

LEPTOSPIROSE MODEREE à SEVERE

 **CHPF**
Centre Hospitalier
de la Polynésie française

**1^{ères} journées
d'Infectiologie
de Polynésie française**

 14 au 18 octobre 2024
 16h à 20h
 Amphithéâtre du CHPF



Dr KRID – Dr MANESSIEZ
Réanimation
CHPf 17/10/2024

PLAN

GENERALITES

TOUR BIBLIOGRAPHIQUE DES FDR

PHENOTYPES CLINIQUES

CONCLUSION

AGENT RESPONSABLE

LEPTOSPIROSE

Letos (fin)

Speira (boucle)

Anthropozoonose de répartition mondiale prédominant en zones tropicales

Bactérie à Gram négatif, aérobic stricte, de croissance lente
Spirochète de l'Ordre des *Spirochaetales* et du Genre *Leptospira*

L saprophytes, non pathogène comme *Leptospira Biflexa*

L pathogène comme *Leptospira Interrogans* qui comprend plus d'une trentaine de sérogroupes et plus 300 sérovars

Contamination :

Par voie cutanéomuqueuse (eau souillée par les urines)

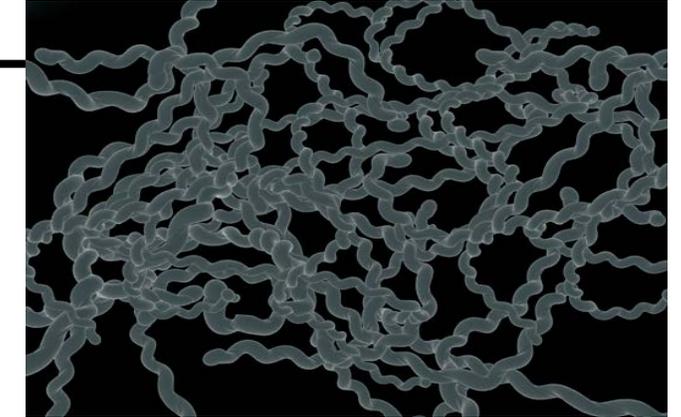
A travers les excoriations cutanées ou des muqueuses/ conjonctives

Plus rarement par contact direct avec l'animal contaminé

Réservoir animal (le spirochète se multiplie dans les tubules rénaux proximaux)

Porteurs asymptomatiques (rats , souris...)

Animaux sensibles (ovins, bovins, chiens..).



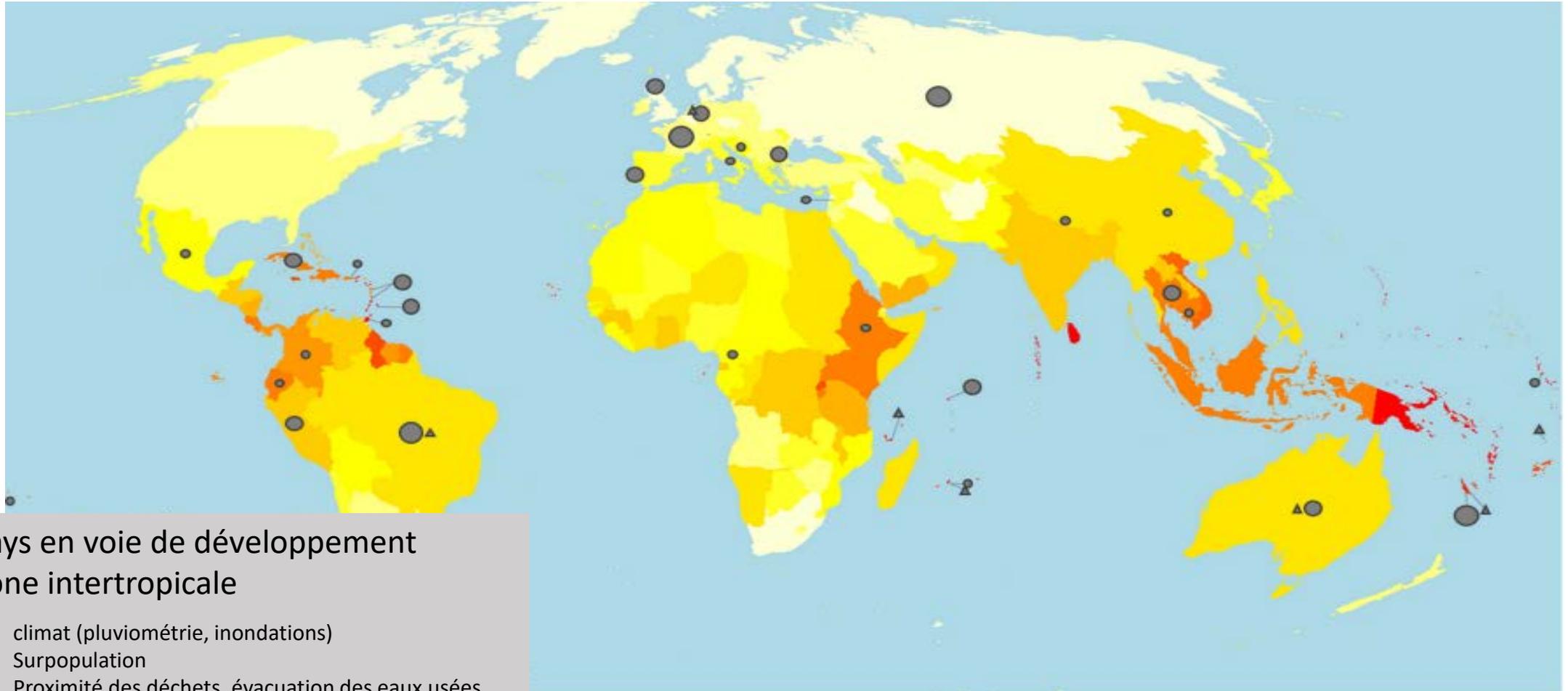
En Polynésie française :

Espèces :

- L. Interrogans
- L Weilli

Sérogroupes :

- Icterohaemorrhagiae
- Australis



Pays en voie de développement Zone intertropicale

- climat (pluviométrie, inondations)
- Surpopulation
- Proximité des déchets, évacuation des eaux usées
- Promiscuité avec les rongeurs

Leptospirose

RAPPORTS D'ACTIVITÉ DU CNR DE LA LEPTOSPIROSE

Régions	Nombre de cas	Pop. en K hab.	Incidence / 100 000 hab.
Guadeloupe (971)	144 (139)	404	36,9 (34,40)
Martinique (972)	114 (104)	402	30,6 (25,87)
Guyane (973)	115 (82)	237	42,8 (34,50)
Ile de La Réunion (974)	134 (135)	828	15,69 (16,30)
Mayotte (976)	180 (71)	217	70,17 (32,72)
Polynésie française	164 (167)	274	59,44 (60,95)
Nouvelle-Calédonie	230 (69)	291	84,74 (23,71)
TOTAL OUTRE-MER	1081 (805)		

2021(2020)

LEPTOSPIROSE : FACTEURS DE RISQUE ENVIRONNEMENTAUX EN POLYNÉSIE FRANÇAISE

TABLE 2. Potential risk factors of leptospirosis, French Polynesia, 2007–2017

Category	Variable	No. of cases	Percentage over total no. of cases provided for this category	Missing values for this category, n (%)
Occupational risk	Farmer	383	41.6%	436 (32.2)
	Sanitation and waste treatment	60	6.5%	
	Animal husbandry	134	14.6%	
	Cattle breeding	23	2.5%	
	Horse breeding	17	1.8%	
	Pig farming	43	4.7%	
	Leisure activity/fresh water contact	Fishing	131	
Hunting	40	4.5%		
Gardening	319	36.0%		
Hiking	101	11.4%		
Walking barefoot	497	56.2%		
Freshwater swimming	277	31.3%		
River mouth surfing	67	7.6%		
Contact with animals	Cats	292	35.0%	521 (38.4)
	Dogs	466	55.8%	
	Rats	545	65.3%	
High-risk facilities	Dump in vicinity	126	38.9%	1032 (76.1)
	Water abstraction	48	14.8%	

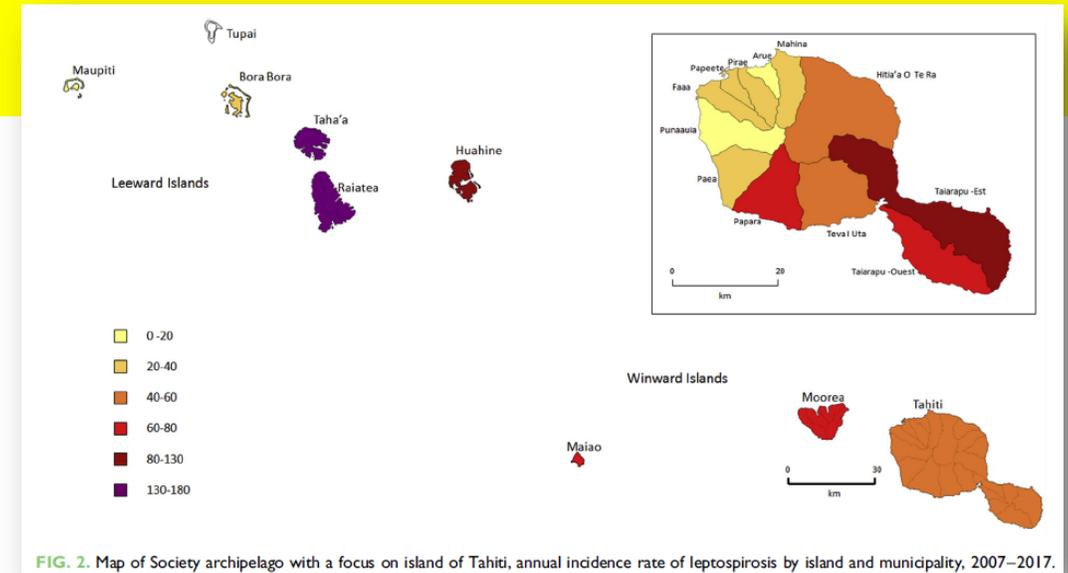
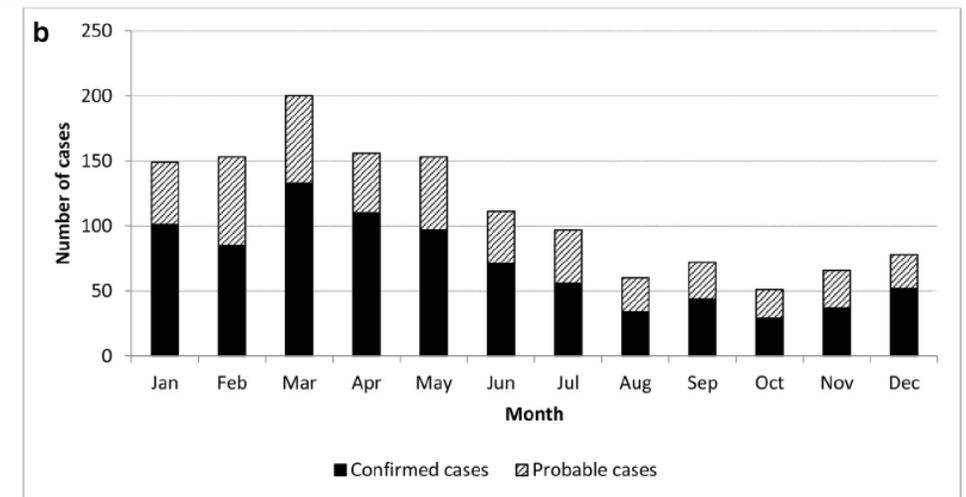
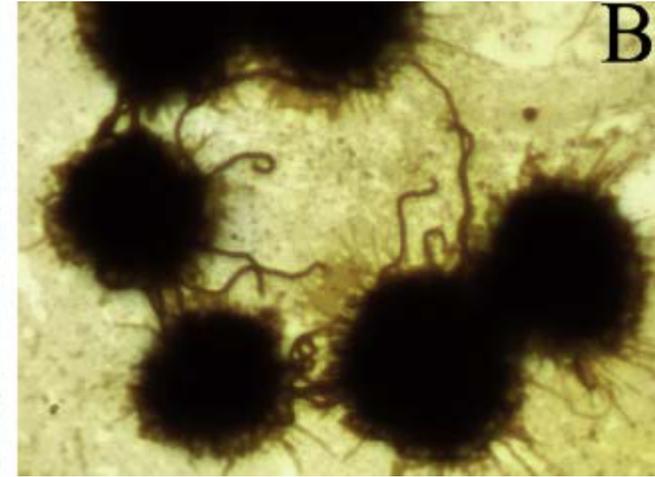
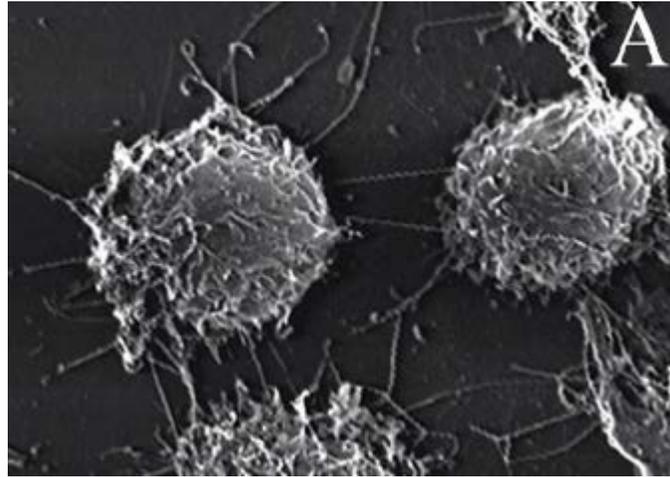


FIG. 2. Map of Society archipelago with a focus on island of Tahiti, annual incidence rate of leptospirosis by island and municipality, 2007–2017.

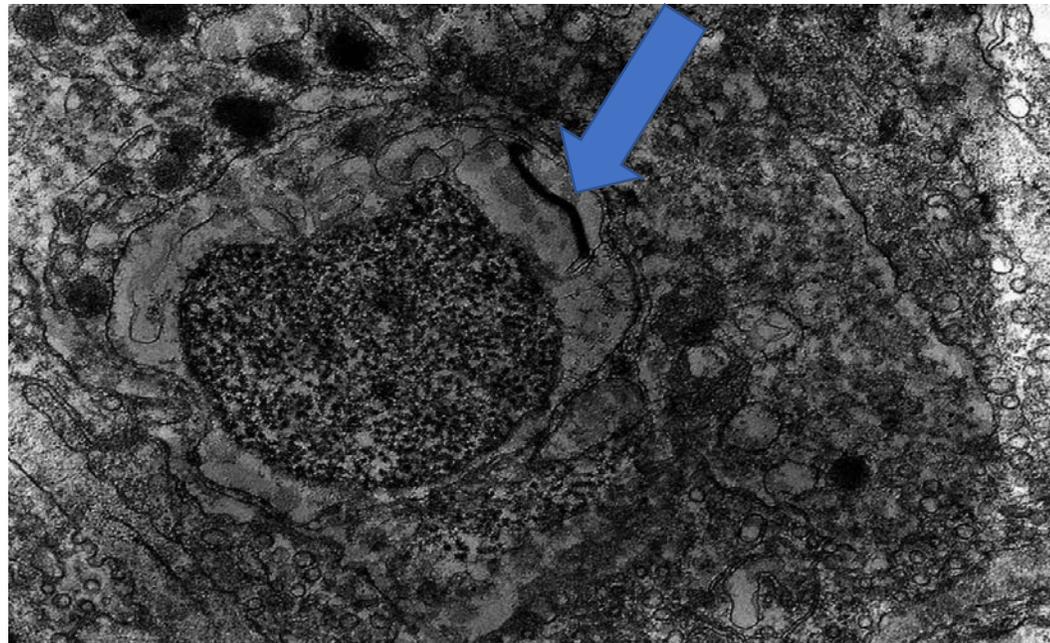


PATHOGENIE

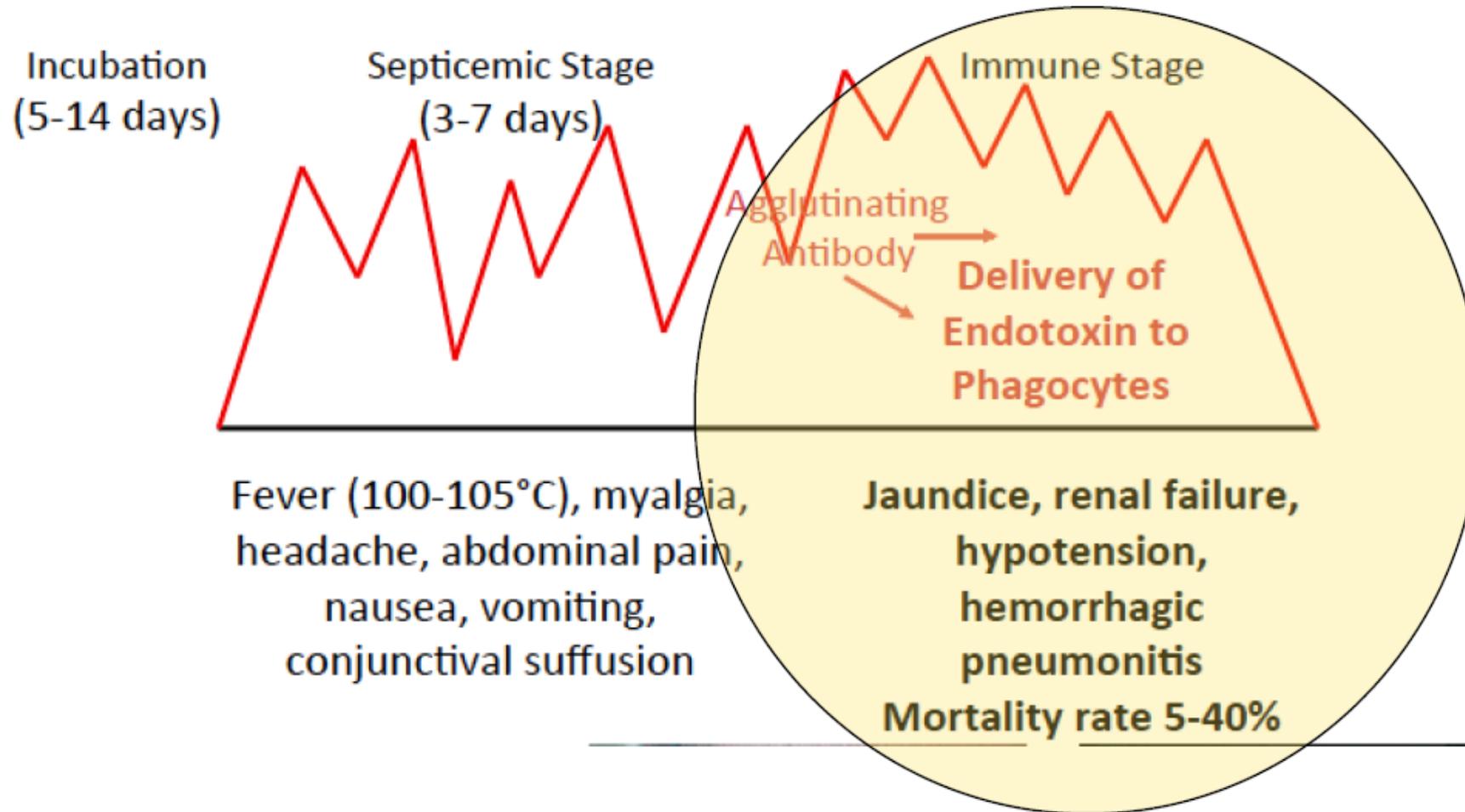
- Voie cutanéomuqueuse
- Lésions de l'endothélium vasculaire
- Ischémie par intercalation d'une toxine glycoprotéique
- Rupture des cellules endothéliales des petits vaisseaux
- Pétéchies/hémorragie alvéolaires/nécrose tubules rénaux/hépatite/méningite /myosite
- Adhésion aux macrophages
- Dépôts d'immunoglobuline , de complément
- Le mécanisme hémorragique peut répondre à un phénomène de type auto-immune



BIOMEDICAL JOURNAL 43 (2020) 24-31



PHYSIOPATHOLOGIE



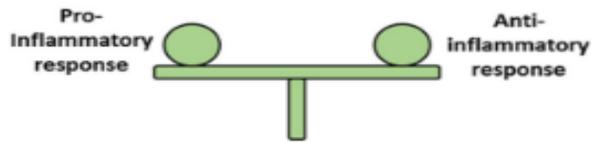
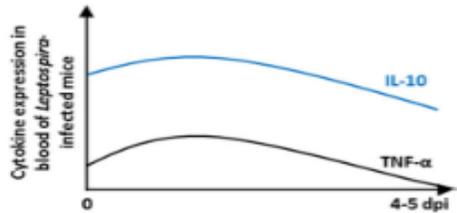
PHYSIOPATHOLOGIE

Leptospira infection

Asymptomatic / mild leptospirosis

Humans (90% of cases)
Mice, Rats

Early and strictly regulated
inflammatory response in
Leptospira-infected mice⁽²⁾



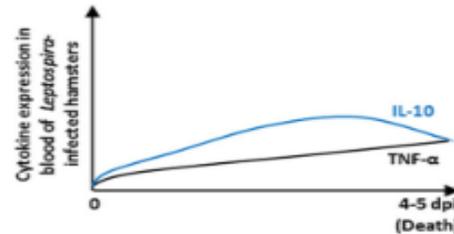
Maintenance of **homeostasis**

Decreasing leptospiremia
Kidney colonization in reservoir animals
No or mild symptoms
No organ damage

Severe leptospirosis

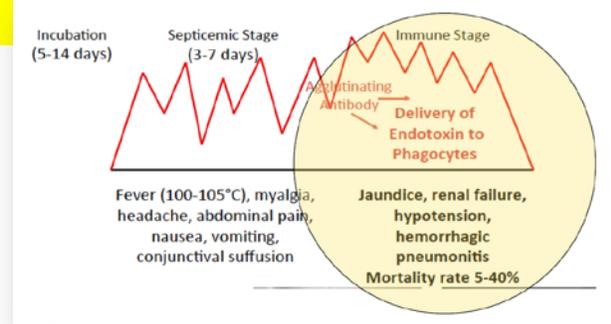
Humans (10% of cases)
Hamsters, susceptible mice⁽¹⁾

Delayed and sustained
inflammatory response in
Leptospira-infected hamsters⁽²⁾



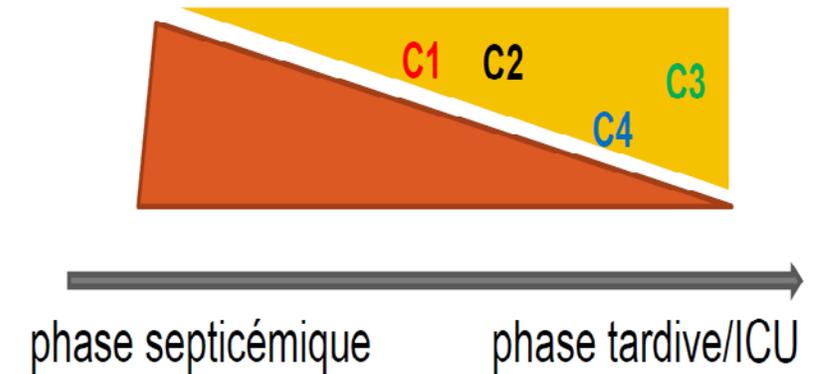
Onset of a **Cytokine storm?**

Increasing leptospiremia
Sepsis-like phenotype
Multiple organ failures, hemorrhages
Death (~5% of cases)



Bénéfice de l'antibiothérapie

Bénéfice des soins de support



D'après P Le Turnier, SPILF avril 2022

DIAGNOSTIC (1) CLINIQUE



CLINIQUE TRES POLYMORPHE

Clinique :

Syndrome pseudo-grippal (fièvre élevée, myalgies, AEG et arthralgies)

Symptômes digestifs : ictère à bilirubine conjuguée, N/V

Insuffisance rénale aigue organique

Syndrome hémorragique : plus ou moins sévère avec hémorragies intra-alvéolaires ou digestives, hémorragie conjonctivale, en partie lié à une thrombopénie et vascularite

Atteinte cardiaque : troubles du rythme/conduction, myocardite, choc cardiogénique

Atteinte respiratoire : pouvant conduire à un SDRA par œdème pulmonaire lésionnel et/ou alvéolite hémorragique

Symptômes neurologiques variés

Triade de weil (63% des patients) :

Sd hémorragique / Thrombopénie

Insuffisance rénale aigue

Ictère à bilirubine conjuguée

**CONTEXTE D'EXPOSITION+++
(+ lésion cutanée)**

Incubation 5-14 j jusqu'à 30 j

Formes sévères : 10-15%

Réaction de Jarisch-Herxheimer :

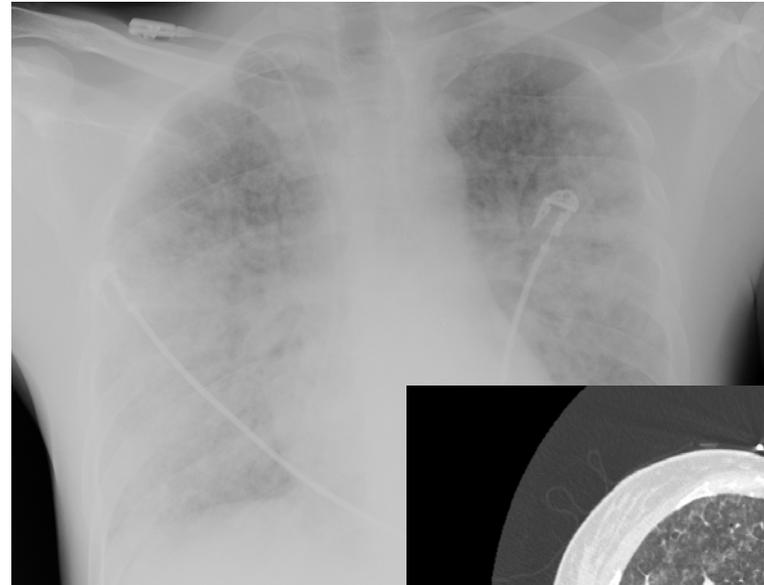
Exacerbation des symptômes à l'initiation de l'antibiothérapie à la phase primaire due à la lyse des spirochètes

DIAGNOSTIC (2) EXAMENS COMPLEMENTAIRES

BIOLOGIE

- **Thrombopénie**
- Elévation modérée des transaminases
- **Hyper bilirubinémie mixte,**
- **Elévation de la Créatinine et de l'Urée**
- Hypokaliémie à la phase initiale
- Augmentation des CPK
- Hyperleucocytose
- CRP élevée
- Elévation de la lipasémie
- LCR : pleiocytose

IMAGERIE



DIAGNOSTIC D'ELIMINATION

**Signes généraux et biologiques aspécifiques:
NE PAS MECONNAITRE UNE AUTRE CAUSE DE SEPSIS :**

- Pyélonéphrite +/- obstructive
- Angiocholite
- Pneumopathie
- Endocardite
- Arbovirose : Dengue
- paludisme
- Autres fièvres hémorragiques

Imagerie

- TDM TAP
- ECHO ABDO

Examens bactériologiques

- ECBU
- Hémocultures
- ECBC

Formes graves : Pas de désescalade antibiotique avant résultat PCR / sérologie

FACTEURS DE GRAVITE / MORTALITE

LEPTOREA

France,
Rétrospectif,
Multi centrique, 79 réa, 2012-2016
160 patients

Mortalité en réa 13 (8%)
Mortalité hospitalière 14 (9%)

ORIGINAL

Severe leptospirosis in non-tropical areas:
a nationwide, multicentre, retrospective study
in French ICUs



Intensive Care Med (2019) 45:1763–1773

Facteurs liés à la Mortalité

	Alive (n = 146)	Dead (n = 14)	OR [95% CI]	p value
Age ^a , years	52 [38–65]	65 [38–65]	1.09 [1.04–1.15]	0.0011
SOFA ^b	11 [8–13]	16 [15–19]	1.77 [1.37–2.28]	< 0.001
Jaundice	63 (43%)	11 (79%)	4.83 [1.29–18.05]	0.0192
Confusion	8 (5%)	4 (29%)	6.90 [1.77–26.91]	0.0054
Chronic alcohol abuse ^a	23 (16%) (1) ^c	6 (43%) (0) ^c	3.98 [1.26–12.54]	0.0184
Laboratory data on ICU admission (worst value within 24 h)				
Blood bilirubin (μmol/L) (by 50 μmol/L increase)	71 [31–173] (4) ^c	251 [120–373] (0) ^c	1.41 [1.18–1.70]	0.0002
Leucocytes (Giga/L) (by 5 Giga/L increase)	9.8 [6.5–13.7] (2) ^c	15.7 [13–20] (0) ^c	1.37 [1.04–1.80]	0.0252
Life support				
Vasoactive drug within 48 h after ICU admission	63 (45%) (5) ^c	10 (71%) (0) ^c	3.10 [0.93–10.34]	0.0664
Invasive ventilation within 48 h after ICU admission	33 (23%) (1) ^c	13 (93%) (0) ^c	44.12 [5.56–349.84]	0.0003
Renal replacement therapy within 48 h after ICU admission	29 (20%) (2) ^c	7 (50%) (0) ^c	3.97 [1.29–12.20]	0.0163

FACTEURS DE GRAVITE / MORTALITE

Leptospirosis in ICU: A Retrospective Study of 134 Consecutive Admissions

Benjamin Delmas, MD¹; Julien Jabot, MD¹; Paul Chanareille, MD¹; Cyril Ferdynus, PhD²; Jérôme Allyn, MD¹; Nicolas Allou, MD¹; Loïc Raffray, MD³; Bernard-Alex Gatzere, MD^{1,4}; Olivier Martinet, MD¹; David Vandroux, MD^{1,4,5}

Facteurs liés à la Mortalité

Risk Factors	Survivors (n = 126)	Nonsurvivors (n=8)	p
Myocarditis, n (%)	26 (20)	4 (50)	0.07
Intra-alveolar hemorrhage, n (%)	48 (38)	5 (62)	0.03
Time between beginning of symptoms and antibiotics (d), median (Q1-Q3)	5 (4-6)	3 (3-4)	0.02
Kalemia (mmol/L), median (Q1-Q3)	3.5 (3.1-3.9)	4.5 (3.6-5)	0.01
Total bilirubin (μmol/L), median (Q1-Q3)	150 (43-273)	344 (159-494)	0.03

Delmas, Ccm, 2017

Ile de la Réunion, 2017

Etude descriptive rétrospective 2004-2015
134 patients
Mortalité 6%

Tableau 3 : caractéristiques des patients décédés

	âge	sexe	Année	IGS 2	Durée séjour réa (j)	HIA	SOFA respi	SDRA	Admission	cause du décès
Patient 1	48	masculin	2004	74	2	oui	3	oui	via médecine interne	SDRA réfractaire
Patient 2	47	féminin	2006	54	12	non	1	oui	directe	SDRA réfractaire (LATA chez une cirrhotique à J12 de VM)
Patient 3	19	masculin	2006	85	3	non	2	oui	via néphrologie (pas de place en réa)	Défaillance multi viscérale après ACR en néphrologie sur troubles ioniques majeurs
Patient 4	72	masculin	2006	57	15	oui	1	oui	directe	SDRA réfractaire
Patient 5	37	masculin	2008	67	11	oui	4	oui	directe	ECMO pour SDRA réfractaire converti en ECLS pour choc cardiogénique (myocardite)
Patient 6	53	masculin	2009	49	26	non	1	non	directe	Choc septique nosocomial
Patient 7	66	féminin	2009	65	5	oui	4	oui	directe	SDRA réfractaire
Patient 8	50	masculin	2013	101	1	oui	4	oui	directe	Défaillance multiviscérale après ACR hypoxique extra hospitalier

FACTEURS DE GRAVITE / MORTALITE

Factors associated with severity and mortality in patients with confirmed leptospirosis at a regional hospital in northern Taiwan

Facteurs liés aux cas sévères

Wang, *J of Microbio, Immuno and Infect*, 2018

Taiwan, 2018
Eude observationnelle, rétrospective
57 patients
Mortalité 19%

Characteristic	Mean ± SD or no. (%) of patients			p value ^a
	Total cases (n = 57)	Severe cases (n = 37)	Non-severe cases (n = 20)	
Tachycardia	31 (54)	24 (65)	7 (35)	0.0307
Shock	25 (44)	23 (62)	2 (10)	0.0002
Hemorrhage	17 (30)	16 (43)	1 (5)	0.0026
Dyspnea	27 (47)	24 (65)	3 (15)	0.0003
Pulmonary involvement	31 (54)	26 (70)	5 (25)	0.0011

Facteurs liés à la Mortalité

Table 3 Univariate analysis of factors associated with mortality.

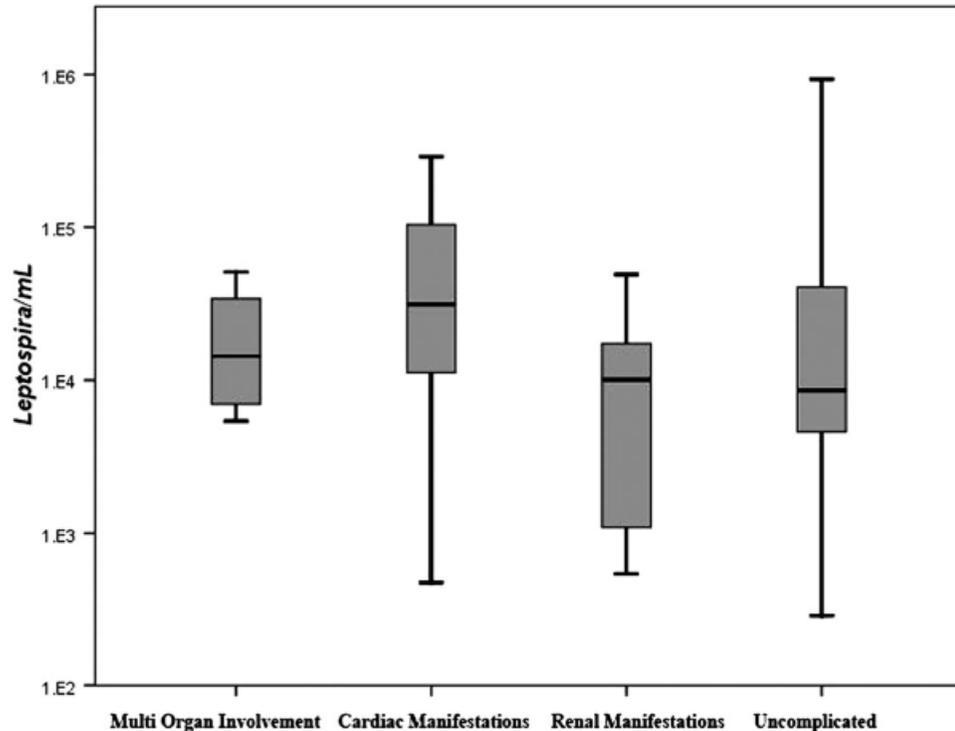
Parameter	No.(%) of patients		p value ^a
	Survivors (n = 46)	Non-survivors (n = 11)	
Chronic lung disease	5 (11)	5 (45)	0.0034
Diabetes mellitus	4 (9)	4 (36)	0.0089
Hemorrhage	7 (15)	10 (91)	< 0.0001
Arrhythmia	9 (20)	6 (55)	0.0090
Shock	15 (33)	10 (91)	0.0002
Jaundice	11 (24)	7 (64)	0.0054
Pulmonary involvement	20 (43)	11 (100)	0.0004
Need for dialysis	1 (2)	3 (27)	0.0017
Need for ventilation	9 (20)	9 (82)	< 0.0001
Prior steroid use	7 (15)	8 (73)	< 0.0001

FACTEURS DE GRAVITE / MORTALITE

Leptospirémie

Utility of Quantitative Polymerase Chain Reaction in Leptospirosis Diagnosis: Association of Level of Leptospiremia and Clinical Manifestations in Sri Lanka
Suneth CID 2012:54

Sri Lanka, 2008
 105 Patients



Risk Factors and Predictors of Severe Leptospirosis in New Caledonia

Tubiana, PLOS Neglected Tropical Disease, 2013

Nlle Calédonie 2008-2011
 Retrospectif, Etude cas-contrôle
 176 patients

	Cases	Controls	OR (95%CI)
	N = 71	N = 105	
	n/N (%)	n/N (%)	
Leptospiremia*			
≤1000	22/35 (62.9)	44/47 (93.6)	1
>1000	13/35 (37.1)	3/47 (6.4)	8.67 (2.23-33.6)

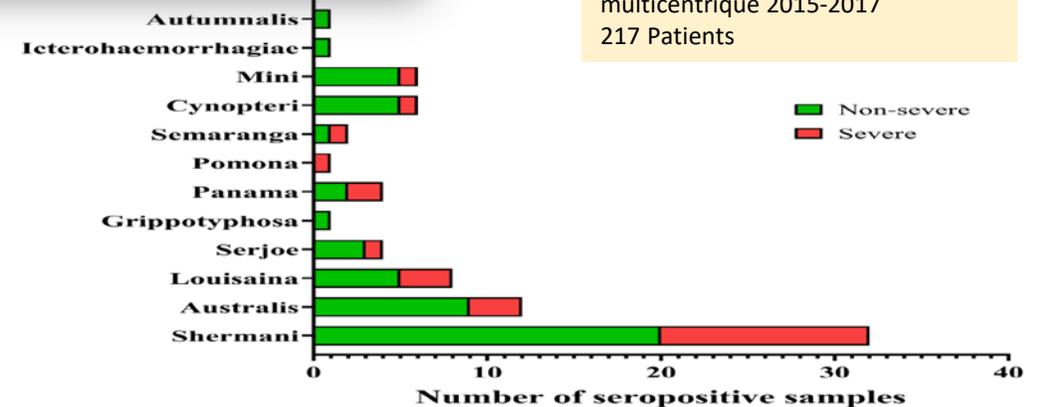
	Cases	Controls	OR (95% CI)	P value ^a
	N = 71	N = 105		
	n/N (%)	n/N (%)		
Infesting serogroup				
Others	12/66 (18.2)	36/95 (37.9)	1	
<i>L. interrogans</i> serogroup Icterohaemorrhagiae	54/66 (81.8)	59/95 (62.1)	2.75 (1.30-5.82)	0.008

The role of leptospiremia and specific immune response in severe leptospirosis

Limothai, Nature.com, Scientific Reports, 2021

Thailand, 2021
 multicentrique 2015-2017
 217 Patients

Serogroupe

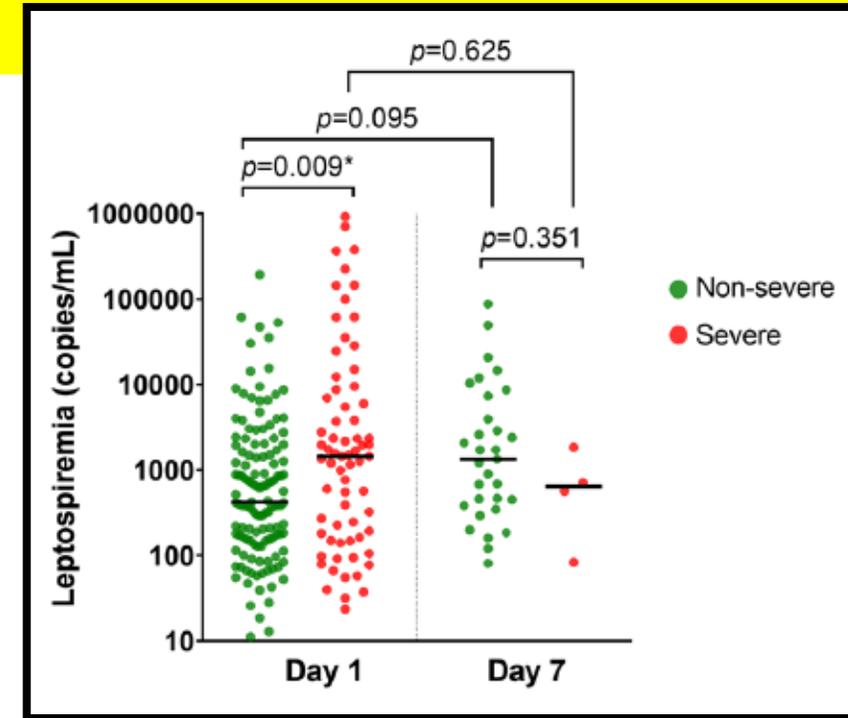


FACTEURS DE GRAVITE / MORTALITE

The role of leptospiremia and specific immune response in severe leptospirosis

Thailand, 2021
multicentrique 2015-2017
217 Patients

Characteristic	Non-severe group (n = 146)	Severe group (n = 71) ^a	p value
Leptospiremia (copies/ml)	420.6 (154.2–1880.2)	1440.3 (172.0–7867.1)	0.009*
MAT titer	4000.0 (700.0–6400.0)	2000.0 (700.0–4000.0)	0.6140
pNGAL (ng/ml)	194.4 (75.0–350.5)	512.2 (224.3–968.0)	<0.001*
IL-6 (pg/ml)	39.8 (13.6–145.4)	322.8 (54.2–4248.3)	<0.001*



Parameters	Severe coagulopathy	Severe renal failure	Severe liver failure	Severe cardiovascular system failure	Pulmonary hemorrhage	Severe respiratory failure ^a
Leptospiremia at day 1	0.003*	0.215	0.129	0.009*	0.001*	0.013*
Leptospiremia at day 7	0.421	0.843	0.871	0.692	NA	0.943
MAT titer at day 1	0.127	0.907	0.722	0.286	0.286	0.477
MAT titer at day 7	0.032*	0.803	0.327	0.087	0.034*	0.231
MAT titer at any day	0.121	0.716	0.313	0.084	0.033*	0.227
Plasma NGAL at day 1	0.002*	<0.001	<0.001	<0.001	<0.001	<0.001
IL-6 at day 1	0.003*	<0.001	<0.001	<0.001	<0.001	<0.001

LEPTOSPIROSE : SYNTHÈSE FACTEURS DE GRAVITÉ

ENVIRONNEMENT :

Age > 65 ans

Délai de prise en charge ?

Alcoolisme chronique

CLINIQUES :

Confusion /coma

Ictère

Syndrome hémorragique

Atteinte pulmonaire (clinique ou radio)

Myocardite

Choc

Tachycardie/ Troubles du rythme

BIOLOGIQUES :

Bilirubinémie

Kaliémie

Urémie

Créatinémie

Leucocytes

Plaquettes ?

Charge bactérienne ? CT ?

Réponse inflammatoire ?

Sérogroupe Icterohaemorrhagiae ?

LEPTOSPIROSE SEVERE : PHENOTYPES CLINIQUES

ORIGINAL



Severe leptospirosis in non-tropical areas: a nationwide, multicentre, retrospective study in French ICUs

Intensive Care Med (2019) 45:1763–1773

LEPTOREA

Retrospectif, Multi centrique, 79 réanimations, 2012-2016
160 patients
Mortalité en réa 13 (8%)
Mortalité hospitalière 14 (9%)

QUATRES PHENOTYPES CLINIQUES :

Cluster 1 (21%):

Forme la moins sévère
Mortalité 3%

Cluster 2 (63%): « leptospirose hépatorénale »

Défaillances hépatique, rénale et hématologique sévères (peu d'atteintes respiratoire et neurologiques)
Mortalité 9%

Cluster 3 (5%): « leptospirose neurologique »

Défaillance multiviscérale
Mortalité 37.5% (3/8)

Cluster 4 (11%): « leptospirose respiratoire »

Forme respiratoire et hémorragique
Mortalité 6%

D'après J. Reigner, Service MIR, Nantes

Clinical characteristics and prognosis of patient with leptospirosis: A multicenter retrospective analysis in south of China

Front. Cell. Infect. Microbiol, 2022

Analyse de correspondance
Rétrospectif 1998-2022
95 patients

TROIS PHENOTYPES CLINIQUES :

Cluster 1 (45,2%) : Mild Leptospirosis

Mortalité 0%

Cluster 2 (29,5%) : Respiratory Leptospirosis

Mortalité 28,6%

Cluster 3 (25,3%): Hépato rénal Leptospirosis

Mortalité 29,2%

TABLE 3 Organ dysfunction and outcomes of different clusters.

	Total (n=95)	Cluster 1 Mild leptospirosis (n=43)	Cluster 2 Respiratory leptospirosis (n=28)	Cluster 3 Hepato-renal leptospirosis (n=24)	p Value
Organ dysfunction, n[%]					
Acute respiratory failure	38 (40.0%)	1 (2.3%)	28 (100%)	9 (37.5%)	<0.001
Circulatory failure	31 (32.6%)	7 (16.3%)	15 (53.6%)	9 (37.5%)	0.004
Acute liver injury	33 (35.1%)	7 (16.3%)	6 (21.4%)	20 (87.0%)	<0.001
Acute kidney injury	39 (41.1%)	5 (11.6%)	13 (46.4%)	21 (87.5%)	<0.001
Multiple organ failure	38 (40.0%)	4 (9.3%)	19 (67.9%)	15 (62.5%)	<0.001

LEPTOSPIROSE SEVERE : PHENOTYPES CLINIQUES

Pulmonary haemorrhage as a frequent cause of death among patients with severe complicated Leptospirosis in Southern Sri Lanka

Sri Lanka, 2023
Etude observationnelle 2017-2018
88 patients, leptospirose sévère

PLOS Neglected Tropical, October 16, 2023

Table 2. Morbidity and Mortality in patients having major complications of severe Leptospirosis.

Number of Complications	1 (n = 29)	2 (n = 19)	3 (n = 20)	4 (n = 17)	5 (n = 3)	p-value
Complications						
AKI	27 (93.1%)	17 (89.5%)	19 (95.0%)	17 (100%)	3 (100%)	0.711
Pulmonary Haemorrhage	1 (3.4%)	1 (5.3%)	13 (65.0%)	16 (94.1%)	3 (100%)	<0.01**
Myocarditis	0	4 (21.1%)	10 (50.0%)	12 (70.6%)	3 (100%)	<0.01**
Fulminant Hepatic Failure	0	1 (5.3%)	0	7 (41.2%)	3 (100%)	<0.01**
Hemodynamic instability	1 (3.4%)	15 (78.9%)	18 (90.0%)	16 (94.1%)	3 (100%)	<0.01**
Morbidity & Mortality						
Admission to ICU	1 (3.4%)	2 (10.5%)	12 (60.0%)	14 (82.4%)	3 (100%)	<0.01**
Duration of ICU care (Days)	2	6.5 (±2.1)	6.1 (±4.4)	8 (±6.1)	5.3 (±3.2)	0.7
Duration of hospital stay	5.5 (±1.8)	7.7 (±4.1)	8.6 (±4.9)	13.2 (±9.6)	6.7 (±2.9)	<0.01**
Mortality	1(3.4%)	1 (5.3%)	4 (20.0%)	6 (35.3%)	3 (100%)	<0.01**

major complications predictive of mortality in patients with severe leptospirosis.

	Unadjusted Odds ratio	p Value	Adjusted Odds ratio	p Value
Type of major complication				
Pulmonary Hemorrhage	9.3 (CI = 2.4–36.1)	<0.001**	6.5 (CI = 1.6–27.0)	0.01*
Fulminant Hepatic Failure	9.1 (CI = 2.3–35.9)	0.002*	4.8 (CI = 1.1–21.0)	0.04*
Hemodynamic instability	12.2 (CI = 1.5–97.7)	0.018*	-	
Myocarditis	-	0.07	-	
AKI	-	0.9	-	

LEPTOSPIROSE SEVERE : PHENOTYPES CLINIQUES

Cohorte Tahiti :

2001-2004 : 44 patients, 5 décès soit 12%

2011-2024 : 237 patients, 17 décès soit 7%

LEPTOSPIROSE MODEREE : (Dont réaction de Jarisch Herxheimer)

Ictère

Thrombopénie

Besoins minimes en Noradrénaline 24-48h

Myocardite minime

Insuffisance rénale aigue souvent diurèse conservée mais nécessite parfois EER

Pas d'atteinte respiratoire

Mortalité faible

DEFAILLANCE PLURI VISCERALE :

Ictère

Thrombopénie

Etat de choc septique/cardiogénique

Myocardite souvent sévère

Insuffisance rénale anurique EER

Atteinte respiratoire possible, non au premier plan

Mortalité moyenne

SDRA :

Ictère

Thrombopénie

Souvent poly-défaillance associée (cardiaque, rénale, hépatique)

SDRA avec ou sans Hémorragie intra alvéolaire

Confusion?

Mortalité élevée (surtout si HIA)

LEPTOSPIROSE : MYOCARDITE

Evaluation cardiaque systématique

Clinique :

Douleurs thoraciques, insuffisance cardiaque G et D, choc cardiogénique

ECG : Aspécifique

troubles du rythme (ESA, ESV, ACFA), troubles de conduction (BB, BAV), anomalie repolarisation

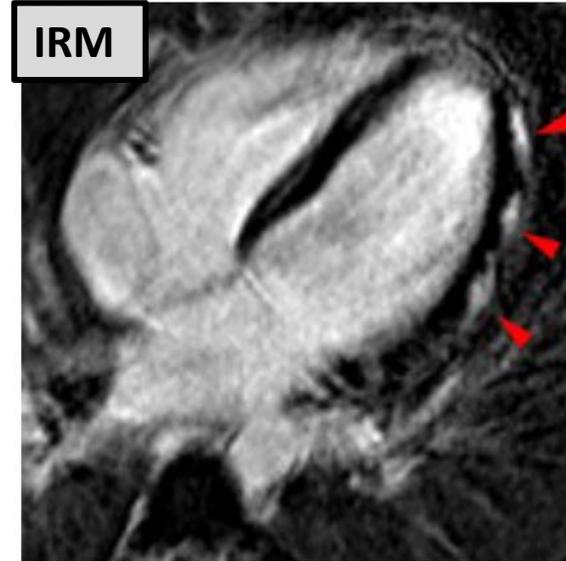
Echographie :

Dysfonction VG/VD +/- dilaté et/ou hypertrophié
Epanchement péricardique

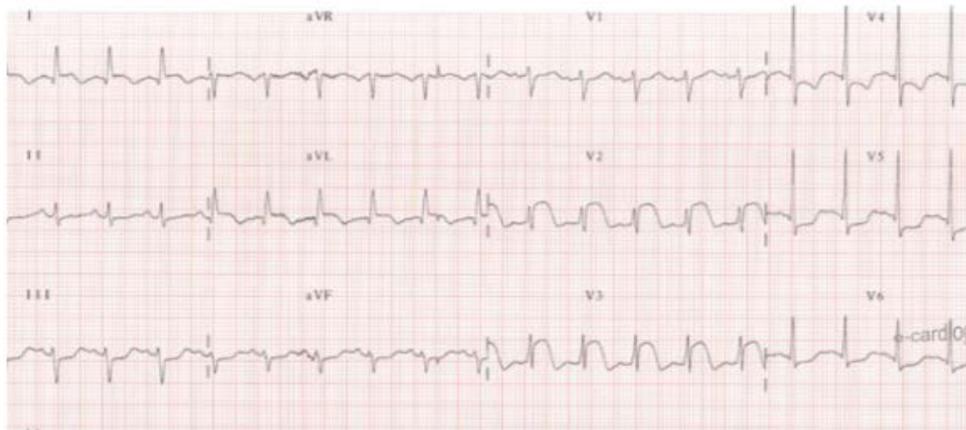
Biologie :

Troponine
BNP

IRM

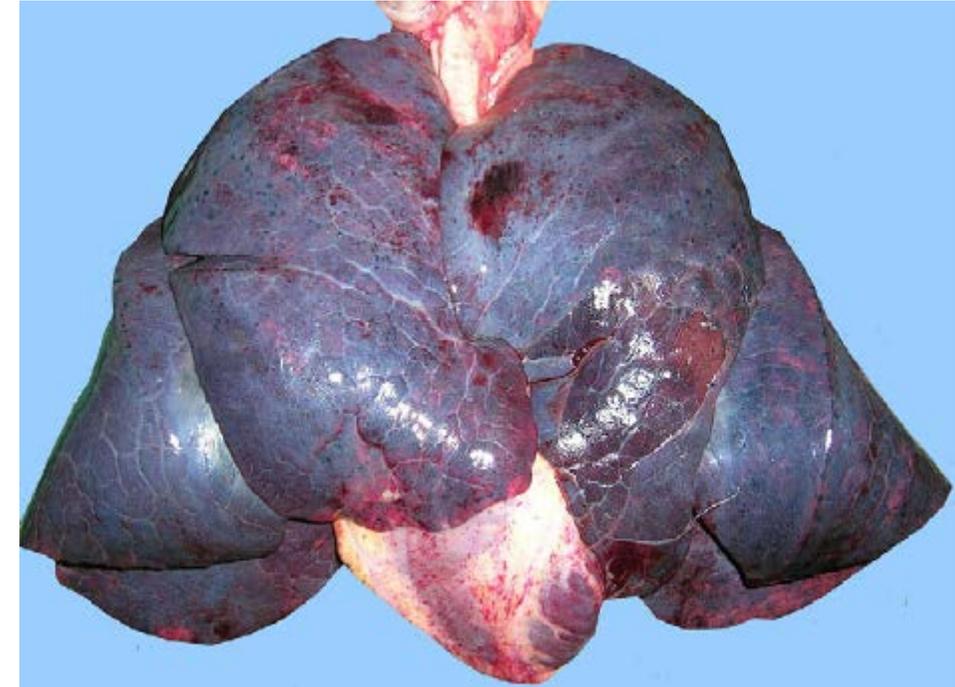
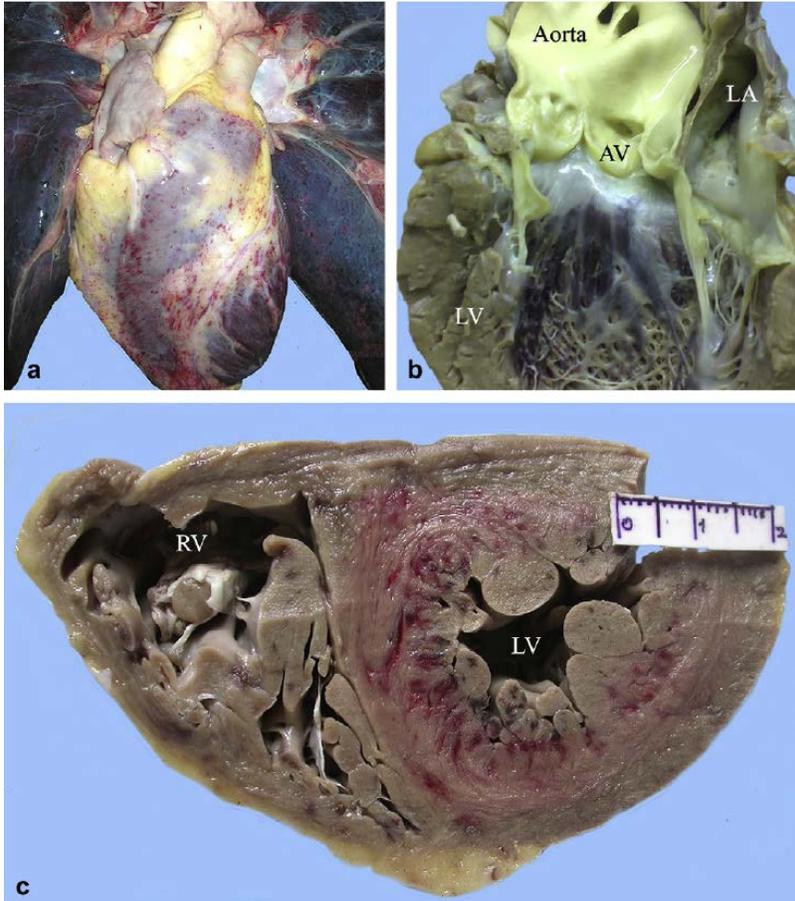


Biopsie myocardique!



20-35 % des leptospirose graves
Très probablement sous estimé

ETUDE AUTOPSIQUE : MYOCARDITE



It is possible that the pulmonary injury is further exacerbated by concomitant cardiac involvement, especially myocarditis

*Cardiac involvement in leptospirosis is underestimated. Chakurkar et al. reported **interstitial myocarditis in 100% of 44 autopsies with leptospirosis-related complications***

LEPTOSPIROSE SEVERE : REMPLISSAGE VASCULAIRE

Leptospirosis: Report from the task force on tropical diseases by the World Federation of Societies of Intensive and Critical Care Medicine☆

Juan Ignacio Silesky Jiménez, MD^a, Jorge Luis Hidalgo Marroquin, MD^b,
Guy A. Richards, MD PhD^{c,*}, Pravin Amin, MD^d

*Therapy is essentially supportive and consists of aggressive fluid and electrolyte replacement, **however avoiding fluid overload is critical.***

Reco Lepto Fidji 2016 : PEC déshydratation, HypoPA et choc

Fluid replacement with IV normal saline 0.9%

Assess hydration clinically and review hourly

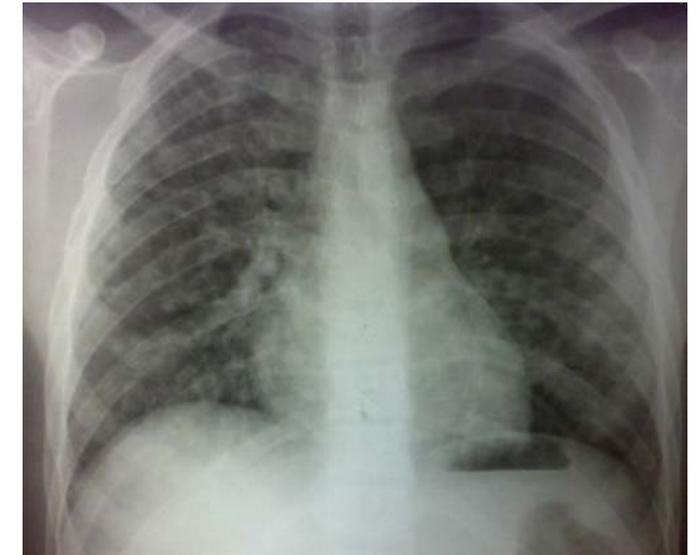
Beware of excessive rehydration in patients with respiratory complications and/or cardiac insufficiency

Severe leptospirosis in tropical Australia:
Optimising intensive care unit management
to reduce mortality *Smith, Plos Neglected Tropical Disease, 2019*

However, although 64% of our patients had oliguric renal failure and 62% required vasopressor support, **intravenous fluids were administered cautiously.**

This reflects local clinician's concern that **liberal intravenous fluids will increase the risk of respiratory deterioration**, particularly as concomitant lung involvement is common in cases of leptospirosis with renal failure and hypotension

Evaluation cardiaque systématique



LEPTOSPIROSE SEVERE : REMPLISSAGE VASCULAIRE

Evolution très rapide en quelques heures

Leptospirosis: Report from the task force on tropical diseases by the World Federation of Societies of Intensive and Critical Care Medicine

Juan Ignacio Silesky Jiménez, MD^a, Jorge Luis Hidalgo Marroquin, MD^b,
Guy A. Richards, MD PhD^{c,*}, Pravin Amin, MD^d

Therapy is essentially supportive and focuses on aggressive fluid and electrolyte replacement, as **fluid overload is critical.**

Lepto Fidji 2016 : PEC déshydratation, HypoPA et choc

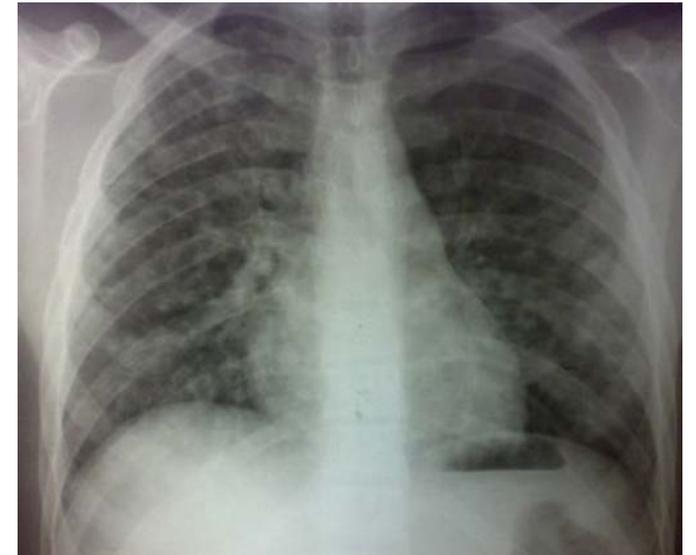
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Evaluation cardiaque systématique



LEPTOSPIROSE SEVERE : REMPLISSAGE VASCULAIRE

Evolution très rapide en quelques heures

REEMPLISSAGE PRUDENT
Surtout si atteinte cardiaque et respiratoire

Leptospirosis: Report from the task force on tropical diseases by the World Federation of Societies of Intensive and Critical Care Medicine

Juan Ignacio Silesky Jiménez, MD^a, Jorge Luis Hidalgo Marroquin, MD^b, Guy A. Richards, MD PhD^{c,*}, Pravin Amin, MD^d

Therapy is essentially supportive and conservative fluid and electrolyte replacement, but fluid overload is critical.

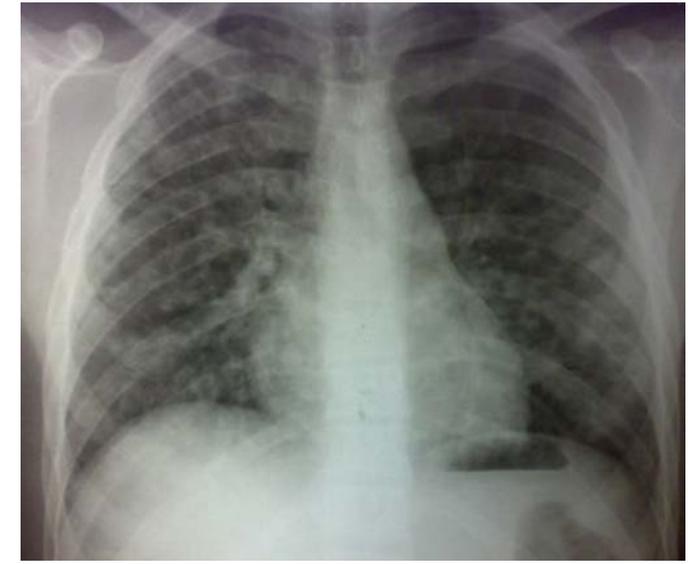
Fluid replacement with... Fiji 2016 : PEC déshydratation et choc

Fluid replacement with... Assess hydration... Beware of... respiratory complications

Severe leptospirosis in tropical Asia
Optimising intensive care
to reduce mortality Smith, Plos N

However, although 64% of our patients had oliguric renal failure and 62% required vasopressor support, **intravenous fluids were administered cautiously**. This reflects local clinician's concern that **liberal intravenous fluids will increase the risk of respiratory deterioration**, particularly as concomitant lung involvement is common in cases of leptospirosis with renal failure and hypotension

Evaluation cardiaque systématique



LEPTOSPIROSE SEVERE : REMPLISSAGE VASCULAIRE

Evolution très rapide en quelques heures

REEMPLISSAGE PRUDENT
Surtout si atteinte cardiaque et respiratoire

REEMPLISSAGE SOUS MONITORAGE

Evaluation cardiaque systématique

Leptospirosis: Report from the task force on tropical diseases by the World Federation of Societies of Intensive and Critical Care Medicine

Juan Ignacio Silesky Jiménez, MD^a, Jorge Luis Hidalgo Marroquin, MD^b, Guy A. Richards, MD PhD^{c,*}, Pravin Amin, MD^d

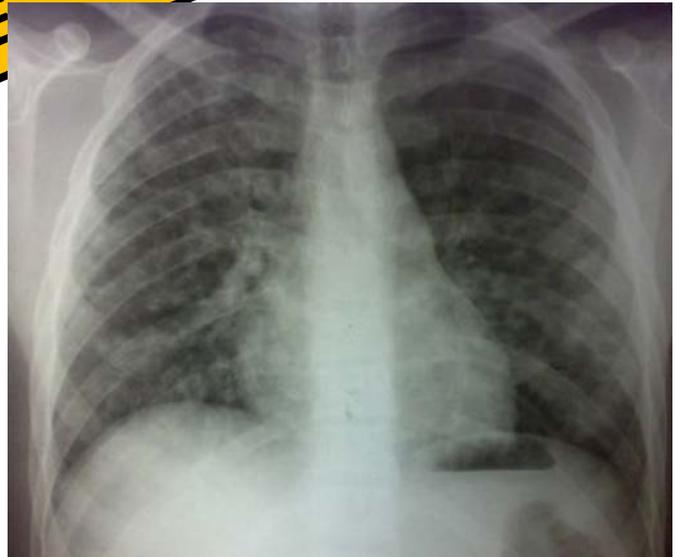
Therapy is essentially supportive and aggressive fluid and electrolyte replacement. **Fluid overload is critical.**

Leptospirose au Fidji 2016 : PEC déshydratation et choc

Fluid replacement with
Assess hydration
Beware of respiratory complications

Severe leptospirosis in tropical Asia
Optimising intensive care
to reduce mortality Smith, Plos Negl Trop Dis

However, although 64% of our patients had oliguric renal failure and vasopressor support, **intravenous fluids were administered cautiously**. This reflects local clinician's concern that **liberal fluid administration will increase the risk of respiratory deterioration**, particularly as concomitant pulmonary involvement is common in cases of leptospirosis with renal failure and hypotension



LEPTOSPIROSE MODEREE ET SEVERE : TAKE HOME MESSAGE

Diagnostic d'élimination

- Clinique polymorphe

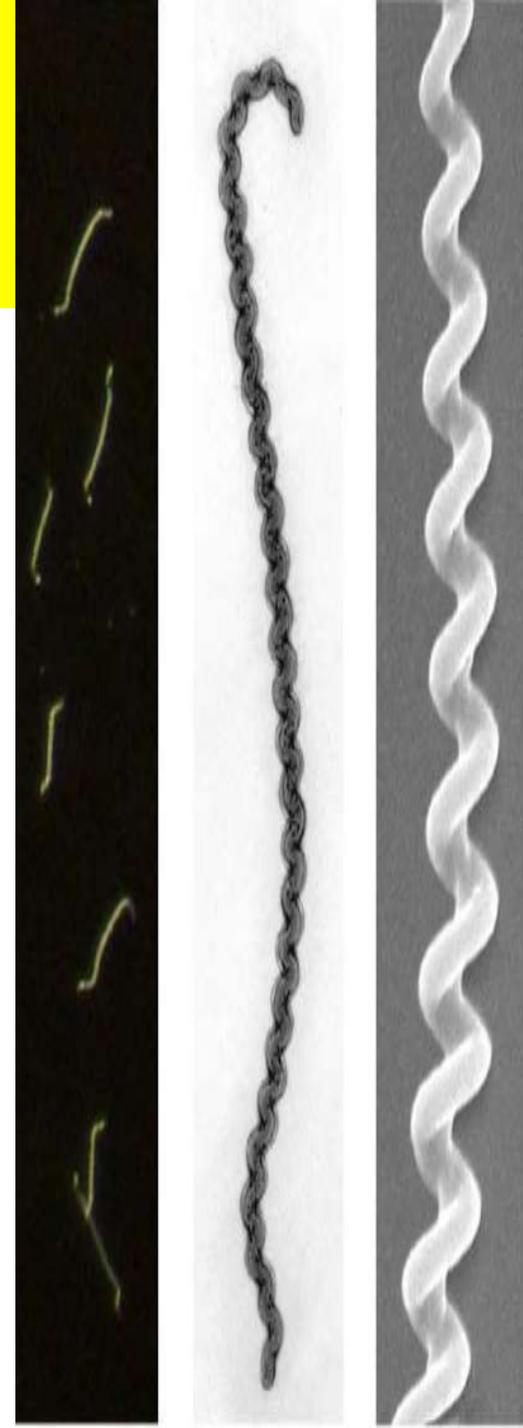
Facteurs de gravité à l'admission

- Atteinte respiratoire ++
- Atteinte cardiaque

Phénotypes en Réanimation

- **Leptospirose modérée** : Ictère, Insuffisance rénale aigue, minime choc
- **Leptospirose sévère** : DMV Choc septique, myocardite, insuffisance rénale aigue
- **SDRA + DMV**

Limitation du remplissage vasculaire (Myocardite / SDRA)



MAURUURU

