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LETTER TO THE EDITOR

Risk of preeclampsia: comparison between dichorionic and monochorionic twin pregnancies

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Twin pregnancies are at increased risk of preeclampsia (PE) because of hyperplacentosis [1]. The study of Sparks et al., recently published in your journal, demonstrated that women with dichorionic (DC) twins had an increased incidence of PE compared to those with monochorionic (MC) twins, hypothesizing a possible role of chorionicity in the development of PE [2]. To support their thesis, we analyzed the relationship between chorionicity and PE in our series.

All women with twin pregnancies admitted to the Department of Obstetrics & Gynecology of University Federico II of Naples from January 2010 to December 2012 were included in our study. Data were collected retrospectively and recorded in a dedicated database. The incidence of PE was compared between DC and MC pregnancies. Chorionicity was defined according to the presence or absence of lambda sign, T-sign, inter-twin membrane thickness, number of placentae and fetal sex [3].

PE was diagnosed in the presence of hypertension (blood pressure $\geq$ 140/90 mmHg on at least two occasions and at least 4–6 h apart) and proteinuria (excretion of $\geq$ 300 mg of protein every 24 h) after 20 weeks of gestation [4].

Statistical analysis was conducted using SPSS 18.0 (Chicago, IL).

Data are shown as means ± SE or number (percentage). Differences between MC and DC pregnancies were analyzed using Chi-square Test and Fisher's exact test for categorical variables and Student's *t* test or Mann–Whitney Test for continuous variables. A logistic regression was performed to correct data for those variables significantly different between groups.

p Value <0.05 was considered statistically significant.

From January 2010 to December 2012, 295 twin pregnancies were admitted to the Department of Obstetrics and Gynecology at the University Federico II of Naples.

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Table 1. Maternal characteristics in DC and MC pregnancies.

	MC pregnancies, $n = 47$	DC pregnancies, $n = 158$	*p* value
Maternal age means ± SE	29.1 ± 0.8	31.6 ± 0.5	<0.01
<=35years *n*(%)	42 (91.3%)	123 (77.8%)	<0.05
BMI means ± SE	23.3 ± 0.9	25.5 ± 0.9	NS
BMI <25 *n*(%)	36 (76.6%)	106 (67.1%)	NS
<19	*8 (22.2%)*	*18 (16.9 %)*	
20–25	*28 (77.8%)*	*88 (83.1 %)*	
BMI > 25 *n*(%)	11 (23.4%)	52 (32.9%)	NS
25–30	*4 (36.4%)*	*32(61.5 %)*	
>30	*7 (63.6%)*	*20 (38.5%)*	
Ethnicity			
Caucasians, *n*(%)	47 (100%)	153 (96.8%)	NS
Black Africans *n*(%)	0	5 (3.2%)	
No. of pregnancy means ± SE	1.9 ± 0.1	1.9 ± 0.2	NS
Nulliparous *n* (%)	23 (48.9%)	68 (43%)	NS
Conditions predisposing to PE* *n*(%)	3 (6.4%)	21 (13.3%)	NS
Positive Familiar History *n*(%)	20 (42.6%)	87 (55.1%)	NS
Gestational age at delivery means ± SE	34.2 ± 6.3	34.7 ± 3.8	NS

MC, monochorionic; DC, dichorionic.
*PE in previous pregnancy, essential hypertension, diabetes, kidney disease and thrombophilia.
We stratified groups by BMI> or <25 and then we reported the subgroups: BMI ≤ 19 *n*(%); BMI 20–25 *n*(%); BMI 25–30 *n*(%); BMI > 30 *n*(%) indicated by italics.

Eighty-nine (30.2%) were excluded because of termination of pregnancy before 23 weeks or unknown chorionicity. Among remaining 205 pregnancies, 158 (77.1%) were DC and 47 (22.9%) were MC.

Maternal characteristics in both groups were reported in Table 1.

The incidence of PE was significantly higher in DC pregnancies compared to MC ($n = 48$ (30.4%) versus $n = 6$ (12.8%); cOR = 2.9; CI95% [1.2–7.8]; $p = 0.02$).

According to Starks et al. [2], we found that incidence of PE was significantly higher in DC pregnancies compared to MC pregnancies.

The two groups were similar for all the maternal characteristics analyzed, except of maternal age. However,

the relationship between chorionicity and PE is still statistically significant even after we corrected data for maternal age (aOR = 27; CI95% [1.1–6.7]; $p < 0.04$).

Our study confirmed the thesis by Sparks et al. [2], about the possible role of chorionicity in development of PE.

They hypothesized the possibility that the incidence of PE could be influenced by gestational age at delivery that is earlier in MC twins. Nevertheless, we found a significantly higher incidence of PE in DC pregnancies, even if the two groups were similar for gestational age at delivery.

Different explanations were proposed to justify this relationship. Probably, the presence of two different placentae could be associated with higher risk of less efficient placentation, due to a larger placental mass [1], with an increased release of syncytiotrophoblast microparticles [5] and with an abnormal maternal immune response because of greater genetic variability [6].

Further studies are necessary to clarify the relationship between chorionicity and PE.

Declaration of interest

The authors report no conflicts of interests. The authors alone are responsible for the content and writing of this article.

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