THE DIABETES-TUBERCULOSIS CO MORBIDITY AMONG PERSONS WITH HIV

Abstract Presentation Number

734

Monica Sañé Schepisi 1, Jalal Miah 2, Anna Kaluzhenina 3, Katerina Manika 4, Emanuele Pontali 5, Monica Rios Prego 6, María Nieves Altet 7, Diana Sanchez Mellado 8, Enrico Girardi 1, for the TBNET

1. Italian National Institute for Infectious Diseases IRCCS L. Spallanzani, Clinical Epidemiology Department, Rome, Italy
2. Newham University Hospital, NHS Trust, London, United Kingdom
3. Volgograd state medical university, TB department, Volgograd, Russian Federation
4. Pulmonary Department, "G. Papanikolaou" Hospital, Aristotle University of Thessaloniki, Thessaloniki, Greece
5. Department of Infectious Diseases Galliera Hospital, Genoa, Italy
6. Unidad de tuberculosis Enfermedades Infecciosas-Medicina Interna, Complexo hospitalario universitario, Pontevedra, Spain
7. Unidad de Prevención y Control de la Tuberculosis de Barcelona, Barcelona, Spain
8. IIS-Fundacion Jimenez Diaz, UAM, Madrid, Spain

Background. Both HIV and Diabetes mellitus (DM) increase the risk of developing tuberculosis (TB). While many studies addressed the relationship between HIV infection the risk of DM, the relationship between HIV infection and the co-morbidity tuberculosis-DM is still poorly explored.

Methods. We performed a retrospective study on 2395 adult patients consecutively diagnosed with TB in 7 European clinical centres (in Italy, Greece, Spain, Russia); patients included in this analysis had either a diagnosis of DM or sufficient clinical or laboratory information to define the presence or to exclude DM.

Two distinct multivariable models were fitted to analyze: 1. the association between HIV and the co-morbidity tuberculosis-diabetes among all patients with TB, and 2. the effect of DM on clinical and radiological presentation of TB among HIV TB patients.

	CENTRE	DM/TB	DM(%)	General population DM prevalence*	Male Gender (N, %)		Age (median)	HIV+ (N, %)		Foreign born (N, %)	
1	GREECE	3/68	4.4	4.8	50	73.5	46	0	0	27	39.7
2	ITALY - Rome	63/971	6.5	4.9	633	65.2	42	140	14.4	723	74.5
3	ITALY - Genova	8/79	10.1	4.9	59	74.7	44	7	8.9	55	69.6
4	RUSSIA	49/399	11.5	5.0	307	76.9	40	71	17.8	0	0
5	SPAIN - Barcelona	24/198	12.1	7.9	162	81.8	41	23	11.6	144	72.7
6	SPAIN - Pontevedra	26/411	6.3	7.9	251	61.1	48	16	3.9	26	6.3
7	SPAIN - Madrid	12/269	4.5	7.9	173	64.4	42	35	13.0	123	45.7
	tot	185/2395	7.7		1635			292	7.2	1098	

On 2395 TB patients

	Diabetes/total	Univariable Analysis		Multivariable Analysis	
	n/N (%)	OR	p	OR	p
Age median (min, max), yrs					
	57 (19-96) (DM) 44 (19-102) (no DM)	1.4 (1.3 – 1.5)^	**<0.001**	1.4 (1.3 – 1-6)^	**<0.001**
Gender					
Female	44/755 (5.8%)	1		1	
Male	141/1627 (8.7%)	1.5 (1.1 – 2.2)	**<0.05**	1.5 (1.0 – 2.2)	**<0.05**
Country of birth / DM prevalence of country of origin					
Authoctonous	124/1298 (9.5%)	1		1	
Foreign born/ <8%	48/957 (5.0%)	0.5 (0.4 – 0.7)	**<0.001**	0.9 (0.6 – 1.4)	ns
Foreign born/ >8%	11/100 (11.0%)	1.2 (0.6 – 2.3)	ns	1.6 (0.8 – 3.2)	ns
Not available	2/40 (5.0%)	0.5 (0.1 – 2.0)	ns	1.0 (0.2 – 4.3)	ns
HIV status					
Negative	146/1825 (8.0%)	1		1	
Positive	21/292 (7.2%)	0.9 (0.6 – 1.4)	ns	0.8 (0.5 – 1.3)	ns
Not available	18/278 (6.5%)	0.8 (0.5 – 1.3)	ns	0.6 (0.3 – 1.0)	=0.06
Other comorbidities					
No	104/1532 (6.8%)	1		1	
Yes	80/634 (12.6%)	2.0 (1.5 – 2.7)	**<0.005**	1.7 (1.2 – 2.3)	**<0.005**
Not available	1/217 (0.5%)	0.1 (0.0 – 0.5)	**<0.01**	0.1 (0.0 – 0.6)	**<0.05**

^AGE/10

Results. Of the patients enrolled 292 (12.2%) were infected with HIV. HIV-TB co-infected compared to TB only patients were younger, more likely to be male, to be autochthonous and to have other co-morbidities.

The overall prevalence of diabetes among the 2395 TB patients was 7.7 %. DM prevalence amongst TB only patients and amongst TB-HIV co-infected patients were respectively 7.8 (164/2103) and 7.2 (21/292). After adjustment for potential confounders –age, gender, country of birth- there was no evidence of a significant association between HIV infection and the DM.

Impact of DM on TB clinical and radiological presentation amongst 292 HIV+ patients

	Diabetes/total HIV+	Univariable Analysis		Multivariable Analysis*	
	n/N (%)	OR	p	OR	p
CXR cavities					
No	4/149 (2.7%)	1		1	
Yes	17/102 (16.7%)	1.7 (1.3-2.4)	**<0.001**	5.8 (1.4 – 24.4)	**<0.05**
Not available	0	0.5 (0.3-0.9)	**<0.05**	-	-
Sputum smear					
Negative	12/136 (8.8%)	1			
Positive	9/63 (6.3%)	1.2 (0.9-1.6)	ns		
Not available	0	1.2 (0.6-2.3)	ns		
Sputum culture					
Negative	1/37 (2.7%)	1		1	
Positive	20/178 (11.2%)	1.6 (1.1-2.6)	**<0.05**	2.6 (0.3 – 25.2)	ns
Not available	0/77	01.1 (0.6-1.9)	ns	-	-
Weight loss					
No	7/129 (5.4%)	1			
Yes	13/137 (9.5%)	1.5 (1.1-2.0)	ns		
Not available	1/26 (3.8%)	0.1 (0.3-1.2)	ns		
Fever					
No	6/87 (6.9%)	1			
Yes	14/180 (7.8%)	0.9 (0.6-1.2)	ns		
Not available	1/25 (4.0%)	0.5 (0.2-0.9)	ns		
Night sweating					
No	5/184 (2.7%)	1		1	
Yes	15/83 (18.1%)	1.2 (0.9-1.7)	**<0.001**	5.1 (1.5 – 17.6)	**<0.01**
Not available	1/25 (4.0%)	0.5 (0.2-1.1)	ns	4.5 (0.4 – 56.1)	ns
Haemoptysis					
No	14/222 (6.3%)	1			
Yes	6/45 (13.3%)	1.0 (0.7-1.4)	ns		
Not available	1/25 (4.0%)	0.5 (0.2-1.0)	ns		
Persisting cough					
No	3/99 (3.0%)	1			
Yes	17/168 (10.1%)	1.0 (0.9-1.8)	ns		
Not available	1/25 (4.0%)	0.6 (0.3-1.2)	ns		

*adjusted for age, gender, CD4 cell count and HAART

Amongst 292 TB-HIV co-infected patients, DM was associated with **cavities and night sweating**, after adjustment for last CD4+ cell count, HAART, gender and age (table).

Other presenting symptoms – persisting cough, weight loss, haemoptysis, fever- and clinical variables explored –TB site, sputum smear and sputum culture- were not significantly associated with DM.

Conclusions. DM may play among persons with HIV a role in TB occurrence and presentation similar to that documented in non-HIV infected persons. Increasing prevalence of diabetes among persons with HIV linked to the aging of this population, may foster a recrudescence of HIV-associated TB.

CONTACTS: enrico.girardi@inmi.it, monica.saneschepisi@inmi.it