SEROPREVALENCE OF TORCH INFECTIONS IN CHILDBEARING AGE WOMEN: 2019-2022 TIME SPAN RESULTS FROM A TEACHING HOSPITAL IN SOUTHERN ITALY.

Grazia Pavia[1], Giuseppe De Angelis[1], Aida Giancotti[1], Concetta Zangari[1], Emanuela Laratta[1], Elena Colosimo[1], Elettra Mancuso[1], Licia Prestagiacomo[1], Carolina Mirello[1], Simona Gigliotti[1], Francesca Licata[2], Silvia Angelillo[2], Enrico Maria Trecarichi[3], Chiara Costa[3], Carlo Torti[3], Nadia Marascio[1], Angela Quirino[1], Giovanni Matera[1]

[1]Unit of Clinical Microbiology, Department of Health Sciences, "Magna Græcia" University Hospital of Catanzaro; Italy
[2]Department of Health Sciences, School of Medicine, "Magna Græcia" University Hospital of Catanzaro; Italy.
[3]Infectious and Tropical Disease Unit, Department of Medical and Surgical Sciences, "Magna Graecia" University of Catanzaro, Italy.

P_317

E-mail: graziapavia@unicz.it

INTRODUCTION

Primary TORCH infections are considered a serious problem and cause 2-3% of all birth defects in the *fetus*. Herein, we conducted a cross-sectional serological study in childbearing age women from January 2019 to November 2022 attending to "Mater Domini" University Hospital of Catanzaro to provided data on pregnancy-related pathogens prevalence.

MATERIALS AND METHODS

Serum samples were tested for TOX, CMV, ParvoB19 antibodies (IgG and IgM) by LIAISON® system (Diasorin), and RUB antibodies (IgG and IgM) by VIDAS (bioMèrieux). HSV1 IgG, HSV2 IgG, HSV1/2 IgM and SYPH total antibodies were dosed by CHORUS (Diesse Diagnostics). CMV, TOX and RUB IgG avidities were evaluated by ELFA (VIDAS, bioMèrieux). Binomial logistic regression models have been developed to compare seroprevalence rates among 16-25, 26-35, 36-45 age groups.

Table 1. Characteristics of women cohort from 2019-2022

Year	No. (%)	Italian nationality No. (%)	Foreign nationality No. (%)
2019	364 (22)	336 (92)	28 (8)
2020	275 (17)	261 (95)	14 (5)
2021	542 (33)	527 (97)	15 (3)
2022	460 (28)	445 (97)	15 (3)
TOT	1641 (100)	1569 (96)	72 (4)

Table 2. Seroprevalence of pregnancy-related pathogens in the childbearing age women from 2019-2022

Ab Class	IgG		IgM	
Pathogens	Sample size (No.)	Positive No.(%)	Sample size (No.)	Positive No.(%)
CMV	631	393 (62)	673	52 (8)
TOX	697	87 (13)	868	40 (5)
RUB	388	329 (85)	297	4 (1)
ParvoB19	173	84 (49)	197	1 (0.5)
SYPH	612	8 (1)	NA	NA
HSV1	285	229 (80)	NA	NA
HSV2	158	7 (4)	NA	NA
HSV1/2	/	/	291	30 (10)

RESULTS

A total of 1641 childbearing age women, mainly Italian (96%), were screened (**Table 1**). Median age was 33 years. For CMV infection, IgG positivity was observed in 393/631 (62%), while IgM in 52/673 (8%) women. The IgG seroprevalence was superimposable in all three different age groups (63%). Acute infection was found in 23/52 (44%) cases, mainly in 16-25 age group (7/10, 70%). Each year of age resulted in a 9% reduction in the odds of CMV IgM positivity (OR = 0.91, 95% CI = 0.87–0.95). For TOX infection, IgG positivity was observed in 87/697 (13%), while IgM in 40/868 (5%) cases. Women with age >25 years showed a major IgG seroprevalence (13%). TOX acute infection was found in 14/40 (38%) cases, mainly in the earlier age groups (50%). RUB IgG positivity was observed in 329/388 (85%), while IgM in 4/297 (1%) woman mainly in 36-45 age group (3/4, 75%). The highest IgG seroprevalence was recorded in 26-35 years group (175/206, 85%). ParvoB19 IgG positivity was observed in 84/173 (49%), without differences based on age. No RUB and ParvoB19 acute infections were found. The HSV1 IgG positivity was observed in 229/285 (80%), that increases with age. Every 1 year increase of age (OR: 1.08; 95% CI: 1.04–1.13), the odds of HSV1 IgG positivity resulted in an 8% increase. For HSV2 infection, IgG positivity was reported in 4% of cases (7/158), while HSV1/2 IgM positivity in 30/291 (10%) woman mainly in 16-25 age group (8/50, 16%). The lowest overall seroprevalence was observed for SYPH infection (8/612, 1%) (**Table 2, 3**).

Table 3. Pathogens IgG and IgM prevalence according to age of the reproductive women

Pathogens		CMV			TOX			RUB		ParvoB19		SYPH	HSV1	HSV2	HSV1/2
Ab Classes		IgG Pos No.(%)	IgM Pos No.(%)	Avidity IgG Low No. (%)	IgG Pos No.(%)	IgM Pos No.(%)	Avidity IgG Low No. (%)	IgG Pos No.(%)	IgM Pos No.(%)	IgG Pos No.(%)	IgM Pos No.(%)	IgG Pos No.(%)	IgG Pos No.(%)	IgG Pos No.(%)	IgM Pos No.(%)
Years age groups	Sample size (No.)														
16-25	219	49 (61)	10 (12)	7 (70)	6 (9)	4 (6)	2 (50)	26 (84)	0 (0)	7 (50)	0 (0)	0 (0)	30 (63)	1 (4)	8 (16)
26-35	812	202 (63)	33 (10)	16 (43)	53 (13)	26 (5)	8 (47)	175 (85)	1 (0.6)	51 (49)	0 (0)	4 (1)	105 (82)	1 (1)	11 (8)
36-45	610	142 (62)	9 (4)	2 (4)	28 (12)	10 (3)	4 (40)	128 (75)	3 (3)	26 (47)	1 (1)	4 (1)	94 (86)	5 (9)	11 (10)
TOT	1641														

CONCLUSIONS

The highest immunological protection was observed for RUB infection (85%), probably associated with the vaccination practice, followed by HSV1 and CMV (80% and 62%). The 16-25 years age group results major susceptible to acute infections as demonstrated by odds of CMV IgM positivity (primary infection) which decreased with age.