Is there a relation between environmental exposure during pregnancy and congenital anomalies in newborn? Preliminary results from a case-control study.

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BACKGROUND

- Maternal exposure to environmental factors has been associated to the birth of a child with specific congenital anomalies (CA).
- The aiming of this study is to investigate the association between occupational exposure, maternal place of residence, workplace and leisure activities during pregnancy and CA.

METHODS

- In 2016, an observational, case control study was developed and is still in progress.
- Cases are live births, identified in the maternity unit, with at least one CA and controls are the two births without anomaly following each case.
- Residents outside the study area, stillbirths and women who decline to participate or are incapable to give consent are excluded.

RESULTS

116 live births were recruited to the study (38 cases and 78 controls). The distribution according to sex is presented in Table 1.

	Male		Female		Ambiguous		*p value*
	n	%	n	%	n	%	0,026
Cases	24	63,2	12	31,6	2	5,3	
Controls	38	48,7	40	51,3	0	0	

Table 1. Distribution of cases and controls according to sex of newborn

68.4% of mothers of cases and 57.7% of the mothers of controls reported living in the study area, however no statistical differences were detected between them (p=0.195) (Figure 1).

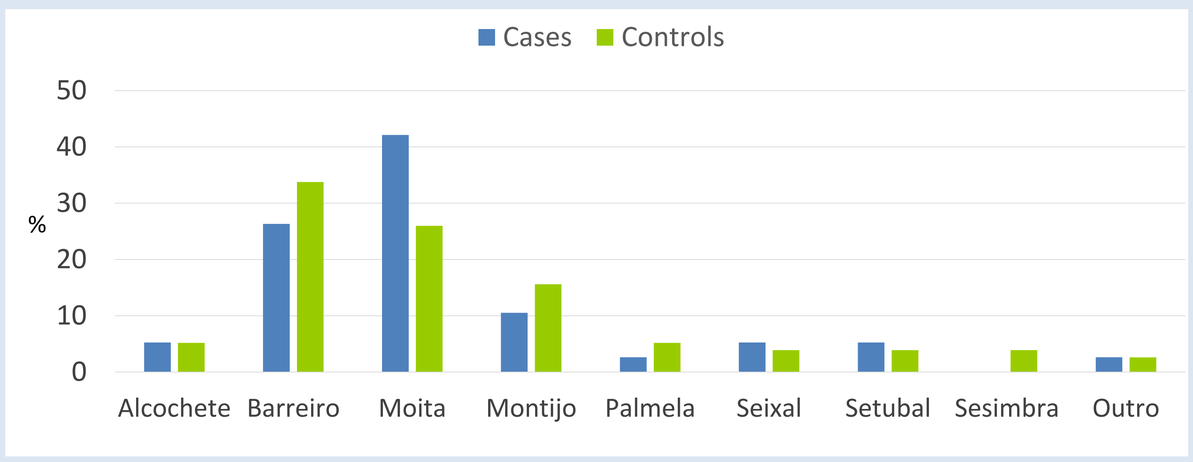

Figure 1. Distribution of mothers of cases and controls by place of residence during pregnancy

Considering the place of leisure, 63.2% of mothers of cases and 46.9% of mothers of controls reported spending their leisure time in the same area where they live. No statistical differences were detected between them (p=0.175) (Figure 2).

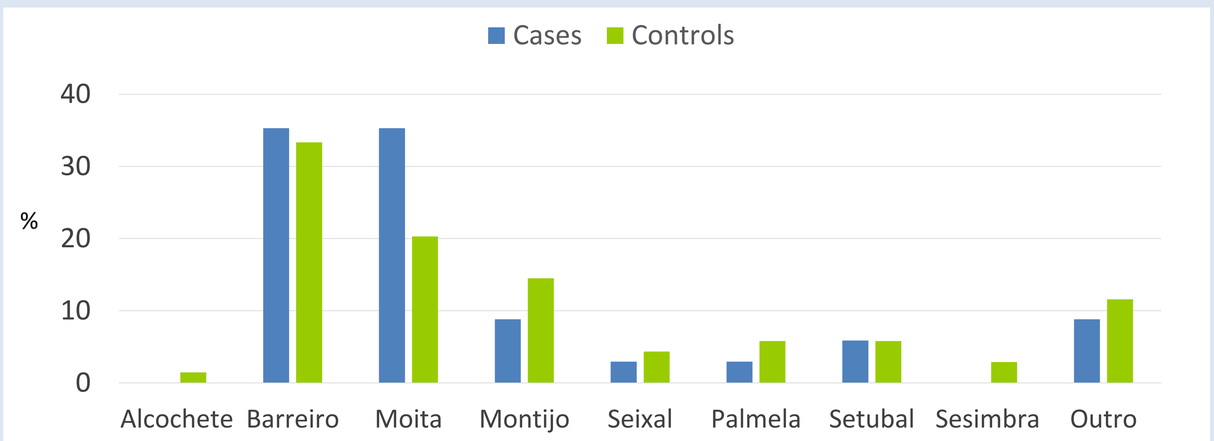

Figure 2. Distribution of cases and controls according to the municipalities where mothers spend leisure time

Mothers of cases worked more frequently in Lisbon (21%) and in the study area (15.8%) compared to controls (17.3% and 15.4% respectively) (p=0.057) (Figure 3).

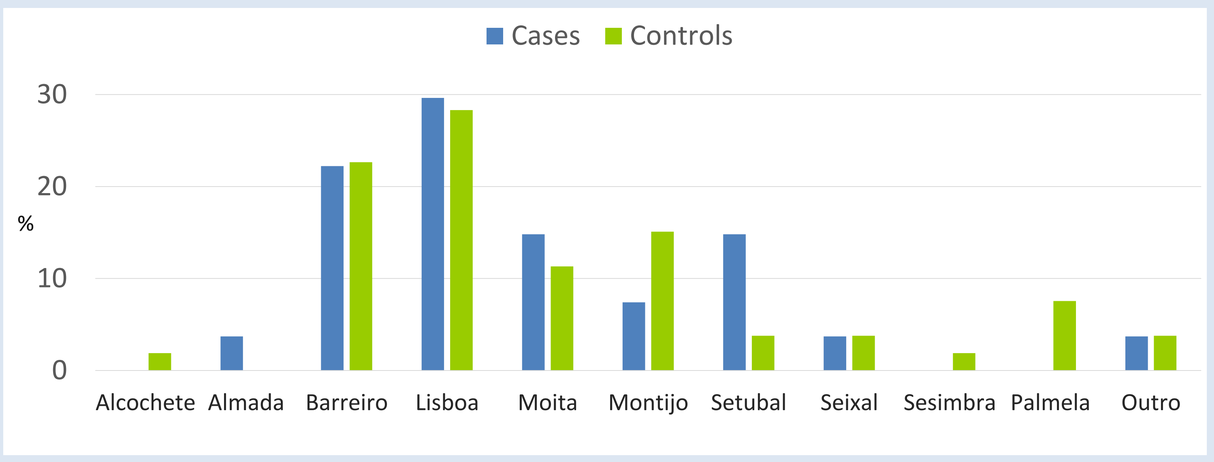

Figure 3. Distribution of cases and controls by working municipality of mothers

A total of 45 CA were detected and the most frequently reported groups were musculoskeletal system (34.1%) followed by CA of the ear, face and neck group and genital system (15.9% and 15.9 respectively) (Figure 4).

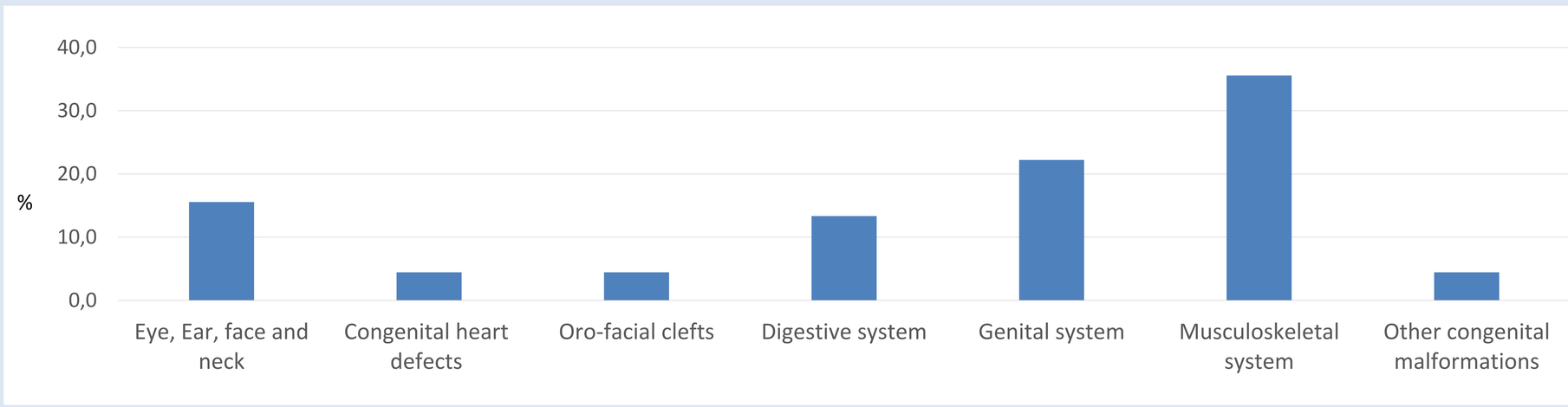

Figure 4. Distribution of congenital anomalies according to ICD 10

CONCLUSIONS: Due to the small sample size, no statistically significant difference was found between cases and controls. Reason why it is necessary to continue the study and obtain the collaboration of other hospitals in the same area.

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Study protocol and questionnaire submitted and approved by the Barreiro-Montijo Hospital ethics commission and by the National Data Protection Commission.