SEROPREVALENCE OF TOXOPLASMOSIS AMONG PREGNANT WOMEN IN RABAT, MOROCCO

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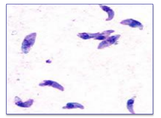
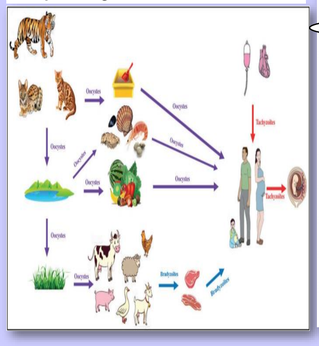


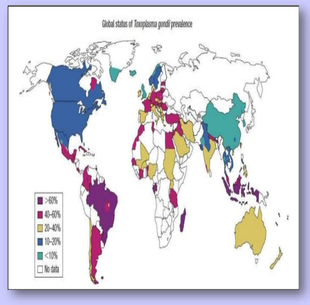
BACKGROUD

▪**Toxoplasmosis: parasitosis due to *Toxoplasma gondii***

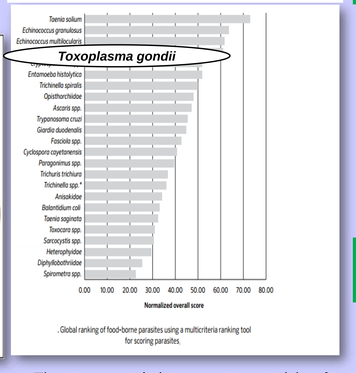


▪ **Toxoplasmosis: cosmopolitan zoonosis**

▪ **Global prevalence of 30%** .

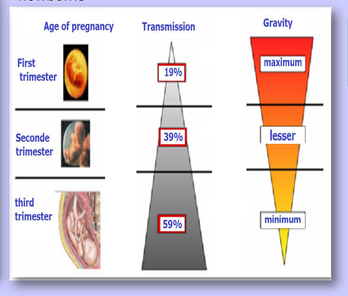


FAO/WHO, 2014



Global ranking of food-borne parasites using a multicriteria ranking tool for scoring parasites.

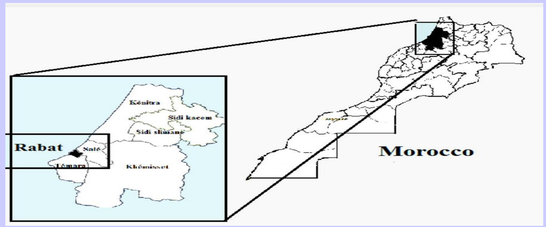
▪ The two populations most at risk of developing health problems after *T. gondii* exposure : immunocompromised individuals and seronegative pregnant women and newborns



▪ **Hence the importance of screening at the first prenatal visit**

MATERIELS AND METHODS

STUDY AREA



TYPE / POPULATION OF STUDY

• **Type of study:** This descriptive retrospective study was conducted from April 2014 to September 2018 in Rabat that is located along the Atlantic Ocean, in Morocco

Population of Study : 677 pregnant women attended for serology diagnosis of *T. gondii* infection during pregnancy,

SEROLOGICAL EVALUATION CONVENTIONAL ELISA

▪Specific *anti-T. gondii* IgG antibodies were detected using ELISA for quantitative determination

▪Specific *anti-T. gondii* IgM antibodies were detected using ELISA for qualitative determination.

▪The kit "Platelia Toxo avidity, BioRad," according to the manufacturer's protocol was used

▪ All IgG- and IgM-positive samples included in the study were analyzed for IgG avidity at the first evaluation at a gestational age ≤ 20 weeks

RESULTS AND DISCUSSION

SOCIODEMOGRAPHIC CHARACTERISTICS OF PREGNANT WOMEN

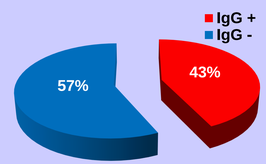
Variable	*Toxoplasma* seroprevalence: Seropositivity n (%)	Seronegativity n (%)	X^2	*p-value*
Age				
16-25	66(34,9%)	123(65,1%)	9,1283	0,0276*
26-30	67(46,5%)	77(53,5%)		
31-35	70(50,7%)	68(49,3%)		
36-46	45(42.9%)	60(57,1%)		
Age of pregnancy				
First trimester1	84(42,4%)	114(57,6%)	.0495	0.9756
Second trimester	122(43,4%)	159(56,6%)		
Thirth trimestre	42(43,3%)	55(56,7%)		
Parity				
Nulliparous	110(40,0%)	165(60,0%)	2,5627	0,2777
primparous(1 P**)	117(45,0%)	143(55,0%)		
multiparous (≥ 2P**	21(51,2%)	20(48,8%)		
No abortion	188(42,2%)	258(57,8%)	,7715	0,6799
History of abortion				
One abortion	43(45,3%)	52(54,7%)		
Two or more abortion	17(48,6%)	18(51,4%)		

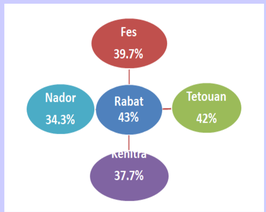
* NS : statistically significant, ** : Number of pregnancy .

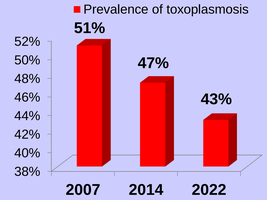
▪In Morocco, no systematic prenatal toxoplasmosis screening has been set up. The health system does not have a monitoring program for toxoplasmosis. Therefore, there is no follow-up of *T. gondii* seronegative pregnant women to properly control the risk of infection with congenital toxoplasmosis until delivery.

▪ The lack of knowledge of toxoplasmosis among pregnant women has been reported previously as a main risk factor for contracting disease in the regions study. Only 5.9% were aware of toxoplasmosis.

▪The lack of knowledge may put unaware women to not follow-up the serology and put them in a high-risk group, susceptible to contract *T. gondii* infection during pregnancy leading to an acute infection







▪*T. gondii* seroprevalence of specific IgG was 43% while 57% were seronegative for *anti-T. gondii-specific* IgG antibodies.

▪ The percentage of *T. gondii* IgM-positive antibodies were 3.9% (25/637)

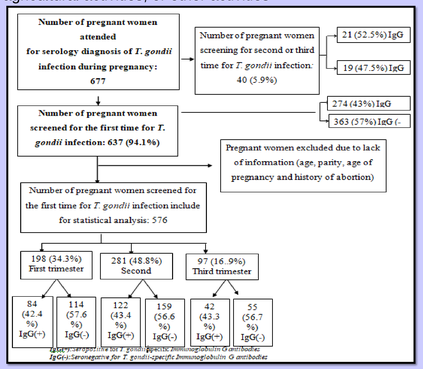
▪ A previous studies reported in different cities in Morocco, reported a low prevalence than our finding

▪We noticed a decrease in the seroprevalence during the last years

▪A previous study showed that the majority of pregnant women with anti-toxoplasma antibodies have continuous contact with the soil in activities such as gardening, agricultural activities, or other activities

▪ The noticeable decline in the seroprevalence may be due to the regression of contact with the soil. changes in lifestyle that are related to development, hygiene measures, and higher levels of education can contribute to reducing this prevalence

▪ **57%** are seronegative and are likely to be infected during pregnancy, and only **5.9%** of all pregnant women were undergoing *T. gondii* antibody screening, with **47.5%** seronegativity, and among the seronegative cases, **15.2%** were in their third trimester when they underwent screening for *T. gondii* antibodies for the first time.



IgG(+): Seropositive for T. gondii-specific immunoglobulin G antibodies
IgG(-): Seronegative for T. gondii-specific immunoglobulin G antibodies

▪Even when primary infection occurs during pregnancy, early diagnosis and treatment can reduce the frequency and severity of the disease in neonates.

	IgG Avidity ELISA (%)		
	Low	Borderline	Higher
IgG and IgM positive	2 (11.1%)	1 (5.6%)	15 (83.3%)

▪Among seropositive women, the majority were found to have a chronic or past infection based on serology of IgM antibodies.

▪ 18 (2.8%) of the 637 pregnant women consulting in their first trimester were susceptible to a recent infection, and only two (2) subjects were positive for IgM with a low avidity using the avidity IgG method. This test excluded 83.3% of pregnant women. Therefore, IgM positivity does not always predict an acute infection

OBJECTIFS OF STUDY

In Morocco, a recent review reported there are only a few studies addressing the prevalence of toxoplasmosis. Hence, we felt it was appropriate to update the data on the prevalence of toxoplasmosis among pregnant women in the region of Rabat and its surroundings and look for possible associations between seropositivity and the following factors: age, parity, and history of abortion

DATA ANALYSIS

Analysis of the data was made to identify the characteristics of the different variables studied in EpiInfo. The chi-square test (bivariate test) from EpiInfo was used to determine the associated seroprevalence of *T. gondii.* Statistical significance was set to a value of $p < 0.05$. The data input was done on Microsoft Office Excel 2010, and the analysis was performed using EpiInfo (*ver. 2007 CDC, USA)* Software.

CONCLUSION & RECOMMANDATION

▪This descriptive study provides key and update baseline data about the *T. gondii* seroprevalence among pregnant women in the region of Rabat, Morocco.

▪ We noted that the number of non-immunized pregnant women increases during the last years in the region studied. Therefore, the risk of fetal infection has increased because the possibility of seroconversion during pregnancy is higher among pregnant women.

▪A few pregnant women have followed-up of toxoplasmosis during pregnancy especially among the number of non-immunized pregnant

▪Undoubtedly, a national program of screening and surveillance of seronegative pregnant

▪Hence, there is a need for a national sample survey estimating the real potential burden of this infection on maternal and its impact on fetal health. Despite these limitations, we have for the first time been able to report the number of pregnant women who follow-up the screening of toxoplasmosis.women is require