

Public

Transfusion Transmitted Leishmaniasis:



Poster Session B

Health Ontario

PARTNERS FOR HEALTH



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Results Cont'd - Tables and Figures:

Figure 1. PRISMA Flowchart of Articles from Literature Search and Screening



Background:

Blood supply safety has important implications for blood recipients

Santé

publique

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- Determining *Leishmania* carriage in blood supply of asymptomatic donors in *Leishmania* endemic areas is crucial for recipients' health and limiting transmission
- We aimed to map the literature on prevalence and detection assays for *Leishmania* detection in blood supplies around the world, which may extrapolate to other non-endemic countries including Canada

Methods:

- Seven electronic literature databases: Ovid Medline, EMBASE,
 Global Health, CINAHL Plus, CAB Abstracts, LILACS, and Cochrane
 Library were searched from database inception to Nov 1, 2019
 with restriction to humans only
- A combination of the following search terms: "leishmania" with "blood"; "detection", "diagnosis", "sensitivity", "specificity"; and "smear", "microscopy", "PCR" were used without language restriction
- Titles, abstracts and full-text articles are systematically screened by 2 independent reviewers, any disagreements were resolved with a tertiary arbitrator
- <u>Inclusion Criteria</u>: 1)*Leishmania* detection 2) Blood 3) Human
 Systematic reviews, diagnostic trials and smaller observational studies are included
- Data was summarized using qualitative and quantitative measures
- Meta-analysis was performed by comprehensive meta-analysis software using random effects model

Results:

• Three articles (from a total of 18 studies) were included in our

Based on this systematic review:

Prevalence of *Leishmania* detected in asymptomatic blood donors was about 7%



Figure 2. Meta-analysis of Prevalence of *Leishmania* in Blood Donors with Sub-analysis According to Region, Sex, and Species. Overall prevalence was 7%, with Brazil having the highest prevalence. Female blood donors also had a higher prevalence than males

Prevalence of Leishmania in Blood Donors

Group by	Study name

Event rate and 95% CI

analysis

Table 1. Prevalence of Leishi	mania by Serology in Asympto	omatic Blood Donors		
	Sub-analysis Factor	Prevalence (95%CI)		
Overall		6.7% (5.0-8.8%)		
Region	Asia (Bangladesh, Iran, Nepal)	1.2% (0.5-3.0%)		
	Europe (France, Greece, Spain, Italy, Turkey)	4.7% (2.7-8.0%)		
	South America (Brazil)	10.4% (7.3-14.5%)		
Sex	Male	1.4% (1.1-1.7%)		
	Female	4.6% (4-5.2%)		
Species	Leishmania donovani	7.0% (2.0-12.0%)		
	Leishmania infantum	7.0%		

Detection of *Leishmania* was higher in South America and female donors

Leishmania donovani and *Leishmania infantum* were the main associated species

Continent		Event rate	Lower limit	Upper limit					Relative weight	Relativ weigh
Asia	Huda 2013	0.003	0.001	0.008			•		20.39	
Asia	Sarkari 2015	0.014	0.010	0.020			-		28.33	
Asia	Timilsina 2016	0.010	0.004	0.023			-		23.28	
Asia	Asfaram 2017	0.038	0.026	0.057			-		28.00	
Asia		0.012	0.005	0.030			-			
Europe	Fichoux 1999	0.140	0.114	0.171			-	-	12.49	
Europe	Kyriakou 2003	0.152	0.137	0.168			· · · ·	•	12.69	
Europe	Riera 2004	0.101	0.080	0.126			-		12.45	
Europe	Riera 2008	0.031	0.023	0.041			-		12.33	
Europe	Scarlata 2008	0.008	0.004	0.014			•		11.22	
Europe	Colomba 2005	0.001	0.000	0.016			+		3.19	
Europe	Ates 2013	0.050	0.031	0.078			-		11.68	
Europe	Perez-Cutillas 2015	0.020	0.012	0.034			-		11.42	
Europe	Aliaga 2019	0.080	0.066	0.097			•		12.55	
Europe		0.047	0.027	0.080			-			
South America	Luz 1997	0.090	0.075	0.108			•		21.70	
South America	Franca 2013	0.156	0.125	0.193				-	20.82	
South America	Fukutani 2014	0.054	0.040	0.074			-		19.74	
South America	Braga 2015	0.114	0.074	0.170				-	17.21	
South America	Monteiro 2016	0.132	0.103	0.168			-	-	20.54	
South America		0.104	0.073	0.145						
Overall		0.067	0.050	0.088			•			
					-0.50	-0.25	0.00	0.25	0.50	

Discussion:

- Overall prevalence of *Leishmania* in asymptomatic blood donors was 7%
- Highest prevalence was in South America Brazil (10.4%) and lowest in Asia (1.2%)
- Leishmania donovani and Leishmania infantum were the primary

(5.0-8.0%)

Table 2. Characteristics of Studies in this Systematic Review

Article	Study Design	Study Period	Setting	Sample Size	Sex	Age (years old)	Leishmania species
Asfaram 2017	Systematic Review and Meta-analysis	1997-2016	Brazil, France, Greece, Spain, Italy, Turkey, Banglades h, Iran, Nepal.	14 243 (16 studies)	Male 69.9% Female 30.1%	16 – 68	Leishmania braziliensis, Leishmania donovani, Leishmania infantum
Asfaram 2017	Cross Sectional	July – Sept 2016	Iran	600 (1 study)	Male 99.3% Female 0.7%	20 – 61	Leishmania infantum
Aliaga 2019	Cross Sectional	June 2015 – May 2016	Spain	1260 (1 study)	Male 48.1% Female 51.9%	18 – 65	-

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associated species with *Leishmania braziliensis* (Table 2) also present in the Brazilian population

 These data can inform guidelines and policy amendments in blood donor centres

References:

- Asfaram S *et al.,* Global status of visceral leishmanial infection among blood donors: A systematic review and met-analysis. Transfusion and Apheresis Science 2017 (56) 748-754
- Asfaram S *et al.*, Asymptomatic human blood donors carriers of *Leishmania infantum*: Potential reservoirs for visceral leishmaniasis in northwestern Iran. Transfusion and Apheresis Science 2017 (56) 474-479
 Aliaga L *et al.*, Asymptomatic *Leishmania* infection in blood donors from the

Southern of Spain. Infection 2019 (47) 739-747

