Available online at www.sciencedirect.com
ScienceDirect
Gynecologic Oncology 103 (2006) 81–86
Gynecologic Oncology
www.elsevier.com/locate/ygyno

Gestational trophoblastic disease among Hispanic women: A 21-year hospital-based study☆

Richard D. Drake, Gautam G. Rao, Donald D. McIntire, David S. Miller, John O. Schorge *

Southwestern Trophoblastic Disease Center, Division of Gynecologic Oncology, Department of Obstetrics and Gynecology, University of Texas Southwestern Medical Center, 5323 Harry Hines Boulevard, J7.124 Dallas, TX 75390, USA

Received 2 September 2005
Available online 6 March 2006

Abstract

Objective. Hispanics are the fastest growing minority group in the United States. Few reports have described gestational trophoblastic disease (GTD) in this population. The purpose of this study was to determine the incidence of GTD at our public hospital which primarily serves the Hispanic population.

Methods. All women diagnosed with GTD (partial and complete hydatidiform mole, choriocarcinoma) between 1983 and 2004 were identified from the institutional tumor registry, surgical pathology reports and hospital ICD-9 codes. Clinical data were retrospectively extracted from medical records. The live birth denominator was tabulated over the same interval of time by retrieving labor and delivery statistics and sorting by race.

Results. GTD was diagnosed in 596 patients over a 21-year study interval encompassing 289,897 live births. The overall incidence of GTD was 2.06/1000 live births. Hispanic women had a higher incidence compared to Blacks (2.38 vs. 1.34; $P < 0.001$), but not Whites (2.00; $P = 0.17$). The 416 Hispanic women were diagnosed with GTD at an earlier gestational age in the latter part of this study (12.3 vs. 16.2 weeks; $P < 0.001$). Hispanics were more likely to have a partial hydatidiform mole compared to Blacks (29% vs. 13%; $P < 0.001$) and Whites (18%; $P = 0.04$). Choriocarcinomas occurred least commonly in Hispanic patients (1 per 35,000 live births). Teenage Hispanic women were the only ethnic age group with a higher risk of developing GTD (odds ratio = 1.6, 95% confidence interval: 1.1, 2.2).

Conclusion. Hispanic women had the highest incidence of GTD in this hospital-based study, were diagnosed at an earlier gestational age in the last decade and more frequently were diagnosed with partial moles.

Keywords: Gestational trophoblastic disease; Molar pregnancy; Hispanic women; Hydatidiform molar pregnancy

Introduction

Gestational trophoblastic disease (GTD) encompasses a heterogeneous group of neoplastic conditions arising from the placenta. The historically variable incidence rates primarily reflect discrepancies between population-based and hospital-based data collection [1–3]. A recent South Korean population-based study noted a drop in the incidence from 40 to 2 per 1000 deliveries that was coincident with refinement in the disease terminology and classification [4]. Hospital-based studies in Japan and Singapore have shown a decreased incidence approaching that in the United States and Europe [5,6]. However, some ethnic groups appear to remain at higher risk [7,8].

Hispanics are the fastest growing minority group in the United States [9]. Few reports have described the incidence of GTD in this historically underreported population [10–13]. Earlier diagnoses of complete moles have been reported over the past few decades among predominantly White patients [14,15]. This shift has not been reported in the indigent minority population who are known to be poorly compliant with GTD surveillance [16–18]. GTD is the most curable gynecologic malignancy, but racial differences in survival have been reported [19].

☆ Presented at the American College of Obstetricians and Gynecologists 53rd Annual Clinical Meeting, San Francisco, California, May 7–11, 2005.

* Corresponding author. Fax: +1 214 648 8404.
E-mail address: john.schorge@utsouthwestern.edu (J.O. Schorge).

0090-8258/$ - see front matter © 2006 Elsevier Inc. All rights reserved.
doi:10.1016/j.ygyno.2006.01.042

The Parkland Health and Hospital System serves the medically indigent population of Dallas County. Hispanics account for the vast majority of the 16,000+ women delivered each year at our facility. The purpose of this hospital-based study was to determine the incidence of GTD and better characterize the clinical features of this diagnosis among the rapidly expanding Hispanic population of the United States.

Methods

Institutional Review Board approval was obtained to identify all women diagnosed with GTD (complete and partial hydatidiform mole, choriocarcinoma, placental-site trophoblastic tumor) between January 1, 1983 and December 31, 2003. Parkland Health and Hospital System is a tax-supported institution that is the main teaching facility of the University of Texas Southwestern Medical School. Patients primarily managed elsewhere were excluded.

GTD case subjects were identified from the Parkland Tumor Registry, surgical pathology reports and hospital International Classification of Diseases codes for complete, partial and invasive mole and choriocarcinoma [20]. Clinical data were retrospectively extracted from computerized medical records and hospital charts. Ethnicity was assigned for each patient based on their description at enrollment within the health system and correlated secondarily by surname. Live birth denominators were tabulated from the Parkland Obstetrics database. A live birth was classified as a viable fetus delivered after 24 weeks gestation or greater than 500 g in weight.

Fisher's exact test was used to compare categorical variables. Continuous variables were evaluated using F test for evaluation of variances and the Student's t test of equal variances. Logistic regression modeling was utilized for each of the outcomes: total, complete and partial moles. The independent effects to be examined were age, ethnic group (Hispanic, Black, White) and year of delivery. Age and year of delivery were examined using cubic smoothing splines to account for any non-linear relationships to the risk of the outcome. All interaction effects were examined for possible removal from the model using backward elimination. For total moles, the race by year effect remained significant. For complete moles, age by race remained significant and for partial moles, both age by race and race by year were deemed important. Consequently, if the data were stratified by race, then interaction effects would not be included in the model. The continuous measures were categorized and the models refit by race strata to clarify the data. The categorization of age and year was not selected a priori but was determined by examination of the risk functions of the continuous measure fit.

Table 1
Clinicopathologic characteristics of GTD patients by ethnic group

	Hispanic	Black	White	P value [a]
GTD incidence [b]	2.38	1.34	2.00	<0.001, 0.17
Mean age (year)	23.4	21.6	22.7	0.006, 0.24
Range	13–48	13–48	15–40	
Mean gravidity	2.5	2.2	2.4	0.15, 0.68
Range	1–12	1–8	1–10	
Mean parity	1.2	0.8	0.7	0.02, 0.0005
Range	0–11	0–4	0–3	
Mean gestational age (week)	13.1	14.00	12.00	0.21, 0.15
Range	5–29	6–28	5–27	
1983–1990 (SD)	16.2 (5.4)	15.2 (7.2)	13.6 (5.6)	0.37, 0.02
1991–2003 (SD)	12.3 (4.1)	13.4 (5.0)	11.1 (3.7)	0.14, 0.15
GTD cases (%)	416 (70)	100 (17)	80 (13)	
Complete moles (%)	290 (70)	84 (84)	59 (74)	0.004, 0.51
Partial moles (%)	121 (29)	13 (13)	14 (18)	<0.001, 0.04
Choriocarcinomas (%)	5 (1)	3 (3)	7 (8)	0.19, <0.001
Live births (%)	174,998 (60)	74,864 (26)	40,035 (14)	

[a] P values reported as Hispanic vs. Black, Hispanic vs. White.
[b] Per 1000 live births; SD: standard deviation.

Table 2
Odds ratios for incidence of GTD by age group and year of diagnosis

	Category	Hispanic OR (95% CI)	White OR (95% CI)	Black OR (95% CI)
Age (years)	≤20	1.6 (1.1, 2.2)	1.2 (0.5, 2.9)	3.6 (0.9, 15.0)
	21–25	1.0 (0.7, 1.4)	0.5 (0.2, 1.5)	3.5 (0.8, 14.6)
	26–30	0.9 (0.6, 1.3)	0.6 (0.2, 1.8)	2.6 (0.6, 11.8)
	31–35	1.0 referent	1.0 referent	1.0 referent
	≥35	0.7 (0.4, 1.5)	1.3 (0.3, 5.1)	2.5 (0.3, 17.5)
Year	≤1991	1.0 referent	1.0 referent	1.0 referent
	1992–1993	1.0 (0.7, 1.5)	1.7 (0.8, 3.7)	1.2 (0.6, 2.4)
	1994–1996	1.2 (0.9, 1.7)	2.5 (1.2, 5.2)	1.0 (0.5, 1.9)
	1997–2000	1.5 (1.1, 2.0)	1.6 (0.7, 4.0)	1.6 (0.9, 2.9)
	2001–2003	0.8 (0.6, 1.2)	1.5 (0.4, 5.0)	1.8 (0.9, 3.6)

OR: odds ratio; CI: confidence interval.

Results

GTD was diagnosed in 596 patients over a 21-year study interval encompassing 289,897 live births. The overall incidence of GTD was 2.06/1000 live births. The incidence of GTD in Hispanic women was higher than Blacks (2.38 vs. 1.34/1000 live births; $P < 0.001$), but similar to Whites (Table 1). White patients also had a higher GTD incidence (2.00/1000 live births) than Blacks ($P = 0.008$). Hispanic women were diagnosed at an older maternal age than Blacks (23.4 vs. 21.6 years; $P = 0.006$). Gravidity was similar between ethnic groups, but Hispanics (1.2) had a higher parity compared to Blacks (0.8, $P = 0.02$) and Whites (0.7, $P = < 0.001$).

Hispanic women were diagnosed with GTD at an earlier gestational age in the latter half of this study (12.3 vs. 16.2 weeks; $P < 0.001$). A similar effect was observed in White (11.1 vs. 13.6 weeks; $P = 0.047$), but not Black patients ($P = 0.53$). The gestational age at diagnosis was lower among White women (12.0 weeks) compared to Blacks (14.0 weeks; $P = 0.04$) over the entire study interval. Whites were diagnosed earlier than Hispanics from 1983 to 1990 (13.6 vs. 16.2 weeks; $P = 0.02$) and earlier than Blacks (11.1 vs. 13.4 weeks; $P = 0.03$) from 1991 to 2003.

Four hundred sixteen (70%) of the 596 GTD patients were Hispanic. These women were more likely to have a partial hydatidiform mole compared to Blacks (29% vs. 13%; $P < 0.001$) and Whites (18%; $P = 0.04$). Choriocarcinomas occurred least commonly in Hispanic patients (1 per 35,000 live births) vs. Whites (1 per 5719 live births; $P < 0.001$), but not appreciably different than Blacks (1 per 24,955 live births). One Hispanic patient had a placental-site trophoblastic tumor. Four Hispanics had at least two histologically confirmed molar pregnancies during the study interval.

Teenage Hispanic women had a higher incidence of GTD than other age groups (odds ratio: 1.6; Table 2). No other ethnic group had a statistically detectable rise within any age category, but the incidence of GTD was most pronounced at the upper and lower extremes of maternal age (Figs. 1–3). GTD incidence was