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Evaluation of vaccination coverage for children aged 12-23 months admitted in N'Djamena Mother and Child University hospital (Chad)

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Abstract

Vaccination is the administration of a vaccine to help the immune system develop protection from disease. It is the most effective method of preventing infectious diseases. The objective of the study was to assess vaccination coverage and show the habit and reluctance of the population on vaccination. This was a prospective and descriptive study from May 18th 2017 to November 30th 2017 about evaluation of vaccination coverage for children aged 12-23 months admitted in N'Djamena Mother and Child University hospital. Patients were recruited after checking the vaccination card and getting the consent by parent. Three hundred forty five children aged 12-23 months and their parents were recruited. There were 201 boys (58.25%) for 144 girls (41.75%) giving a sex ratio of 1.4. The mothers with secondary level schooling were more represented with 34.78%. Children that had received oral polio vaccine 1 and the pentavalent1 were more represented. Long distance was the first reason of no vaccination (18.68%). The majority of mothers (53.04%) had known the five vaccination meeting and recognized by the national program of vaccination. One hundred forty six mothers (45, 21%) thought that it must happens a week after the birth. Measles was known by 34.90% of mothers. Fever was the most reported vaccine's side effects in 87.50%. Vaccination coverage in N'Djamena Mother and Child University hospital is similar to those of Africans authors.

Keywords: Vaccination; Children 12-23 months; N'Djamena Mother and Child University Hospital

1. Introduction

Vaccination is the administration of a vaccine to help the immune system develop protection from disease. It is the most effective method of preventing infectious diseases [1, 2, 3].

The world health organisation (WHO) estimate that vaccination averts 2-3 million deaths per year (in all age group), and up to 1,5 million children die each year due to diseases that could have been prevented by vaccination [4]. In Chad recent report on vaccination shown a national coverage of 25% for children aged 12-23 month are completely vaccinated with a high rate in urban areas (30%) [5]. Despite this low rate, one can note a disparity for the coverage of different vaccines used. Faced with the resurgence of disease like measles, it seem essential to assess vaccination coverage and show the habit and reluctance of the population on vaccination

2. Patients and methods

This was a prospective and descriptive study of six month period from May 18th 2017 to November 30th 2017 about evaluation of vaccination coverage for children aged 12-23 months admitted in N'Djamena Mother and Child University hospital. Patients were recruited in the pediatrics emergency room or in the medical pediatrics hospitalization service. Children were referred or not, accompanied by parents.

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Data were registered during an individual interview.

A child is recognized totally vaccinated when he had received vaccine as show below

- BCG and oral polio vaccine at the birth
- Pentavalent (diphtheria vaccine+ pertussis vaccine + tetanus vaccine +Hib vaccine+ hepatitis vaccine) and oral polio vaccine 3 times at the 6th, the 10th and the 14th week after birth. Injectable polio vaccine was also given at the 14thweek
- Measles vaccine, yellow fever vaccine, Men A conjugate at the 9th month.

Patients were recruited after checking the vaccination card and getting the consent by parents. Patients without vaccination card were not recruited.

Studied variables were: epidemiologic, reason of vaccination refusal, and the parent's knowledge on the vaccination. Data's were analyzed using SPSS 17.0

3. Results

Three hundred forty five children aged 12-23 months and their parents were recruited

3.1. Socio demographic characteristics

There were 201 boys (58.25%) for 144 girls (41.75%) giving a sex ratio of 1.4.

3.2. Socio-cultural characteristic of mothers

Table 1 Educational level

Education level	number	%
Unschoolled	45	13.04
Primary	105	30.43
Secondary	120	34.78
University	75	21.75
Total		

The mothers with secondary level schooling were more represented with 34.78%.Two hundred sixty six children were coming from low financial resource, and the majority of mothers (51.32%) aged 25-35 years.

3.3. Immunization status

Table 2 Vaccination coverage

Vaccine	n	%
BCG	318	92.17
VPO	318	92.17
Penta 1	315	97.22
VPO 1	315	97.22
Penta 2	279	95.87
VPO 2	270	92.78
Penta 3	189	75.90
VPO 3	318	77.10
Measles vaccine	147	81.66
yellow fever vaccine	147	81.66

Children that had received oral polio vaccine 1 and the pentavalent1 were more represented.

3.4. Reason of non-vaccination

Table 3 Reason of non-vaccination

Reason of non-vaccination	n	%
Long distance	144	18.68
Long wait	111	14.39
Vaccine made child sterile	3	0.39
Lack of information	51	6.61
Unavailability of vaccine	39	5.05
Vaccine made child ill	87	11.28
Unavailability of vaccinator	18	2.33
Child 'mother busy	81	10.50
No confidence on the vaccine	126	16.38
Fear of vaccine side effects	111	14.39

Long distance was the first reason of no vaccination (18.68%)

3.5. Knowledge on vaccination and diseases targeted by the national program of vaccination

The majority of mothers (53.04%) had known the five vaccination meeting and recognized by the national program of vaccination.

One hundred and eleven (32.17%) mother thought that the first dose of vaccine must be given at the birth. One hundred forty six mothers (45, 21%) thought that it must happens a week after the birth.

Table4 Knowledge on vaccination and Targeted diseases by the national program of vaccination

Targeted disease	n	%
Tuberculosis	24	7.54
Diphtheria	0	0
Tetanus	48	15.10
Pertussis	6	1.88
Poliomyelitis	84	26.41
measles	111	34.90
Hepatitis B	27	8.6
Yelowfever	18	5.66
Haemophilus Influenza	0	0

Measles was known by 34.90% of mothers.

Table 5 Vaccine's side effects reported by mothers

side effects	n	(%)
Fever	273	87.50
Diarrhea	1	0.29
Paralysis	5	1.45
No idea	30	9.61

Fever was the most reported vaccine's side effects with 87.50%

4. Discussion

Like some African authors (6, 7) we noted a high proportion of boy than girl. There is no evidence explaining this difference. Factors like demographic can be incriminated.

According to Chad national report about vaccine, the proportions of mothers attending with their child to vaccination meeting are important for those for the primary and secondary level respectively 33% and 46%. This study confirms these findings with respectively 30.43% and 34.78% mothers with primary and secondary levels.

Unschooling mothers had represented 13.04%. This result is similar to those of Rahajasoamamonjy M. [8] and Berete B (9) which reported respectively 11.9% and 42.9% of unschooled mothers. Some authors like Veronique's (10) in Benin had not recorded unschooled mothers. Cultural factors can explain this result (11, 12). Then schooling seems to be an element that allowing mother to accept attending to vaccination meeting.

vaccine coverage was : 92.17 % for BCG, 92,17% for OPV, 97,22 % for Penta1 and OPV1 ; 95.87% for Penta2 ; 92.78% for OPV 2 , 75.90 % for Penta3, 77.10% for OPV 3 and 81,66 % form measles vaccine and yellow fever vaccine. Ours result are similar to those of Doumbia (6) which reported respectively 92.2 % for BCG and OPV, 96.2 % for Penta1, Penta2, OPV1, OPV2, 94.8 % for Penta3 and OPV3, 80.8 % for measles vaccine and yellow fever vaccine. Therefore, Sacko R (13) noted a low proportion than ours respectively 82.4% and 39% for BCG and measles vaccine. According to Chad's national vaccination report, the vaccination coverage is linked with different strategy of vaccination. National campaigns of vaccination are recognized as possibility to reach children that can't attend vaccination meeting on hospital. In Chad, routine vaccination in the most used manner to vaccinate children. In the same way, Chippaux et al (14) in Senegal in 2006 said that organization of health service is factor increasing the vaccination coverage.

The main reasons of non-vaccination reported in this study were: long distance (18.68%), no confidence on the vaccine (16.38%). For Rahajasoamamonjy M. [8] and Doumbia P (6) the main reasons were unavailability of vaccine, delivery occurring at home and lack of information respectively 57% and 90%.

The majority of mothers (53.04%) had known the five vaccination meeting and the targeted diseases by the national program of vaccination. This result is better than those of Sory O (7) and Gervais L (15) that noted respectively 6.8% and 26.2% of mothers knowing the number and the period of vaccination meeting.

The majority of mother in this study (53.04%) had known the targeted diseases by the national program of vaccination. This findings high than the 8.8% reported by Sory (7). Those authors like Gervais L (15) and Doumbia P (6) noted a better proportion than our respectively 93.3% and 99.5% for knowledge on the targeted diseases by the national program of vaccination

Mothers' knowledge on targeted diseases by the national program of vaccination was: measles (34.90%), poliomyelitis (26.41%) tetanus (15.10%). These results reinforce those of Sissoko (16) in Mali who reported tetanus as the main targeted disease known by mothers with 18.8%.

Fever was the most reported side effect of vaccine in this study with 87.5%. Ours finding is similar to those of Sissoko (16) and Doumbia (6) which noted fever as reported side effects respectively 83.42% and 97.7%. These finding can be explained by the fact that fever is easily noticed by the population.

5. Conclusion

Vaccination coverage in N'Djamena Mother and Child University hospital is similar to those of Africans authors. Immunization status, knowledge on side effects on targeted diseases by the national program of vaccination is linked with factor like schooling and cultural phenomena.

Compliance with ethical standards

Acknowledgments

All authors approve the submission of this work.

Disclosure of conflict of interest

All authors have declared that there is no conflict of interest.

Statement of ethical approval

All authors approve the submission of this work.

Statement of informed consent

For this survey we have obtained the agreement of the national Ethics Committee, Director of N'Djamena Mother and Child University hospital.

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