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An association between Maternal blood lead levels and and birth weight of the babies in West Algerian population (Sidi Bel Abbes region) POSTER NUMBER 22

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Introduction : Several epidemiological studies have investigated high lead (Pb) exposure and pregnancy outcomes, but few studies have investigated the association of low lead exposure and low birth weight (LBW).

Lead is a widespread environmental toxin. The behaviour and academic performance of children can be adversely affected even at low blood lead levels (BLL) of 5–10 µg/dl. An important contribution to the infant's lead load is provided by maternal transfer during pregnancy. Our aim was to determine BLL in a population of pregnant women in the SBA and to identify the factors that contribute to BLL in pregnant women.

Learning Objectives

- **The aims of this study were to estimate the maternal blood lead levels (BLL), to identify determinants for BLL among parturient woman and to evaluate the association of maternal BLL and LBW.**
- **We used bivariate correlation to evaluate the relationship first time between lead levels and newborn parameters**
- **then between BLL and the use of kohl in the other hand.**

2

***Methods:** From July 2017 to February 2018, we carried out a case control study in the genecology and obstetrics hospital of Sidi Bel Abbes, Algeria. Lead concentrations in maternal blood samples collected at delivery were measured in 29 mother who delivered term LBW cases group and 29 mother who give birth to a term normal weight baby matched controls. Blood lead levels were analyzed by inductively coupled plasma mass spectrometry (laboratoire CERBA , FRANCE).*

- **Participants were invited to provide blood sample and participate in a face-to-face interview.The questionnaire elicited on maternal information included socio-demographic factors (maternal age, education, occupation, weight and height), obstetric history and sources of lead exposure; and on newborn characteristics (weight, sex, gestational age, ……).**

Results

Table 1: association between maternal characteristics and low birth weight cases and controls groups.

Characteristics		Case (N=29)	Control (N=29)	P value (x^2)
Infant sex	Male	11 (37,9%)	11 (37,9%)	
	Female	18 (62,1%)	18 (62,1%)	1
Maternal age(years)	<=25	06 (20,7%)	10 (34,5%)	
	25-29	10 (34,5%)	05 (17,2%)	0,259
	>=30	13 (44,8%)	14 (48,3%)	
Education	Less than high school	20 (69,0%)	12 (41,4%)	0,035
	high school or more	09 (31,0%)	17 (58,6%)	
Pre-pregnancy BMI	Underweight	11 (40,7%)	05 (17,9%)	
	Normal	08 (29,6%)	06 (21,4%)	0,056
	Overweight	08 (29,6%)	17 (60,7%)	
Parity	Primiparous	12 (41,4%)	08 (27,6%)	
	Multiparous	17 (58,6%)	21 (72,4%)	0,269
Residence	Urban	09 (31,0%)	14 (48,3%)	
	Rural	20 (69,0%)	15 (51,7%)	0,180
Use of kohl	Yes	03 (10,3%)	10 (34,5%)	0,028
	Non	26 (89,7%)	19 (65,5%)	
Occupational status	Employed	05 (17,2%)	03 (10,3%)	
				0,406

Table 3: association between maternal BLL, birth weight and maternal characteristics.

Variables		Lead level µg/dL	P value	Birth weight g	P value
Infant sex	Male	21,30 ±17,89	0.320	2819,32 ± 680,19	0.987
	Female	20,54±08,92		2863,61 ± 575,69	
Maternal age(years)	<=25	17,84±06,62	0.545	3043,44 ± 515,21	0.108
	25-29	22,99±15,8		2657,33 ± 491,29	
	>=30	21,44±13,86		2835,56 ± 702,21	
Education	Less than high school	19,58±10,25	0.606	2709,22 ± 611,89	0.104
	high school or more	22,20±15,19		3016,15 ± 579,09	
Pre-pregnancy BMI	Underweight	20,84±16,27	0.763	2704,69 ± 552,71	0.296
	Normal	21,16±13,84		2802,14 ± 506,33	
	Overweight	20,61±09,87		2981,20 ± 679,89	
Parity	Primiparous	21,29±18,06	0.086	2773,75 ± 569,85	0.432
	Multiparous	20,20±08,46		2885,26 ± 636,91	
Residence	Urban	22,50±15,19	0.395	2998,48 ± 589,52	0.150
	Rural	19,69±10,97		2747,14 ± 614,04	
Use of kohl	Yes	30,45±21,34	0,001	3180,00 ± 459,36	0.020
	No	17,73±06,35		2750,56 ± 620,66	
Occupational status	Employed	22,50±12,77	0.603	2491,25 ± 813,64	0.103
	Un-employed	20,53±12,88		2903,70 ± 563,06	

***Table** : association between maternal BLL and the daily kohl use.*

Table : association between maternal BLL and the daily kohl use.

variable	Total population (n=58)		Cases LBW (n=29)		Controls NBW (n=29)	
	Correlation Coefficient	Sig	Correlation Coefficient	Sig	Correlation Coefficient	Sig
Daily kohl use	-0,429	0,001	-0,207	0,281	-0,453	0,014

conclusion

We found association between maternal frequency uses of kohl and lead levels, this finding add to proof from past investigations proposing that maternal low lead exposures might be related with cosmetics product and encourage the use of lead-free kohl in order to reduce sources of lead exposure with the end goal to protect fetal health.

REFFERENCES

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