemia, non-typhi *Salmonella* serogroup C was the most prevalent.<sup>4</sup>

The fact that only two such cases were identified in the present study (one of secondary bacteraemia and one of sepsis) does not allow for any additional conclusions.

We agree with the authors that it would have been useful to obtain the test to sensibility to antibiotics. These results have clinical implications (ceftriaxone was the most used antibiotic in the present study), as may also bring epidemiological relevance, in so much as the emergence of antibiotic resistance of certain serogroups (mainly B and C), particularly to ampicillin and chloramphenicol, has been described in the last few years. Despite this, we believe the frequency of patients that received antibiotics (11.2%) was justified by the target population characteristics, clinical severity and/or identified risk factors.

Although the contribution of *Salmonella* amongst other viral or bacterial agents has not been evaluated, its frequency and associated morbidity are certainly illustrative of its clinical relevance in the paediatric age. In future studies, it will be useful to attempt to systematically identify *Salmonella* in all cases of AGE (as well as the sample number and previous antibiotherapy), in order to reach the most accurate estimate of its contribution to AGE.

We agree it is important to recognize the asymptomatic carrier status, which may vary in time and constitute an additional contagious source, as well as the importance of any preventative measures that must be instituted at individual, local and global levels, in order to obtain a control of the infection reservoir (human and environmental).

In addition, the authors describe that, on average, in Portugal, 456 cases are notified per year.<sup>3</sup> The confrontation of the latter with the results of the present study allow for the conclusion that subnotification is occurring in Portugal. We note that there is global heterogeneity in the diagnosis and notification of infection, which vary according to the monitoring systems that are in place in each country,<sup>5</sup> despite the recognition of its epidemiological relevance and adoption of more selective strategies to reduce its public health impact. In this area, as in others, among other possible models, the national reference laboratories/centres could represent an integrative vigilant platform of sentinel systems, involving community and hospital doctors, similarly to what occurs in other epidemiological vigilance networks.

Briefly, the C. Almeida, et al. study represents an important contribution to *Salmonella* AGE clinical epidemiology in paediatric age and a useful work document for national paediatric public health.

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**Ana Isabel GOUVEIA LOPES**

A.I.G.L.: Unidade de Gastrenterologia Pediátrica. Departamento de Pediatria. Hospital de Santa Maria. Centro Hospitalar Lisboa Norte. & Faculdade de Medicina de Lisboa. Lisboa. Portugal.

**Reply to the Letter to the Editor regarding the manuscript: C Almeida, D Moreira, Machado A, Terra I, Vieira L, Cunha J. Gastroenteritis in paediatric age caused by *Salmonella*. Acta Med Port 2012;25:219-23**

The authors wish to thank the commentary on their work. The study was undertaken in the context of an increasing number of cases of acute gastroenteritis due to *Salmonella* observed not only in our hospital population, but also at national level. It was our impression that this clinical entity is under-notified. The purpose was to evaluate the epidemiological and clinical profile of *Salmonella* gastroenteritis, in order to facilitate diagnosis and therapeutic approach.

The public health impact of this disorder is well known as well as its consequent economic burden. This is the main reason for the attempt to identify the major local source of transmission, in order to institute preventive measures.

Besides the recognition of the infection and *Salmonella* identification as the causative agent of gastroenteritis, it would also have been important to reach its sensibility profile, in order to narrow antibiotic spectrum and avoid emergence of resistance.

Our study allows for the emphasis to be placed on sub-notification of this disease. We believe notification is crucial, in order to improve epidemiological knowledge and prevent transmission.