isolated in the cerebrospinal fluid in our study.

Chryseobacterium gleum commonly colonizes mechanical devices, causing device-associated infections, and can form biofilm. According to this study, VP shunt may be a risk factor for *Chryseobacterium gleum* infections. This report emphasizes the significance of *Chryseobacterium* species as a causative agent of a wide range of infections, and VP shunts can pose a risk for this agent. Data on the management of *Chryseobacterium* is limited. Antimicrobial susceptibility testing guidelines for *Chryseobacterium* infections should be developed for more effective and accurate treatment.

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Emergency in Group A Streptococcal Infections: Single center data from Turkey

To The Editors:

In December 2022, World Health Organization and European Centre for Disease Prevention and Control published that in some European countries, such as France, Ireland and the Netherlands, there was an increase in the number of cases of invasive Group A streptococcus (iGAS) disease in children under the age of 10 years, which increased especially after September. It has been emphasized that this increase may be related to the recently increased incidence of respiratory viruses, including influenza and respiratory syncytial virus (RSV).[1,2] Most recently in the UK, iGAS disease has recently been reported to be higher than expected at this time of the year and a notification has been published for clinicians.[3]

The aim of this study is to investigate the risk factors and clinical and laboratory characteristics of pediatric patients followed up in our hospital for GAS-related skin and soft tissue infections (SSTI) and iGAS infection within 2 years when Severe Acute Respiratory Syndrome Coronavirus 2 pandemic restrictions continued and were lifted, and also to find the distribution of the frequency of GAS infections over months.

This study covers a 25-month period between January 2021 and January 2023 in a 725-bed pediatric hospital with 163,549 pediatric emergency admissions and 28,133 inpatients in 2021, and 199,416 pediatric emergency admissions and 32,176 inpatients in 2022. We retrospectively analyzed 86 pediatric patients 0–18 years old with GAS infection. Medical records and nonsterile/sterile field culture results were reviewed from the hospital medical system. In total 60.5% of the patients (52 patients) were evaluated as iGAS. In order of frequency, 25.6% had deep tissue infection, 7% had bacteremia, 5.8% had Streptococcal Toxic Shock Syndrome (STSS), 5.8% had deep neck infection and 5.8% had lymphadenitis. Regarding the SSTI group, 24.4% were impetigo. However, 58.1% of the patients were male and the mean age was 67.66 years (±62.99). The most common risk factors were burn (20.9%) and viral infection (10.5%). Among patients with iGAS infection, 61.5% were male, with a mean age of 68.44 years (±64.00). In total 29 patients (55.7%) were less than 5 years old. Clinical and laboratory characteristics of patients with GAS Infection are shown in Table 1.

In the respiratory tract viral Real Time Polymerase Chain Reaction results, influenza A (2-influenza A H3N2, 1-influenza A H1N1) was found in 3 patients, RSV in 2 patients, adenovirus in 1 patient, rhinovirus in 2 patients and human metapneumovirus in 1 patient. Regarding the relationship between iGAS and viral infection, 1 of influenza A positive patients had STSS, 1 had bacteremia, lobar pneumonia and 1 had orbital cellulitis. Patients with adenovirus and human metapneumovirus positivity had STSS clinic, 1 had acute otitis media after RSV positivity and 1 had multilobar pneumonia after rhinovirus positivity. Looking at the influenza surveillance data of our country, it is seen that influenza A H3N2 predominantly started to increase especially from the 2022/44th week and reached the highest level in the 2022/51st week.[4] In our clinical data, the increase in GAS and iGAS seems to be concurrent with the seasonal increase in influenza.

Another risk factor for the development of iGAS infection in children is patients younger than 5 years of age. In our clinic, 55.7% of our iGAS cases were between 0 and 5 years of age. However, there were no varicella cases in our patients, but there were other risk factors such as burns in 20.9% of the patients, trauma in 4.7% and previous surgery in 1.2%. The reason for the high rate of the burn risk group may be the presence of an advanced burn center clinic in our hospital.

The hospitalization rate of patients was 66%. Amoxicillin clavunate was used in 70.6% of SSTI patients,

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ampicillin+gentamicin (14.7%) was used in the treatment of newborns hospitalized for omphalitis and clindamycin was used in 73% of iGAS patients (Table 2). These antibiotics were started empirically and revised according to culture results. The laboratory characteristics of the patients are summarized in Table 2.

When the distribution of patients within months is analyzed, 13.9% of the total cases were seen in 2021, 20.9% in the first 6 months of 2022 and 58.1% in the last 7 months. When the distribution of iGAS is analyzed, 13.4% were seen in 2021, 19.2% in the first 6 months of 2022 and 67.4% in the last 7 months (Fig, 1).

In conclusion, the increase in GAS and iGAS infections in our clinic was similarly observed as reported in World Health Organization reports. In particular, GAS-associated SSTI and iGAS cases were seen with increasing frequency compared to 2021 and in clusters after September 2022. It seems to be risky for iGAS in patients younger than 5 years old, with burns and viral infections, especially influenza in our study. Although it is a single-center study, this increase in our country should raise awareness for clinicians and public health authorities, and early diagnosis, follow-up and treatment of patients and patient contacts are recommended.

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TABLE 1. Clinical and Laboratory Characteristics of Patients with Group A Streptococcal Infections

	Total (n:86)	iGAS (n:52)	SSTI (n:34)
Demographics			
Age (month, mean)	67.66 (±62.99)	68.44 (±64.00)	66.47 (±62.35)
Gender (male n,%)	50 (58.1%)	32 (61.5%)	18 (52.9%)
<60 month	46 (53.5%)	29 (55.7%)	17 (50%)
61-216 month	40 (47.5%)	23 (44.2%)	17 (50%)
Risk factors			
Burn	18 (20.9%)	18 (20.9%)	–
Viral infections	9 (10.5%)	7 (13.4%)	2 (5.8%)
Trauma	4 (4.7%)	3 (5.7%)	1 (2.9%)
Postoperative	1 (1.2%)	1 (1.2%)	–
Site of culture (n,%)			
Skin and soft tissue	47 (54.7%)	20 (38.4%)	27 (79.4%)
Abscess	18 (20.9%)	15 (28.8%)	3 (8.8%)
Blood	8 (9.3%)	8 (9.3%)	–
Middle ear aspirate	4 (4.7%)	4 (4.7%)	–
Umbilicus	4 (4.7%)	–	4 (4.7%)
Pleura	3 (3.5%)	3 (3.5%)	–
Throat	2 (2.3%)	2 (2.3%)	–
Diseases			
iGAS (n,%)	52 (60.5%)	52 (60.5%)	
Deep wound infections	22 (25.6%)	22 (25.6%)	–
Bacteremia	6 (7%)	6 (7%)	–
STSS	5 (5.8%)	5 (5.8%)	–
Deep neck infections	5 (5.8%)	5 (5.8%)	–
Lymphadenitis	5 (5.8%)	5 (5.8%)	–
Acute otitis media	4 (4.7%)	4 (4.7%)	
Pneumonia	2 (2.3%)	2 (2.3%)	–
Osteomyelitis	2 (2.3%)	2 (2.3%)	–
Orbital cellulite	1 (1.2%)	1 (1.2%)	–
SSTI (n,%)	34 (39.5%)		34 (39.5%)
Impetigo	21 (24.4%)	–	21 (24.4%)
Omphalitis	4 (4.6%)	–	4 (4.6%)
Perianal abscess	2 (2.3%)	–	2 (2.3%)
Paronychia	7 (8.1%)	–	7 (8.1%)

iGAS indicates Invasive group A streptococcus infection; SSTI, Skin and soft tissue infections; STSS, Streptococcal Toxic Shock Syndrome.

TABLE 2. Laboratory Characteristics and Treatment Regimens of Patients with Group A Streptococcal Infections

	iGAS (n:52)	SSTI (n:34)	*P* value
Laboratory findings			
White Blood Cell (4800–12000/mm^3) (mean, SD)	14.90 ± 7.70	15.58 ± 14.82	0.803
Neutrophil count (/mm^3) (median)	9.40 (4.72–15.05)	5.65 (3.00–10.08)	**0.017**
Neutrophil count (/%) (mean, SD %)	66.14 ± 20.83	49.78 ± 19.09	**0.02**
Platelets (180000–415000/mm3) (median)	413 (281–579)	377 (336–503)	0.960
C-reactive protein (median) (0–5 g/L)	20.5 (5.0–115.0)	7.0 (3.7–11.7)	**0.032**
Treatment			
Oral Amoxicillin-clavunate	11 (21.2%)	24 (70.6%)	–
Ampicillin-Sulbactam+Clindamycin	16 (30.8%)	4 (11.8%)	–
Ceftriaxone+Cindamycin	14 (26.9%)	1 (2.9%)	–
Ampicillin-Sulbactam	3 (5.8%)	–	–
Ceftriaxone+Cindamycin+Vancomycin	8 (15.3%)	–	–
Ampicillin+Gentamicin	–	5 (14.7%)	–

iGAS indicates Invasive group A streptococcus infection; SSTI: Skin and soft tissue infections. *P* value significance level was $P < 0.05$.

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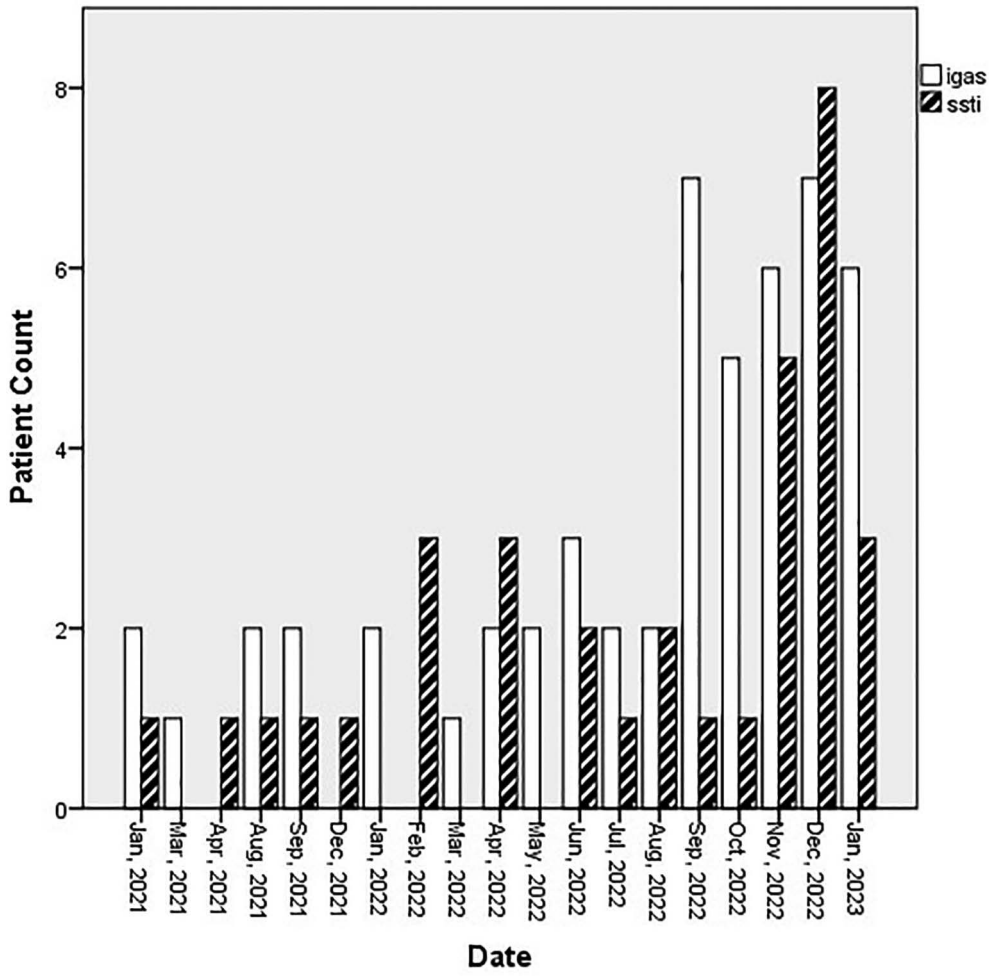


FIGURE 1. Analysis of the monthly distribution of SSTI and iGAS patients.

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