IS THERE A LINK BETWEEN MEDICALLY ASSISTED PROCREATION AND AUTISM SPECTRUM DISORDER?

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Introduction

Nowdays, both autism spectrum disorder (ASD) and the use of medically assisted procreation (MAP) are increasing in our societies. ASD is considered to be of multifactorial etiology, involving genetic and environmental factor. Several studies have tried to explore the modifiable environmental risk factors of ASD. Among these risk factors, medically assisted procreation (MAP) was widely discussed because of the rise in its use.

Objectives: The aim of the present study was to compare the incidence of Birth by MAP in chidren with ASD and in control group.

Methods

This is a case-control study, conducted from March 2017 to April 2018 in the Child Psychiatry Unit of Monastir (Tunisia). Each group was composed of 150 children. The first group was made of children suffering from ASD. The control group was chosen randomly in kindergartens and was matched with our patients for age and gender. The M-CHAT questionnaire was used to rule out ASD in this group.

The data was collected using a questionnaire exploring socio-demographic variables, history of birth by MAP and eventual confounding factors. Chi-square analysis and hierarchical logistic regressions were used.

Results

☐ Use of medication of fertility enhancement

P<.001

☐ Use of FIV

P= .072

☐ Multivariate analysis

	B	Sig.	Exp(B)	95% I.C. for EXP(B)	
				Lower	Upper
Age of the mother	.113	.050	1.119	1.000	1.253
Mother history of psychiatric disorder	-19.472	.999	.000	.000	.
Age of the father	-.046	.277	.955	.878	1.038
Father history of psychiatric disorder	-20.566	.998	.000	.000	.
Physical violence between parents	-2.452	.033	.086	.009	.822
Verbal violence between parents	-1.264	.050	.282	.080	1.001
Assisted medical procreation	-19.590	.999	.000	.000	.
In vitro fecondation	-18.662	.999	.000	.000	.
Maternal depression during pregnancy	-.702	.378	.496	.104	2.358
Use of anti-depression drugs	-15.772	.999	.000	.000	.
prematurity	-1.709	.578	.181	.000	74.135
Cesarian section delivery	-1.352	.023	.259	.081	.830
Dilevery distocia	2.404	.073	11.071	.798	153.687
Acute featal distress	-.305	.641	.737	.205	2.651

Discussion

- ✓ Consistent with our results, a handful of studies reported that the use of MAP did not increase the risk of ASD in offspring **(1,2)**. However, the majority of prior work suggests increased risks of autism with the use of MAP **(3,4)**. A Danish study found that the risk of ASD was lower among children born to women who used MAP. The authors speculate that women who use MAP were more highly educated and they were more likely to interact with the health care system, so they can detect any abnormality in child development **(5)**.
- The divergence between studies may be due to: the sample size, the method of MAP and the potential confounders (maternal age, parity, multiplicity of births, prematurity, birth weight).
- ✓ Epigenetic changes induced by factors such as repeated hormone exposure, quality of the germ cells, semen preparation, freezing of embryos and gametes and delayed insemination is a possible mechanism linking MAP and ASD **(6)**.
- ✓ Limitations of our study include small sample size, reliance on parent-reported use of MAP and the broad definition of it.

Conclusion

We found no link between MAP and ASD in our study, but this result should be interpreted with great caution given some methodological limitations. Long term studies are needed to further elucidate the causes of ASD.

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