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A Ten Year Review of the Monthly and Annual Incidence of Twin Births in Calabar and Ogoja Towns, Cross River State, Nigeria

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Abstract | **Original Research Article**

The Yorubas of Western Nigeria have been reputed to have one of the highest rates of multiple births of 68.1 twins per 1000 live births. In Calabar, the rate of multiple births was 26.5 per 1000 live and there is no published report of twin births in Northern Cross River. Data on human multiple birth were collected from hospitals records (2000-2010) in the University of Calabar Teaching Hospital, Calabar and the Roman Catholic Mission Hospital Moniaya, Ogoja. Analysis of data collected showed that Calabar and Ogoja had a mean annual incidence of 24.6 and 35.2 twin births per 1000 live births, corresponding to a ratio of 39.9 and 27.4 single births per twin delivery respectively. Multiple birth incidences were found to be higher in October and January for Ogoja and Calabar (46.6 and 36.5 twin births per 1000 respectively). While the least incidence was found in September (20.6 and 15.1 twin births per 1000 respectively). Generally, it was evident that Ogoja had a higher incidence of human twin births than Calabar. This information adds to existing information on twin births.

Keywords: Incidence, multiple births, Calabar, Ogoja.

INTRODUCTION

The occurrence and frequency of twin births, however varies across human populations. The maternal age, socio environmental factors, increase in the use of contraceptives, the race of human population, increase in the spontaneous abortion rate and seasonal variations are among the factors that could influence twin birth rate., there have been an increase in number of pregnancies later in life, and increase of Assisted Reproduction Technology (ART) such as induction of ovulation and invitro fertilization [2]. According to [3] the increased use of fertility treatments such as invitro fertilization (IVF) increases the chance of multiple births. Seasonal variations have been reported to influence twinning. Higher rates of dizygotic twins are reported for conceptions during summer and autumn in several countries [14]. Eriksson and Fellman, 2000 also reported seasonal variations in day length may influence fertility and multiple ovulations. Even seasonal changes in food supply may also have contributed to strong effects in the past. Twins separated at birth and twins raised together are studied in order to distinguish between genetically inherited behaviors' and behaviors that result from environmental factors.

Twins birth studies are used in molecular-genetic studies by giving important information about disease penetrance, for example if monozygotic twins are genotyped at candidate loci; they provide information about locus specific penetrances [14].

Nigeria has been reported to have the highest number of multiple births in the world precisely among the people of Yoruba tribe [11], this is attributed to the high consumption of yam called "Agida" (yam tuber) containing a natural hormone. Phytoestrogen which may stimulate the ovaries to release an egg from each side [1]. In Akwa Ibom State, Nigeria, Aniekan *et al.* [1] reported the incidence of twining as 2.6 per thousand delivery. In Calabar, Bassey *et al.*, 2004[2] reported the incidence of twinning as 26.5 per thousand live births. Globally, the incidence of multiple births is increasing, since the early 1990s. The study on twin births continues to be a fascinating and invaluable realm of biological and genetic research.

Justification

Research into the ethnic variations in human twinning has reported different rates. The ethnic patterns of twinning vary in different populations depending on the statistical method. Nigeria has been noted as one of the countries with a high rate of

multiple births – twins in the world [11]. Following the hypothesis, this study seeks to bring to knowledge the incidence of twin births in two major Hospitals in the Northern and southern parts of Cross River State, Nigeria to add to already existing data on twinning.

Aim and objectives

To assess the rate of human twin birth in Ogoja, Northern part of Cross River State and Calabar, Southern part of Cross River State and to document a ten year review of twining in 2 major hospitals in Cross River State.

MATERIALS AND METHODS

The data on the rate of multiple births for this study were obtained from the Roman Catholic Mission Hospital, Moniaya in Ogoja and University of Calabar teaching Hospital Maternity Annex, in Calabar all in Cross River State. Permission was granted by the authorities of the health Institutions concerned. The data collected from these hospitals consist of single births and twin births recorded over a ten year period in Ogoja (2000-2010) and also a ten year period in Calabar (2000 – 2010). All sets of data were analyzed by month and year but were not analyzed for type of multiple births delivered, that is, whether monozygotic (identical) or dizygotic (fraternal) because of inadequate data recording.

The collected data were analyzed to determine the number of single births (x) the number of twin births (y) and the number of single births for every twin delivery $\frac{x}{y}$. The number of twin births in every one thousand deliveries was computed as:

Incidence of twinning=

$$=\frac{twin\ materniteis\ (y)}{total\ number\ of\ maternities\ (z)} X \quad \frac{1000}{1}$$

RESULTS

The monthly incidence of twin births recorded in Roman Catholic Mission Hospital Moniaya Ogoja from 2000 to 2010 is shown in table 1.The highest twin births per thousand deliveries recorded was 46.6 births in October and the lowest twin births was 20.6 births in September the total average number of twin births in every thousand deliveries for the period of ten years was 35.4, indicating that for every 27.3 single births; there was a twin delivery. The highest twin births per thousand deliveries recorded was 46.6 births in October and the lowest twin births was 20.6 per thousand births in September, the total average number of twin births in every thousand deliveries for the period of ten years was 35.4, indicating that for every 27.3 single births; there was a twin delivery. The monthly incidence of twin births recorded in University of Calabar Teaching Hospital, Calabar from 2000 to 2010 indicated that the highest twin births per thousand deliveries recorded was 36.5 births in January and the lowest twin births was 15.1 in September. The total average number of twin births in every thousand deliveries for the period of ten years was 24.4, indicating that for every 39.9 single births, there was a twin delivery. The annual incidence of twin births recorded in Roman Catholic Mission Hospital Moniaya (RCM) Ogoja from 2000 to 2010 indicated that the highest twin births per thousand deliveries recorded was 49.9 in 2007 and the lowest twin births was 12.0 in 2001. The total average number of twin births in every thousand deliveries for the period of ten year was 35.2, indicating that for every 27.4 single births; there was a twin delivery. The annual incidence of twin births recorded in University of Calabar Teaching Hospital (Maternity) Calabar between 2000 and 2010 indicated that the highest rate of twin births per thousand deliveries recorded was 50.1 in 2001 and the lowest twin births was 16.8 in 2007. The total average number of twin births in every thousand deliveries for the period of ten years was 24.6, indicating that for every 39.7 single births; that was a twin delivery.

Table-1: Summary of monthly incidence of twin births recorded in ten (10) years in Roman Catholic Mission Hospital Moniaya Ogoja. (2000-2010)

Months	Single (x) deliveries	Twin (y) deliveries	T0tal (z) deliveries	Singles births for each twin delivery x/y	Twin births per 1000 deliveries (incidence of twin birth)
January	284	9	293	31.6	30.7
February	274	11	285	24.9	38.6
March	277	11	288	25.2	38.2
April	320	8	328	40.0	24.4
May	365	15	380	24.3	39.5
June	335	13	348	25.8	37.4
July	380	16	396	23.8	40.4
August	328	16	344	20.5	46.5
September	332	7	339	47.4	20.6
October	348	17	365	20.5	46.6
November	388	9	397	43.1	22.7
December	293	12	305	24.4	39.3
Total	3924	144	4068	27.3	35.4

Table-2: Summary of monthly incidence of twin births recorded in ten (10) years in University of Calabar Teaching Hospital, Maternity Annex (2000-2010).

Months	Single (x) deliveries	Twin (y) deliveries	T0tal (z) deliveries	Singles births for each twin delivery x/y	Twin births per 1000 deliveries (incidence of twin birth)
January	1057	40	1097	26.4	36.5
February	1041	28	1069	37.2	26.2
March	1324	33	1357	40.1	24.3
April	1482	35	1517	42.3	23.1
May	1601	39	1640	41.1	23.8
June	1347	33	1380	40.8	23.9
July	1228	34	1262	136.1	26.9
August	1238	38	1276	32.6	29.8
September	1366	21	1387	65.0	15.1
October	1373	26	1399	52.8	18.6
November	1040	26	1066	40.0	24.4
December	768	19	787	40.4	24.1
Total	14865	372	15237	39.9	24.4

Table-3: Summary of annual incidence of twin births recorded in Roman Catholic Mission Hospital Moniaya, Ogoja over a period of Ten (10) years (2000-2010)

Year	Single (x) deliveries	Twin (y) deliveries	T0tal (z) deliveries	Singles births for each twin delivery x/y	Twin births per 1000 deliveries (incidence of twin birth)
2000	281	8	289	35.1	27.7
2001	247	3	250	82.3	12.0
2002	168	7	175	24.0	40.0
2003	241	10	251	24.1	39.8
2004	341	10	351	34.1	28.5
2005	318	12	330	26.5	36.4
2006	309	13	322	23.8	40.4
2007	362	19	381	19.1	49.9
2008	503	18	521	27.9	34.5
2009	605	30	635	20.2	47.2
2010	567	14	581	40.5	24.1
Total	3942	144	4086	27.4	35.2

Table-4: Summary of annual incidence of twin births recorded in University of Calabar Teaching Hospital (maternity ward) over a period of Ten (10) years (2000-2010)

Year	Single (x) deliveries	Twin (y) deliveries	Total (z) deliveries	Singles births for each twin delivery x/y	Twin births per 1000 deliveries (incidence of twin birth)
2000	764	40	804	19.1	49.8
2001	796	42	838	18.9	50.1
2002	805	20	825	40.3	24.2
2003	797	34	831	23.4	40.9
2004	1043	19	1062	54.9	17.9
2005	1073	21	1094	51.1	19.2
2006	1563	28	1591	55.8	17.6
2007	1696	29	1725	58.5	16.8
2008	1908	37	1945	51.6	19.0
2009	2153	51	2204	42.4	23.1
2010	2167	51	2218	42.5	22.9
Total	14765	372	15,137	39.7	24.6

DISCUSSION

The rate of multiple births precisely twin births in Roman Catholic Mission (RCM), Hospital Moniaya Ogoja and University of Calabar Teaching maternity Hospital Calabar all in Cross River State, Nigeria, were evaluated. In Nigeria, not all records of births are available in hospitals or birth registries as births occurring at home and births of unwanted or abandoned infants go unrecorded, only 37.3% of births in Nigeria occur in the Hospital [12]. Data collected for this study are assumed to be the rate at which twin births occurred in the places where the hospitals are located. The incidence has been reported to be highest among the Yoruba tribe. Mosuro [12] reported an incidence of 68.1 twin births per thousand deliveries for Igbo-ora, 37.2 per thousand for Ibadan and 26.9 per thousand for Lagos.

From the total annual results, RCM Ogoja recorded 35.2 in every thousand deliveries while the University of Calabar Teaching Hospital recorded 24.6 in every thousand deliveries therefore, indicating a higher rate of twin births in Roman Catholic Mission Hospital, Moniaya Ogoja in Northern part of Cross River State. The incidence of twin births in Ogoja is higher than 26.9 per 1000 births reported in Lagos; [8] 28 per 1000 births in Jos. Also higher than 20 per thousand twin births observed in sub-Saharan Africa[10] 16.1 per thousand twin births rate recorded in Nepal [6] and 33.4 per 1000 births and 26.6 per 1000 births recorded for Accra and Kumasi in Ghana respectively [9]. The value 35.2 per thousand recorded in Ogoja is higher than the Africa rate of 20 per thousand twin births and rank among the highest twin rates in the world

Apart from genetic predisposition, another factor has been observed to influence high twin rate in South West Nigeria is diet [11]. Reported that there is a general belief that the Yoruba's predisposition to high multiple births rate is due to consumption of yam (Discorea sp), which is believed to contain a natural hormone phytoestrogen which may stimulate multiple ovulation. Indigenes of the Ogoja area are known to be one of the major yam producers in Cross River State, Nigeria. Yam is also their major staple food. No reports so far if the yams in this area are rich in phytoestrogens. Hormonal stimulation using fertility drugs and the various techniques utilized in assisted reproductive technology have been reported to be indicative of high multiple birth rates [7]. No evidence exists as to what proportion of twin births in this study were due to fertility drugs. Assisted reproductive technology, particularly invitro fertilization, though desirable, is offered at a prohibitive cost and only very few women in the higher socio-economic stratum can afford it.

CONCLUSION

A ten year review of multiple births in the Roman Catholic Mission Hospital, Moniaya and the University of Calabar Teacging Hospital, Calabr revealed a high incidence of twin birth in Ogoja as 35.2 and 24.6 in Calabar per 1000 live birth.

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