Journal of Nutrition & Food Sciences
ISSN: 2155-9600

Demmouche et al., J Nutr Food Sci 2014, 4:5
DOI: 10.4172/2155-9600.1000292

Research Article Open Access

Etiology of Preterm Birth in Relizane Region (West of Algeria)

Demmouche A[1]*, Mai AH[1], Kaddouri MS[1], Ghani A[1], Rahmani S[1], Beddek F[2] and Benali Al[1]

[1]*Department of Biology, Faculty of Natural Sciences and life, Djillali University, Sidi Bel Abbes, Liabes, Algeria*
[2]*Central Laboratory of Biology, Hospital Establishment specializing in Obstetrics and Gynaecology, Sidi Bel Abbes, Algeria*

Abstract

Introduction: Preterm deliveries are those that occur at less than 37 weeks gestational age. Preterm birth is a major determinant of neonatal mortality and morbidity and has long-term adverse consequences for health. This study was done to estimate the incidence of preterm labor and to investigate it causes in a university hospital center of Relizane (west ALGERIA).

Methods: A cross sectional study was conducted in rural area Oued rhioue (Relizane, west Algeria) among all patients who delivered during study period. Data was collected by interview technique and analyzed by appropriate statistical methods.

Results: A total of 3000 deliveries occurred during study period from which 278 were premature birth; the incidence of preterm delivery in the study was (9.26%). Considering the total series, the risk of preterm birth was above unity in hypertensive women (33%), (44%) women had preterm premature rupture of the fetal membranes. Parity, gestity and gestational age were associated with preterm delivery. The relationship was statistically significant (*P<0.005*). However maternal age and pregnancy interval were not associated with preterm delivery.

Conclusion: In our study we found that 9.26% of births were preterm. This number is higher compare to developed countries, especially in Algeria; incur the highest burden in terms of absolute numbers. This is why we need a better understanding of the different causes of preterm birth, and better evaluation of it incidence to be able to improve the obstetric and neonatal care and thus reduce the percentage of preterm birth.

Keywords: Incidence of preterm birth; Determinants of preterm birth; West Algeria

Introduction

Preterm birth is childbirth that occurs at less than 37 weeks, or if counted in days, less than 259 gestational days, and preterm birth is one of the causes of neonatal mortality and morbidity, it also has some long-term effect on health [1,2], it is estimated that 28% of neonatal deaths are related to preterm birth [3]. Although most preterm babies survive, they are at increased risk of neurodevelopment impairments and respiratory and gastrointestinal complications [4].

Some of the health problem that preterm babies can suffer from varies from learning disabilities to cerebral palsy or even some respiratory illnesses, and some of the health's problems related to preterm birth go even beyond the period of childhood and affect the person in his adult life [5,6].

The rate of preterm birth is not only rising in developing countries, but also in industrialized countries, and that in spite of the fact that we now have more knowledge about it's the risk factors and some of the different way to reduce it [7]. Some of the factors that we already know are linked to preterm labor are the use of infertility treatments, some environmental exposure, the behavioral choice of mother or her socioeconomic levels [8].

A better understanding of the risk factors associated with preterm deliveries is important for effective prevention. Therefore this study was conducted to estimate the incidence of preterm deliveries and to identify the factors associated with it.

Methods

We did a retrospective study using the archived records of 3000 deliveries that occurred in the maternity of Oued rhioue (Relizane, west Algeria), for a period of 24 months from 1 January 2011 to 31 December 2012.

To perform the study, we used a questionnaire and we collected the following data: The characteristics of mothers: (maternal age, gestational age, Gravidity, parity, birth interval, abortions). The obstetric medical factors: (pathology observed during pregnancy). The characteristics of newborns: (weight, sex, Apgar score, prematurity).

Statistical data analysis was performed using the software (Statview 1997). The value of $p<0.05$ was considered significant. Measuring the association between prematurity and risk factors is performed according to a logistic regression model. The statistical methods used are the ANOVA test, the coefficients of correlation (correlation matrix). Means were compared using Student's t test. The results are given in the form of tables and histograms.

Results

In the study period there were 3000 birth including 278 preterm deliveries representing a prevalence of 9.26% (Figure 1).

Data analysis showed a slight male predominance with 1537 preterm boys (51.19%) versus 1465 preterm girl (48.80%).

***Corresponding author:** Dr Demmouche Abbassia, PhD in Biology at the University Djillali Liabes, Algeria Tel: (213) 7 73 62 06 37; E-mail: demmoucheabbassia@yahoo.fr

Received May 27, 2014; **Accepted** July 22, 2014; **Published** July 24, 2014

Citation: Demmouche A, Mai AH, Kaddouri MS, Ghani A, Rahmani S, et al. (2014) Etiology of Preterm Birth in Relizane Region (West of Algeria). J Nutr Food Sci 4: 292. doi: 10.4172/2155-9600.1000292

Concerning the relationship between prematurity and maternal factors, our study shows that maternal age did not influence preterm deliveries. There were no established statistically significant relationship between the different age groups and prematurity (Table 1).

In our study, Premature rupture of membranes (PROM) affected a large percentage 42.72% in our sample, 33.33% of women had hypertension during pregnancy, while few women had a dystocia 9.39%, 7.51% had anemia and diabetes were found in 7.04% of women (Figure 2).

Our result show that preterm deliveries increases gradually as parity increases. We found that there is a significant difference between the two groups (term and preterm) depending on the parity (P=0.0028) (Table 1).

There was no relationship between preterm deliveries and the interval between births, as well as statistical tests do not show a statistically significant difference, (P=0.0593).

A clear correlation was noted between the weight of the newborn and (parity, gravidity, birth interval), respectively (R=0.201, R=0.292, R=0.191, R=0.135). Also a strong correlation was noted between weight and gestational age (R=0.450), (Figure 3).

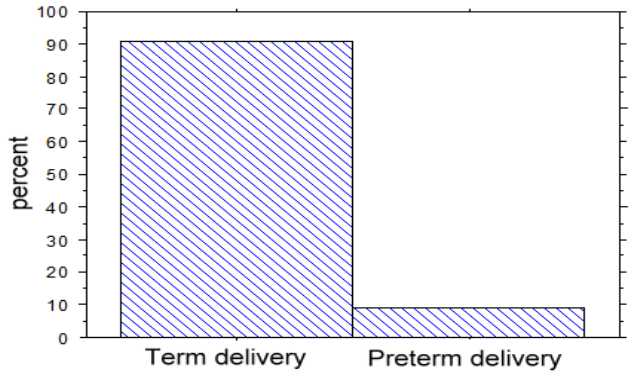

Figure 1: incidence of preterm delivery in the study .

Maternal and birth factors				
	Means	%	P	
Maternal Age (years)	<20 years	37.929 ± 3.092	1,86	0,1503
	20-34 years	38.346 ± 1.931	73,61	0,2633
	≥ 35 years	38.261 ± 2.610	24,51	0,3523
Gestational Age (Week)	Preterm birth	32.615 ± 3.423	9,26	<0.0001
	Term deliveries	38.899 ± 0.459	90,74	
Interpregnancy interval (years)	Preterm birth	1.683 ± 1.854	9,26	0.0593
	Term deliveries	1.898 ± 1.804	90,74	
Gestity	Preterm birth	2.317 ± 1.674	9,26	0,0044
	Term deliveries	2.609 ± 1.627	90,74	
Parity	Preterm birth	1.176 ± 0.90	9,26	0.0028
	Term deliveries	1.459 ± 0.29	90,74	
Etiology of preterm	Anemia	36.750 ± 3.110	41.18	0.3978
	Hypertension	37.986 ± 2.945	29.41	0.3034
	Diabetes	38.400 ± 2.683	27.94	0.6725
	PROM	37.374 ± 2.775	1.47	0.8589

Table 1: Maternal anthropometric and obstetric factors.

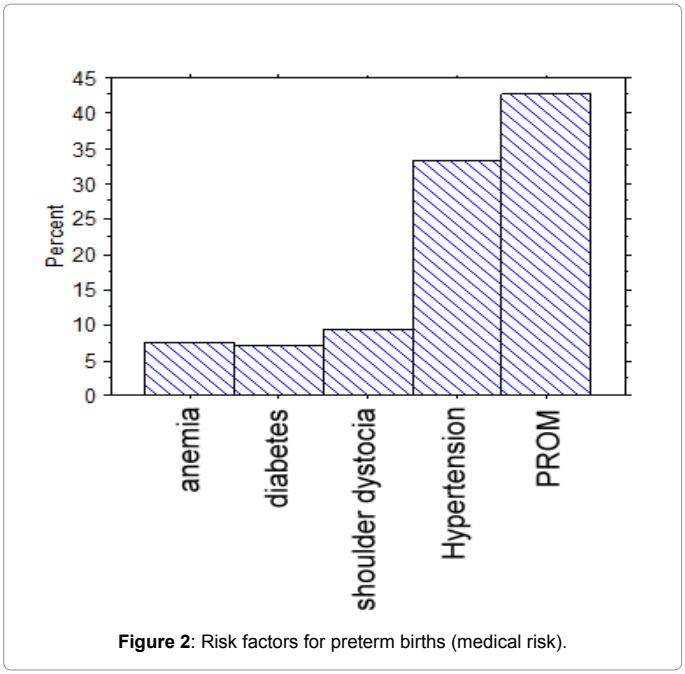

Figure 2: Risk factors for preterm births (medical risk).

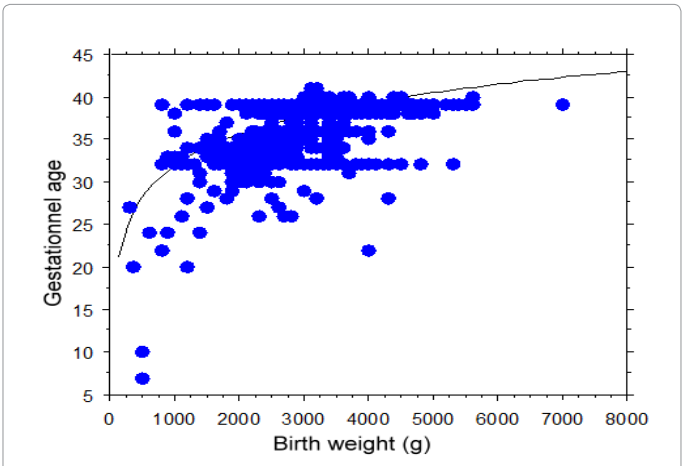

Figure 3: Correlation between gestational age and birth weight.

Discussion

In our study the rate of preterm birth was 9.26%, this number is close to the incidence of preterm labor reported in developing countries 9-16% [9], it is still higher to that found in Europe and other developed countries, where reported rates are generally 5–9% [10,11]. However it's lower to those found in India 15% and Nigeria 12% [12,13].

Our results note that maternal age did not affect prematurity, however some studies have shown an excess risk of preterm birth among older women [14,15]. In historical cohort study were all birth in Quebec and Denmark were analyzed from 1981 to 2008, over the entire study period women aged 40 years or older in both Denmark and Quebec had the highest risk of Preterm deliveries relative to women aged 25 to 29 years [16]. What is consistent across the different studies is that older maternal age is associated with an increased prevalence of preexisting chronic diseases, medical problems during pregnancy, as well as antepartum and labor complications [17].

In our study, we found that there is a relationship between prematurity and parity which is consistent with some studies [18-20] that described an excess risk of preterm birth among primiparous women. In contrast, Astolfi et al found no differential effect of parity on the risk of preterm birth among older mothers in Italy [21].

Regarding the birth interval, the statistical tests show that there is no relationship between prematurity and the Interpregnancy interval, but several studies have shown that women with a very short interval between pregnancies are at increased risk of complications such as preterm birth [22-24].

In our study 42.72% of preterm labor were caused by preterm premature rupture of the membranes (PPROM) this results is consistent to some the general result where About 30–35% of preterm births are indicated, 40–45% follow spontaneous preterm labor, and 25-30% follow PPROM [8,25].

Conclusion

In our study period we recorded 3000 deliveries from which 278 were preterm (9.26%), this number is the average reported in developing countries (9-16%). Preterm birth is an important prenatal health problem across the globe especially in developing countries like Algeria. This is why we need a better understanding of the different causes of preterm birth, and better evaluation of it incidence to be able to improve the obstetric and neonatal care, and thus reduce the percentage of preterm birth.

References

1. International classification of diseases and related health problems (1992) 10th revision. Geneva: World Health Organization.
2. Wang ML, Dorer DJ, Fleming MP, Catlin EA (2004) Clinical outcomes of near-term infants. Pediatrics 114: 372-376.
3. Lawn JE, Wilczynska-Ketende K, Cousens SN (2006) Estimating the causes of 4 million neonatal deaths in the year 2000. Int J Epidemiol 35: 706-718.
4. Saigal S, Doyle LW (2008) An overview of mortality and sequelae of preterm birth from infancy to adulthood. Lancet 371: 261-269.
5. Petrou S (2005) The economic consequences of preterm birth during the first 10 years of life. BJOG 112 Suppl 1: 10-15.
6. Petrou S, Mehta Z, Hockley C, Cook-Mozaffari P, Henderson J, et al. (2003) The impact of preterm birth on hospital inpatient admissions and costs during the first 5 years of life. Pediatrics 112: 1290-1297.
7. Goldenberg RL, Rouse DJ (1998) Prevention of premature birth. N Engl J Med 339: 313-320.
8. Goldenberg RL, Culhane JF, Iams JD, Romero R (2008) Epidemiology and causes of preterm birth. Lancet 371: 75-84.
9. Bang AT, Baitule SB, Reddy HM, Deshmukh MD, Bang RA (2005) Low birth weight and preterm neonates: can they be managed at home by mother and a trained village health worker? J Perinatol 25 Suppl 1: S72-81.
10. Slattery MM, Morrison JJ (2002) Preterm delivery. Lancet 360: 1489-1497.
11. Hamilton BE, Martin JA, Ventura SJ (2006) Births: preliminary data for 2005. Health E-Stats.
12. Shubhada A, Kambale SV, Phalke Bd. (2013) Determinants of Preterm Labour in a Rural Medical College Hospital in Western Maharashtra. Nepal Journal of Obstetrics & Gynaecology 8: 31-33.
13. Mokuolu OA, Suleiman B, Adesiyun O, Adeniyi A (2010) Prevalence and determinants of pre-term deliveries in the University of Ilorin Teaching Hospital, Ilorin, Nigeria. Pediatr Rep 2: e3.
14. Beta J, Akolekar R, Ventura W, Syngelaki A, Nicolaides KH (2011) Prediction of spontaneous preterm delivery from maternal factors, obstetric history and placental perfusion and function at 11–13 weeks. Prenat Diagn. 31: 75–83.
15. Cnattingius S, Forman MR, Berendes HW, Isotalo L (1992) Delayed childbearing and risk of adverse perinatal outcome. A population-based study. JAMA 268: 886-890.
16. Auger N, Hansen AV, Mortensen L (2013) Contribution of maternal age to preterm birth rates in Denmark and Quebec, 1981-2008. Am J Public Health 103: e33-38.
17. Chan BC, Lao TT (1999) Influence of parity on the obstetric performance of mothers aged 40 years and above. Hum Reprod 14: 833-837.
18. Schempf AH, Branum AM, Lukacs SL, Schoendorf KC (2007) Maternal age and parity-associated risks of preterm birth: differences by race/ethnicity. Paediatr Perinat Epidemiol 21: 34-43.
19. Lisonkova S, Janssen PA, Sheps SB, Lee SK, Dahlgren L (2010) The effect of maternal age on adverse birth outcomes: does parity matter? J Obstet Gynaecol Can 32: 541-548.
20. Naoko K, Anne C, Mariangela F , Ayesha S, Joshua P, et al. (2013) The associations of parity and maternal age with small-for-gestational-age, preterm, and neonatal and infant mortality: a meta-analysis. Biomedcentral Public Health 13 (Suppl 3): S2.
21. Astolfi P, Zonta LA (1999) Risks of preterm delivery and association with maternal age, birth order, and fetal gender. Hum Reprod 14: 2891-2894.
22. Zhu BP, Haines KM, Le T, McGrath-Miller K, Boulton ML (2001) Effect of the interval between pregnancies on perinatal outcomes among white and black women. Am J Obstet Gynecol 185: 1403-1410.
23. Smith GC, Pell JP, Dobbie R (2003) Interpregnancy interval and risk of preterm birth and neonatal death: retrospective cohort study. BMJ 327: 313.
24. DeFranco EA, Stamilio DM, Boslaugh SE, Gross GA, Muglia LJ (2007) A short interpregnancy interval is a risk factor for preterm birth and its recurrence. Am J Obstet Gynecol 197: 264e1-264.e6.
25. Tucker JM, Goldenberg RL, Davis RO, Copper RL, Winkler CL, et al. (1991) Etiologies of preterm birth in an indigent population: is prevention a logical expectation? Obstet Gynecol 77: 343-347.