




follicles (bridge sign), a fragment of the hair shaft extruding through a dilated hair follicle (sword sign) and retained cylindrical fragments of keratin in the dermis.⁷

Eventually, the ultrasound allows to improve the surgical approach, allowing more targeted interventions both in relation to the moment in which to perform the surgery and in establishing the extension of the surgical approach.

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Skin and soft-tissue infections associated with *Aeromonas* species in French Guiana: an 11-year retrospective study

Editor

Aeromonas species are Gram-negative bacilli, commonly found in salted and fresh water, food and soil.¹ Skin and soft-tissue infections (SSTIs) are frequent² and have been reported in

Table 1 Clinical characteristics of the 81 patients with skin and soft-tissue infections (SSTIs) caused by *Aeromonas* species, French Guiana, 2007–2018

Characteristics	No. (%) of patients. n = 81
Age (years)	40 [7–80]
Male gender	64 (79)
Female gender	17 (21)
Geographic origin	
Cayenne metropolitan area	44 (54)
Upper Maroni	25 (31)
Coastal region	8 (10)
Other	4 (5)
Underlying condition	
Diabetes mellitus	10 (12)
Organ failure	7 (9)
Wound location	
Lower limb	58 (72)
Upper limb	12 (15)
Chest	5 (6)
Head	5 (6)
Abdomen	1 (1)
Exposure	
Road trauma	22 (27)
Snake bite	16 (20)
Chronic wound	9 (11)
Water exposure	8 (10)
Burn	7 (9)
Metallic foreign object	7 (9)
Firearm	6 (7)
Stingray stabbing	3 (4)
Unknown	3 (4)
Wood foreign object	2 (2)
Dog bite	1 (1)
Clinical presentation	
Localized wound infection	36 (44)
Necrotizing fasciitis	17 (21)
Abscess	15 (19)
Cellulitis	8 (10)
Infected ulcer	5 (6)
Organism	
<i>A. hydrophila</i>	76 (94)
<i>A. caviae</i>	4 (5)
<i>A. jandaei</i>	1 (1)
Type of infection	
Polymicrobial infection	63 (79)
Monomicrobial infection	18 (21)
Management	
Antibiotic therapy only	42 (52)
Wound debridement	28 (35)
Amputation	11 (14)
Issue	
Complete healing	60 (74)
Amputation	11 (14)
Evacuation to mainland France	6 (7)
Death	2 (3)
Chronic evolution	2 (3)

Australia,¹ Asia³ and the Indian Ocean.⁴ However, data from South America are scarce. We investigated the exposures, clinical characteristics and antimicrobial susceptibilities of *Aeromonas*

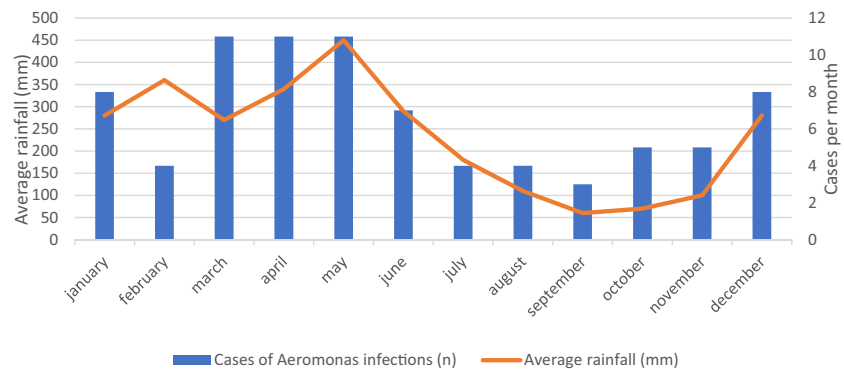


Figure 1 Seasonal variations of infections caused by *Aeromonas* spp in French Guiana, 2007–2018.

involved in SSTIs in French Guiana. We looked for risk factors of unfavourable outcome.

We retrospectively included all patients with skin or soft-tissue infections and a positive culture with *Aeromonas* spp, seen in the Cayenne Hospital between 2007 and 2018.

A total of 81 patients were included. Clinical and epidemiological data are gathered in Table 1. Numbers of infections for each month of the year are presented in Fig. 1. The more frequent exposures were road trauma ($n = 22$) and snake bites ($n = 16$). Clinical presentations were often severe, including necrotizing fasciitis ($n = 17$) and abscesses ($n = 15$). Eleven patients required amputation.

Antibiotic resistance profile was known for 77 patients (95%). Most strains were resistant to ticarcillin (72%). Less than 5% were resistant to ciprofloxacin, imipenem or gentamicin. None were resistant to ceftazidime or amikacin.


Aeromonas hydrophila was the most common pathogen ($n = 76$, 94%). The majority of patients had polymicrobial infections, mostly with enterobacteriae ($n = 27$, 33%) and *Staphylococcus aureus* ($n = 15$, 19%). One half of monomicrobial infections ($n = 18$, 22%) were caused by snake bites.

Concerning the outcome, two patients died, including a 61-year-old woman with *A. hydrophila* bacteraemia and a 71-year-old diabetic woman with a necrotizing fasciitis growing *A. hydrophila* and *Klebsiella pneumoniae*. They both received amoxicillin–clavulanate though both germs were resistant. In multivariate analysis, the presence of burn as a route of entry (7 patients, 9%) was the only factor associated with unfavourable outcome (OR 6.54, 95% CI [1.13–37.95]).

As in previous studies, *A. hydrophila* was the most common species responsible for skin and soft-tissue infection⁵ and infections occurred mostly during the rainy season.^{1,6} The predominance of men and lower limbs is common in *Aeromonas* and should be linked to the role of outdoor activities as routes of entry. Among these exposures, burns were incriminated in 7 patients, possibly due to the use of contaminated water in primary care against burns.⁷ *Aeromonas* spp are a classic component of the oral microbiota⁸ of snakes, and we report here the largest series of *Aeromonas* infection after snake bite ($n = 16$, 20%).⁹

Concerning clinical features, the proportion of necrotizing fasciitis ($n = 17$, 21%) was higher than in most previous studies,⁵ excepting a report of *Aeromonas* infections after a tsunami in Thailand.³ This frequent severity could be explained by a delay in treatment due to a lack of healthcare access in remote areas of French Guiana. Though previous studies reported an important proportion of immunocompromised patients,^{2,5} such a feature was not observed in our cohort. Thus, *Aeromonas* infections should also be expected in healthy young men performing at-risk outdoor activities.

In multivariate analysis, burns were associated with unfavourable issue, mirroring previous case reports of high mortality in burned patients infected with *Aeromonas*.¹⁰ The only two deaths occurred when antibiotics were not adapted to antibiograms. These results highlight the importance of antibiotic stewardship in circumstances of burns, waterborne or telluric contaminations. Antibiotics covering *Aeromonas* and frequent co-pathogens should then be contemplated (third-generation cephalosporin or fluoroquinolone).² Patients with burns in rain-forest areas should be closely monitored due to the high risk of unfavourable outcome.

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Comparative 12-week effectiveness and safety outcomes of biologic agents ustekinumab, secukinumab and ixekizumab for the treatment of plaque psoriasis: a real-world multicenter retrospective study

Editor

Today, dermatologists commonly prescribe ustekinumab, secukinumab and ixekizumab in routine clinical practice due to their proven success rate. At this time, real-life comparison between these three treatments is scarce. Our aim was to compare head-to-head the clinical effectiveness and associated reported adverse events (AEs) of ustekinumab, secukinumab and ixekizumab within routine clinical practice.

Following research ethics approval, a multicenter retrospective chart review was undertaken of patients from two tertiary academic hospitals in Toronto, Canada seen in clinic between January 2014 and January 2018. Inclusion criteria were consecutive patients 18 years of age or older with moderate-to-severe plaque psoriasis (Psoriasis Area and Severity Index (PASI) \geq 10) and treated with either ustekinumab, secukinumab or ixekizumab. Patients receiving concomitant systemic treatment (phototherapy, methotrexate, soriatane or cyclosporine) were

screened to ensure that the concomitant therapy had been used for at least 12 weeks before initiation of the biologic treatment and patients were maintained on a stable dose throughout the 12-week study period to mitigate confounding efficacy and safety outcomes. Treatment failure included those who discontinued treatment due to lack of efficacy, intolerance or other non-drug-related reasons. The clinically significant efficacy endpoints were PASI 75 and PASI 100 following 12 weeks of biologic treatment. Achievement of physician global assessment (PGA) of 0 (clear) or 1 (almost clear) was used for a select group of patients without documented PASI scores at 12 weeks. Safety endpoints were quantified by patient- or clinician-reported AEs.

A total of 180 patients met inclusion criteria, of which 60 were treated with ustekinumab, 60 with secukinumab and 60 with ixekizumab; according to product monograph (Table 1). Significantly different baseline characteristics included lower mean number of co-morbidities in the ustekinumab (0.8 ± 1.0) treatment group compared with secukinumab (1.6 ± 1.4) and ixekizumab (1.7 ± 1.4) ($P = 0.001$). The ustekinumab cohort had significantly fewer previously failed systemic and biologic therapies (2.6 ± 1.3 ; 0.8 ± 0.9) compared with secukinumab (4.8 ± 1.9 ; 2.4 ± 1.2) and ixekizumab (4.6 ± 2.1 ; 2.6 ± 1.6) ($P < 0.001$). Of those in the ustekinumab group, 51.7% had previously failed a biologic therapy, compared with 98.3% for secukinumab and 93.3% for ixekizumab ($P < 0.001$). All significantly different baseline characteristics were included in the statistical analysis to correct for their possible confounding effect.

Efficacy. No significant differences in clinical efficacy primary endpoints were observed at week 12 ($P > 0.05$) (Table 1). PASI 75 response rates were comparable between ustekinumab- (73.3%), secukinumab- (76.7%), and ixekizumab- (75.0%) treated patients ($P = 0.851$, $P = 0.389$, $P = 0.574$, respectively). PASI 100 rates at week 12 were comparable for all three cohorts, with ustekinumab (30.0%) and secukinumab (25.0%) showing lower rates than ixekizumab (35.0%). Similarly, phase 3 randomized controlled trials (RCT) showed that 66.4–75.7%/10.9–18.2%, 75.9–81.6%/24.1–43.1% and 87.3–89.7%/35.3–40.5% of patients treated with ustekinumab, secukinumab and ixekizumab achieved PASI 75/100, respectively.^{1,2,3,4} Logistic regression looking at the possible effect of prior failed systemic and biologic use, baseline PASI and presence of co-morbidities on efficacy showed that these factors did not significantly impact PASI 75 outcomes ($P > 0.05$ for all variables assessed). None of these factors had a significant effect on PASI 100 outcomes ($P > 0.05$ for all variables assessed).

Safety. Ixekizumab was associated with a significantly higher incidence of AEs ($P = 0.001$) compared with ustekinumab and secukinumab (Table 1). AEs were reported by 5 (8.3%), 12 (17.4%) and 22 (36.7%) patients in the ustekinumab, secukinumab and ixekizumab groups, respectively. Rates and types of common AEs for each biologic were comparable to those of previous trials and other systemic treatments.^{3,4,5,6,7} Infectious