

# Streptococcal Pharyngitis in Children: A Tertiary Pediatric Hospital in Bucharest, Romania

Sir,

Children experience several episodes of acute pharyngitis until adulthood. Although most of them are of viral etiology, up to 30% of cases are due to *Streptococcus pyogenes* also known as group A streptococcus (GAS).<sup>[1]</sup> However, over 60% of children with acute pharyngitis receive antibiotics.<sup>[2]</sup> Differentiating between the viral and bacterial etiology of acute pharyngitis is often difficult to make, so the Society of Infectious Diseases of America recommends that the diagnosis of streptococcal pharyngitis should not be based solely on clinical criteria.<sup>[3]</sup> It is recommended to use rapid antigen detection test (RADT) or throat cultures to confirm the streptococcal etiology.<sup>[3]</sup> For their rational use of them, clinical scores were developed (modified Centor score/McIsaac and feverPAIN)<sup>[4,5]</sup> which facilitate an efficient selection of children who need testing to identify GAS. In the emergency department (ED), the use of RADT is preferred for a quick result and an immediate therapeutic decision.

We conducted a retrospective study among patients who presented to the ED, of the National Institute for Mother and Child Health “Alessandrescu-Rusescu”, Bucharest, Romania, and were diagnosed by RADT with streptococcal pharyngitis or streptococcal tonsillitis, between September 1, 2018, and August 31, 2019.

Of 4627 patients diagnosed with acute pharyngitis/acute tonsillitis, 29.9% ( $n = 1383$ ) had positive RADT for streptococcus. The majority were schoolchildren (5–13 years; 49.3%,  $n = 682$ ) and preschoolers (3–4 years; 27.0%,  $n = 374$ ) [Table 1]. Thus, the median age of the studied group was 5.3 years (interquartile range [IQR]: 3.4, 8.2). There was a slight predominance of positive cases for *Streptococcus* among males (748 cases, 54.1%), and we did not identify significant differences ( $P = 0.663$ ) in age between males (5.3 years [IQR: 3.3, 8.1]) and females (5.3 years [IQR: 3.4, 8.3]).

In terms of seasonality, 68.2% ( $n = 943$ ) of the cases were identified in the spring and summer months [Figure 1], with a maximum peak in June (184 cases).

Only 8.8% (122 cases) required hospitalization, the rest being treated in an outpatient setting. The age of those hospitalized was significantly lower than those with treatment at home, 4.1 years (IQR: 2.7, 6.1) compared to 5.9 years (IQR: 3.4, 8.8),  $P = 0.002$ . The distribution of hospitalized cases by age groups is shown in Table 1.

A total of 59 cases (4.3%) of recurrent streptococcal pharyngitis were identified: 46 patients with 2 episodes/year, 9 with 3 episodes/year, and 4 with 4 episodes/year. The gender of the patient was not associated with the risk of recurrence ( $P = 0.558$ ), whereas the age of the patients with more than one episode of streptococcal pharyngitis per year was significantly higher than that of patients with a single episode, 6.6 years (IQR: 4.7, 10.5) compared to 5.2 years (IQR: 3.2, 6.1),  $P = 0.025$ . The distribution of these cases by age groups is found in Table 1. The median duration until the onset of a new episode of streptococcal pharynx was 1.2 months (IQR: 0.6, 3.2).

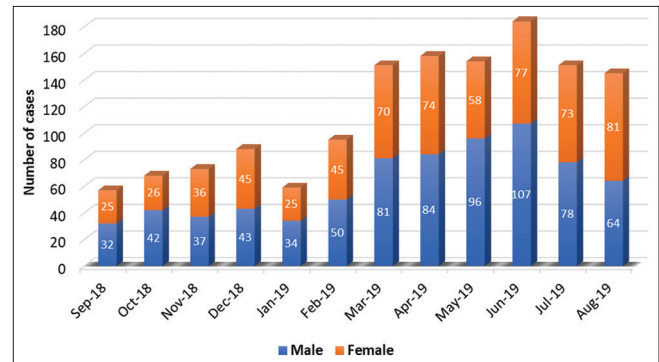


Figure 1: Distribution of cases by month, according to gender

Table 1: Characteristics of patients by age groups

Characteristics	Infants (under 1 year) ( $n=9$ ), $n$ (%)	Toddlers (1-2 years) ( $n=257$ ), $n$ (%)	Preschoolers (3-4 years) ( $n=374$ ), $n$ (%)	Schoolchildren (5-13 years) ( $n=682$ ), $n$ (%)	Teenagers (14-17 years) ( $n=61$ ), $n$ (%)
Gender					
Male	8 (88.9)	133 (51.8)	208 (55.6)	370 (54.3)	29 (47.5)
Female	1 (11.1)	124 (48.2)	166 (44.4)	312 (45.7)	32 (52.5)
Hospitalized	0	29 (11.3)	63 (16.6)	28 (4.1)	2 (3.0)
Recurrent streptococcal pharyngitis (episodes/year)					
2	0	3 (1.2)	14 (3.7)	26 (3.8)	3 (4.9)
3	0	0	1 (0.3)	7 (1.0)	1 (1.6)
4	0	0	0	3 (4.4)	1 (1.6)

In conclusion, we identified an increased incidence of acute streptococcal pharyngitis. RADT is a useful and effective tool in the positive diagnosis of GAS pharyngitis, which leads to a rational use of antibiotics among children with sore throat and/or fever.

### Research quality and ethics statement

The study was approved by the Ethics Committee of the National Institute for Mother and Child Health “Alessandrescu-Rusescu”, Bucharest, Romania, IRB number: 14921 / 23.09.2019. The authors followed applicable EQUATOR Network (“http:// www.equator-network.org/”) guidelines during the conduct of this research project.

### Financial support and sponsorship

Nil.

### Conflicts of interest

There are no conflicts of interest.

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<b>Quick Response Code:</b> 	<b>Website:</b> <a href="http://www.jgid.org">www.jgid.org</a>
	<b>DOI:</b> 10.4103/jgid.jgid_59_21

**How to cite this article:** Miron VD, Bar G, Filimon C, Gaidamut VA, Craiu M. Streptococcal pharyngitis in children: A tertiary pediatric hospital in Bucharest, Romania. *J Global Infect Dis* 2021;13:154-5.

**Received:** 02 March 2021    **Revised:** 17 April 2021  
**Accepted:** 19 April 2021    **Published:** 19 August 2021

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