Original Research Article

Panorama of fetal malformations at the maternity of Treichville teaching hospital (Abidjan - Côte d'Ivoire)

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ABSTRACT

Background: Congenital malformation is responsible for spontaneous abortion, the birth of a child born dead or a child with disabilities that can lead to long-term disability and have a detrimental impact on the individual, his family and society. The etiologies are diverse. The discovery in our maternity is not rare. The absence and high cost of these prenatal diagnostic are a brake on the detection of congenital malformations. It is these various malformations diagnosed in the ante natal and at birth in our service that we describe in this work which aims to make their panorama.

Methods: The purpose of this cross-sectional and descriptive study curried out between 1 January 2003 and 31 December 2013 (10 years) was to describe the various congenital malformations observed at the maternity of the Gynecology and Obstetrics ward of the Treichville University Hospital Center and to identify the socio-demographic characteristics of mothers. This study concerned all women who had given birth at the Treichville University Hospital Center and whose child had a malformation.

Results: During the period, 151 parturients gave birth to at least one child with a congenital malformation and among 30,698 newborns, 161 newborns (0.52%) had a malformation. Pregnant women were between 20 and 30 years old (66%), were primiparous in 46.4% of the cases, and 41.7% were housewives. The malformations were isolated in 101 newborns (62.4%), multiple in 60 newborns (37.6%), and dominated by those of the osteoarticular system and the nervous system. Fetal malformations had a poor prognosis in 77 cases (48%) and the fetus was stillborn in 44 cases (27%).

Conclusions: Congenital malformations are a reality at the maternity clinic at Treichville. In our countries, the ultrasound stays a fundamental element for the congenital diagnosis of the malformations. A good training of the doctors in prenatal diagnosis is also necessary to make of good diagnoses who will allow a better care of new-born.

Keywords: Congenital malformation, Prenatal diagnosis, Treichville university hospital center

INTRODUCTION

Congenital malformation is defined by the WHO as any organic abnormality present at birth even if it is not apparent or immediately detectable.[1] It is responsible for spontaneous abortion, the birth of a child born dead or a child with disabilities that can lead to long-term disability and have a detrimental impact on the individual, his family and society.[1] The etiologies are diverse, grouped into four main groups: Genetics, Environmental, Multifactorial and Idiopathic. The discovery in the maternity of a malformed child has become rare in the

developed countries because of the antenatal diagnosis which allows the detection of the majority of malformations before the birth.[2] Unfortunately, this is not the case in our developing countries or the failure to monitor pregnancies. The absence and high cost of these prenatal diagnostic are a brake on the detection of congenital malformations. Most of the congenital malformations in our context are discovered in the maternity and are very varied with several types of malformations sometimes in the same newborn. It is these various malformations diagnosed in the ante natal and at birth in our service that we describe in this work which aims to make their panorama.

METHODS

This is a transversal and descriptive study was conducted over a period of ten (10) years from January 1st 2003 to December 31st 2013 at the maternity service Gynecology and Obstetrics of the University Hospital of Treichville. We included in our study all patients who gave birth in our department of a child with a malformation revealed on ultrasound and / or discovered in the delivery room after birth. Thus, out of 228 cases we recorded, only 151 cases were recorded, the files of the patients having given birth in another maternity and then evacuated in our department, and the incomplete files were not retained. The various parameters studied were the socio-epidemiological characteristics, The gynecological and obstetric history of the pregnant, the characteristics of the newborns and the characteristics of the malformations. Data were collected from patient records and birth records. The processing and analysis of the data was carried out with the Windows Excel and EPI INFO software version 7.1.3.10.

RESULTS

Table 1: Demographics of patients.

	Number of employees	%
Age		
≤19 years	5	3.3
20-30 years	100	66
> 30 years	46	30.7
Delivery		
1	38	25
2-3	92	60
≥4	21	14
Parity		
1	70	46.4
2 to 3	41	27.1
4 and more	40	26.5
Profession		
Frame	10	6.7
Trader	38	25
Student	24	16
Housewife	63	41.7
Informal sector	16	10.6

Frequency

We have identified the period from January 1st 2003 to December 31st 2013, 151 women in childbirth of at-least one child with congenital malformation. Of 30, 698 babies born during these 10 years, 161 babies (0.52%) had a malformation.

Characteristics of patients

The characteristics of the patients are summarized in Table 1.

Fetal malformations

The malformations were isolated in 101 newborns (62.4%), and multiple in 60 newborns (37.6%). These various malformations are shown in Figure 1.
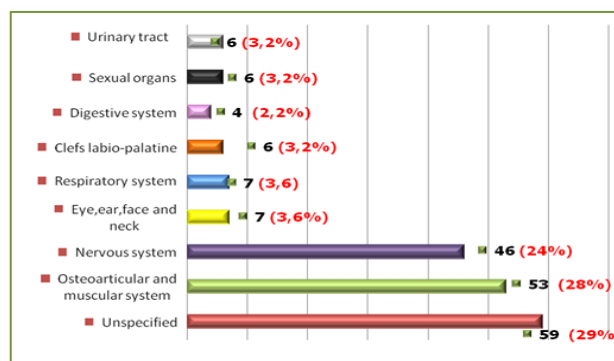

Figure 1: Classification of malformations by organ.

The malformations are predominated by those of the osteoarticular system and the nervous system. The malformations of the nervous system and of the osteoarticular system and of the muscles are summarized in Table 2 and Table 3. Malformations of the nervous system were dominated by macrocephaly. The clubfoot was the predominant malformation.

Table 2: Classification of malformations of the nervous system.

Congenital malformations of the nervous system	Effective	%
Animals	04	09.3
Spina bifida	06	14.0
Macrocephalia	21	48.7
Hydrocephalus	06	14.0
Myelomeningocele	03	07.0
Microcephalia	03	07.0
Total	43	100

Characteristics of pregnancy, childbirth and condition of newborn

The newborns were ultimately in 75% of cases, and prematurely in 25% of cases. Fetal malformations had an echographic diagnosis in 26%, and were found in the

delivery room in 74%. Ultrasound features are summarized in Table 4.

Table 3: Classification of malformations of musculoskeletal system and muscles.

Malformations of musculoskeletal system and muscles	Effective	%
Agenesis members and adactily	05	09.4
Shortening a member	04	07.5
Polydactylia	03	05.6
Palm finger	01	02.0
Clubfoot	19	35.9
Laparoschisis	03	05.6
Kneep deformation	05	09.4
Hand deformation	02	03.8
Omphalocele	06	11.3
Deformation of crane and face	04	07.5
Other toe deformations	01	02.0
Total	53	100

Infant delivery was by birth for 80 newborns (53%), caesarean section for 71 (47%). These abnormalities had a poor prognosis in 77 cases (48%) and needed management in 84 cases (52%). Fetuses were stillborn in 44 cases (27%).

Table 4: The sonographic features.

	No. of employees	%
Echographic diagnosis of age		
1st Trimester	01	2.5
2nd Trimester	09	22.5
3rd Trimestre	30	75
Total	40	100
Diagnostic error		
Defects not detected and recovered at birth	13	86.7
Abnormalities detected and not found at birth	02	13.3
Total	15	100

DISCUSSION

Frequency

The maternity of the CHU of Treichville is very frequented by the pregnant women; In fact, over the period of ten years that is spread out our study, we have recorded 30,698 births, with extremes of 180 to 3760 newborns per year. Congenital malformations were found in 161 babies, or 0.52% of births. This rate is similar to those of Coulibaly-Zerbo F and of LONGOMBE N.[3,4] Who reported 0.41% at Cocody University Hospital (RCI) and 0.67% in Lubumbashi General Hospital (DRC), respectively. On the other hand, it is lower than those found by Goulet in Guadeloupe: 1.71% and De Vigan C.[5,6] In Paris (France) with 3.2%. We believe that this prevalence could be revised upwards if many files were not incomplete and autopsies were performed on newborn babies.

Characteristics of patients

The majority of our study participants were between 20 and 30 years old (66%), were primiparous in 46.4% of the cases and 41.7% were homemakers. Regarding the age of the pregnant, our results agree with those of Amon-Tanoh-Dick F.[7] At the CHU of Yopougon (RCI) and Coulibaly-Zerbo F but are different from those of Mayanda H in Congo Brazzaville where the pregnant women are more than 35 years old.[7,8] Thus, although the risk of congenital malformations increases with maternal age, this fact was not observed during our study. Remember that high maternal age affects only the occurrence of chromosomal congenital malformations. Primitism predominated in our study as in Camara M at Yopougon University Hospital (37.7%), contrary to the work of Amon-Tanoh-Dick F, Coulibaly-Zerbo F and Mayanda H.[9,7,3,8] Where the pregnant were pauciparous or multiparous in the direction of the literature that incriminates parity in the occurrence of malformations. The mothers of children with malformations were mainly housewives as in Coulibaly-Zerbo F.[3] This epidemiological characteristic not studied in the other works does not allow us not to incriminate the profession as a factor in the occurrence of malformations.

Abnormalities observed during the study

In our study, there were more isolated malformations (62.4%) than polymalformative syndromes. This is the same as Amon-Tanoh-Dick F, Mayanda H and Goulet with 66.29%, 76.9% and 75% of isolated malformations, respectively.[7,8,5] The malformations observed during our study were dominated by those of the osteoarticular apparatus, followed by those of the central nervous system. These two groups of malformations have also been found in other research work. Thus Boussofara R.[10] In Tunisia, the majority of the CNS malformations with 6.75% followed by those of the osteoarticular apparatus (4.23%). Longombe N[4] notes an increase in CNS malformations (51.1%) and then osteoarticular apparatus with 13.1%. Our results differ from those of Amon-Tanoh-Dick F, in whom digestive malformations predominate with 21.6%, followed by those in the CNS (21.5%).[7] Similarly, in Mayanda H, the majority of gastrointestinal malformations (24.3%) are followed by those of the CNS with 21.5%.[8] Finally, Goulet in Guadeloupe has a predominance of CNS malformations (3.8%) followed by those of the digestive tract (2.45%).[5] These results are totally the opposite of those of De Vigan C in Paris which found mainly cardiac and chromosomal malformations, in neonates of mothers presenting factors of malformations (high maternal age and history of cardiac pathologies).[6] The malformations of the osteoarticular and muscular system were dominated By club feet and omphalocele; As for those of

the CNS, they were led by macrocephaly. Our results are consistent with those of Mayanda H, concerning malformations of the osteoarticular system, but differ from those of the CNS, predominant by myelomeningoceles.[8] Coulibaly-Zerbo F had a higher rate of polydactyly and microcephaly; While Chaaboun H in Tunisia found a majority of anencephaly.[3,11] It finally emerges that fetal malformations differ according to the studies and the places but also of the technical platform for the antenal diagnosis.

Characteristics of pregnancy, childbirth and condition of newborn antenatal diagnosis and mode of delivery

55 out of 151 patients had an ultrasound before delivery. 40 of them had their diagnosis correctly laid, while the other 15 had a false diagnosis. However, this rate of 36.41% (55) of ultrasound performed during pregnancy is low and goes in the same direction as the study of Longombe N in Lubumbashi with 36% antenatal ultrasound compared with 84.9% in 2000, antenatal ultrasound diagnosis in France according to the registers of INVS (National Institute of Health Watch).[4,12] These figures show the effort to raise awareness of How with pregnant women in our developing countries for the proper follow-up of pregnancies. Similarly, 27.3% of false diagnosis indicate the need for better training in prenatal diagnosis of imaging doctors.

Childbirth delivered a slight increase in childbirth with 53%; This rate is superimposable to that of Camara M at the CHU de Yopougon, which counted 47.5% of cases.[9] It is however below that of Mayanda H with 100% low-birth delivery.[8] This mode of delivery in our series can be explained by the discovery in the room of several malformations undiagnosed in antenatal (74%), as well as the decision to privilege the low route in case of non-viability of the malformation detected in antenatal.

State at birth

The malformed newborns in our study were 75% eventually; There was a low male predominance (55%) and the death rate was 27%. In terms of gestational age, our results are in line with those of Amon-Tanoh-Dick F. (60%), Coulibaly-Zerbo F (78%) and Longombe N (64.9%).[3,4,7] This high rate of newborn babies is linked to late ultrasound (75% in the third trimester) and sometimes to parents' refusal to practice a GTI (religious reason or disbelief), preferring to arrive at the end of pregnancy. Male dominance is also found in almost all research.[3,4,7]

The rate of death on the other hand varies with an upward trend in our data; Amon-Tanoh-Dick F. has 48% of deaths, Boussofara R. 43% and Mandanda H. 76.6% of deaths.[7,10,8] Only Goulet in Guadeloupe has a lower rate with 17%.[5] This low death rate could be explained by the high technical plateau.

Prognosis of malformations

Of the malformations reported, 19% were poor prognosis (incompatible with life); This may explain the moderate death rate (27%) found in the newborns of our study. However, some of the other malformations require care in the short or medium term so as not to increase the mortality rate in these children with malformations.

CONCLUSION

Congenital malformations are a reality at the maternity clinic at Treichville. Despite a prevalence of 0.59% of births, they should not be overlooked in the face of psychological trauma and prejudice. If antenatal diagnosis is virtually systematic in other areas, there is still a long way to go in developing countries to make the most effective antenatal diagnostic methods available to the population. While waiting for the ultrasound stays afundamental element for the congenital diagnosis of the moalformations, easily accessible to our regions. A good training of the doctors in prenatal diagnosis is also necessary to make of good diagnoses who will allow a better care of new-born.

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