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Viral respiratory infections: behind simplicity lies intelligence

Thomazelli et al.[1] brought up a high level scientific research on viruses that cause respiratory infections. Although not surprising, these results are important enough to deserve the editorial by Schmitt et al.,[2] who express up-to-date medical knowledge within a global context. The risk is the temptation, as suggested in the title of the editorial, to "technologize" one of the most common problems within the pediatric practice – the respiratory infections. In fact, there is injudicious antibiotics prescription and unnecessary chest and sinus x-rays which, besides not being indicated, may lead to erroneous interpretation. This situation does not occur only here, in Latin America, but also in more developed societies.

The expensive and usually inaccessible technology presented does not solve the clinical problem and adds new problems – is the agent alone responsible for the clinical features at that moment? What should be done to the 21% of negative results? Acute viral rhinosinusitis could have progressed to an acute suppurative bacterial rhinosinusitis? Is this a useless procedure then? No way! It is of great importance that reference centers, such as the authors´ one, carry out a dynamic review of the epidemiological aspects of these infections and pass along the information to pediatricians so that they can give a sensible opinion on each case and feel confident of speaking to the patient's family without the need to use the non-scientific and unprestigious term "virosis." I will give in to temptation and make an analogy with our pioneering research works[3-6] at Ipiranga Children's Hospital (Clínica Infantil do Ipiranga) in the 1960's, 1970's and 1980's, when, together with Trabulsi, we researched on the bacterial etiology of acute diarrhea, which used to be, in that time, the major cause of death among Brazilian children aged less than 1 year. We learned much with the analysis of over a thousand of coprocultures in the context of their respective clinical features and, curiously, since then, we rarely requested coproculture in isolated cases of acute diarrhea.

What should we do then? The primary care pediatrician and, particularly, the first responder should be provided with norms for diagnosis and therapeutic practice of habitual respiratory clinical features, mostly viral, thus better assisting them on catching the bacterial complication expressed by the worsening infectious/toxemic state.

In cases of doubt, simple examinations such as C-reactive protein can be useful.

As it has already been said, "behind the simplicity lies the intelligence."

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Authors' reply

Dear Editor,

We want to thank Dr. Murahovschi for his letter to the editor, which almost exempts us authors from a reply due to its clarity and distinction between useful and necessary. In fact, the purpose of the article "Surveillance of eight respiratory viruses in clinical samples of pediatric patients in southeast Brazil" clearly represents the goals of over 10 years of study and work of the team formed by physicians and virologists at Universidade de São Paulo (USP), part of the University Hospital and the Institute of Biomedical Science of this university. The fruits of this team work contribute, in the daily practice of medicine, towards the development of a clinical thinking, determining the medical behavior and explanation to be given to the patient and the patient´s family.[1]

The clinical thinking is not based on intuition, it is closer to an equation based on the presentation of the clinical features and on the knowledge of epidemiological and etiological data, properly demonstrated in scientific studies.

Knowledge of the viral etiological profile of the respiratory infections in childhood is a major contribution to the pediatrician, especially regarding young children, since viral bronchiolitis is the first cause of hospitalization of infants in developed countries, and its impact can be remarkably higher under unfavorable socioeconomic conditions. However, the etiology of viral respiratory infections depends on research into methods that present higher sensitivity and specificity. These methods are expensive, therefore great research groups are formed so that, in clinical practice, the physician can make use, in most of the cases, of their clinical knowledge and thinking.[2]

The study published in Jornal de Pediatria aims, as stated in its title, at conducting a surveillance of the occurrence of viral infections in children younger than 5 years hospitalized for lower respiratory tract problems. This objective bears the knowledge of the frequency of the different viruses in this population, and their distribution and seasonal profile throughout the year. This study does not include children with upper respiratory tract infections alone, such as rhinosinusitis. The respiratory viruses occurred mainly in their first year of life, bronchiolitis by respiratory syncytial virus (RSV) being the most frequent infection. In this study, we highlight the importance of the human metapneumovirus (HMPV), being the second most frequent virus. The difference in the seasonal trends between these two main agents is remarkable, since the RSV, as previously published by the authors, presents annual season during the fall and winter months. The HMPV spreads more homogeneously throughout the year, what contributes towards the occurrence of high rates of infants´ hospitalization during the months following the RSV season.[3]

Viral respiratory infections occur mostly in previously healthy children and present with a characteristic clinical course. Thus, it is possible for the pediatrician to diagnose even without an etiological confirmation, since they are aware of the importance, the distribution of the main agents, and the characteristics of the infection. That is what happens, as a general rule, in the acute viral bronchiolitis. This way, it is possible to, confidently, avoid expensive and unnecessary treatments that may be responsible for undesirable side effects, such as antibiotic therapy. It does not apply to patients with risk factors involved, who present with more severe infection, as well as to previously healthy patients with more severe clinical features, in which, regardless of identification of respiratory virus, bacterial infection can not be excluded as the only cause or in association with viral infection. Fortunately, these are rare cases in populations with characteristics similar to the ones in the study carried out by the authors.

Surveillance of viral respiratory infections grows more and more important, since the technological race for the development of new therapeutics, especially prophylaxis, intensifies year after year. The etiological profile is dynamic and needs monitoring. We hope that we have brought our contribution to, in a near future, write to Jornal de Pediatria on new vaccines or antiviral drugs that can reduce the impact of RSV and HMPV in infants, such as the current example of the rotavirus in controlling the impact of acute diarrhea.

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Statistical and epidemiological methods in prevalence studies: odds ratio vs. prevalence ratio

Dear Editor,

When reading the article by Rodrigues et al.,[1] "The association between cardiorespiratory fitness and cardiovascular risk in adolescents," it was possible to find some errors regarding the application of statistical and epidemiological methods, as well as their respective interpretations; however, in our opinion, this does not invalidate the findings, but it can depreciate the scientific method of that study, which is not desirable for the authors, readers or even Jornal de Pediatria, which is such an important journal.

That article is a result of a cross-sectional study, i.e., a prevalence study, situation in which association estimates are preferentially calculated by prevalence ratio (PR) or, less adequately, by odds ratio (OR) and their respective 95% confidence intervals (95%CI). That is so because, in this type of study, it is not possible to determine incidence. Analyzing the results, one can see that OR and relative risk (RR) were used as association estimators. Both are inadequate, since it is known that OR overestimates strength of association,[2,3] and