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Research Article

A Study of Malaria in Chhattisgarh State of India

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A B S T R A C T

Background: In 2019, Chhattisgarh contributed 2.29% of the population of India and 18% of Malaria cases in the country. Bastar Division contributed 76% of cases in the state.

Objectives: To study the distribution of Malaria in Chhattisgarh and measures being adopted by the state government to tackle it.

Methods: Analysis of the annual reports of the Malaria Division of the National Vector Borne Disease Control Programme (NVBDCP). Also, an analysis of NVBDCP annual reports from Chhattisgarh's Department of Health website. In addition, a web search was made of reports pertaining to the recently held "Malaria-Mukt Bastar Abhiyan" campaigns held in Chhattisgarh

Results: The impact of the Phase 1 and Phase 2 campaigns were as follows. In the year prior to November 2019, there were 5272 cases of Malaria in the Bastar region. During the next year until November 2020, there were only 2696 cases. In other words, there was a reduction of about half in the number of Malaria cases.

Conclusion: Therefore, some beneficial effects of these campaigns emerged in that the reservoirs of the malarial parasite, which is, the humans were effectively treated thereby reducing the number of those persons who could be sources of infection to the female Anopheline mosquito.

Keywords: Malaria, Chhattisgarh, Bastar

Introduction

Chhattisgarh is in the central part of India and is bordered by Maharashtra and Madhya Pradesh on the west, Jharkhand and Odisha in the east, Uttar Pradesh in the north and Andhra Pradesh in the south. It consists of 27 districts.

Materials and Methods

The study design included analysis of the annual reports of the Malaria Division of the NVBDCP pertaining to the years 2017 and 2018. It also included an analysis of the annual reports of the NVBDCP available on Chhattisgarh's Department of Health website. In addition, a web search was made of reports pertaining to the recently held "Malaria-Mukt Bastar Abhiyan" campaigns held in Chhattisgarh.

Results

According to the most recent data available on the NVBDCP website (i.e., data for the year 2018), the API for Chhattisgarh was 2.63.[2] However, by going through the data for the state, it is seen that the Malaria problem is not equally distributed in the districts; it is focal as can be seen from the following information.

Therefore, it is seen that out of the twenty-seven districts, Malaria is highly concentrated in mainly four districts

namely Bijapur, Sukma, Dantewada and Narayanpur. All these four districts are part of the southernly located Bastar region in the state, which comprises dense and inaccessible forests.

It may be further useful to study what was the trend of the APIs in the above four districts over the years. For this, the website of the NVBDCP was referred to and the following findings were observed.

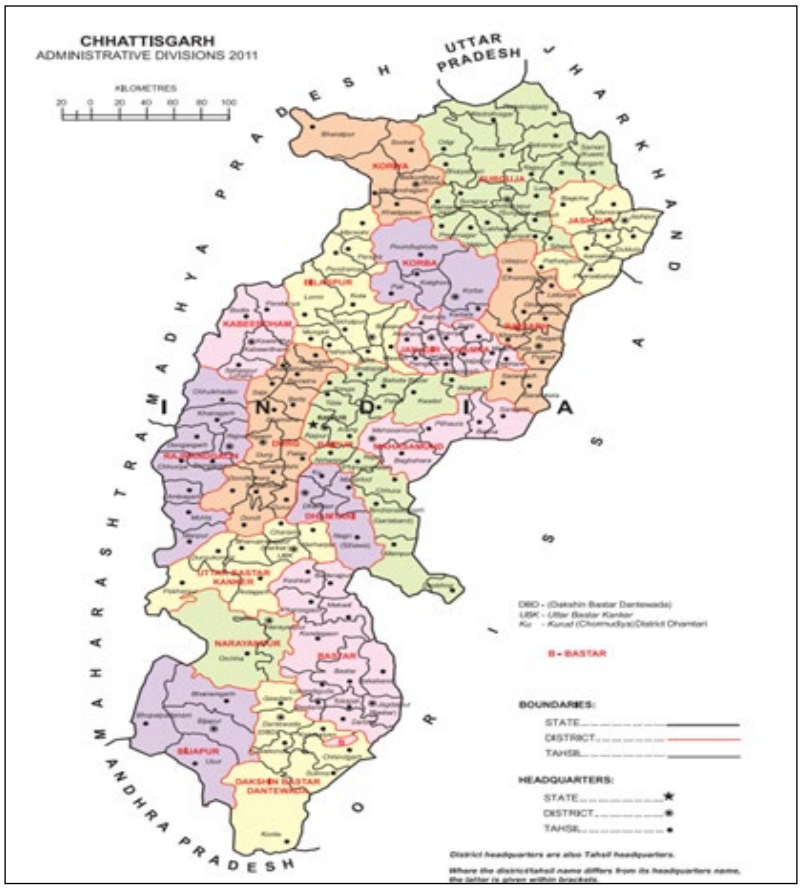

Figure 1.Map of Chhattisgarh[1]

Table 1.API of the Districts of Chhattisgarh State, 2018[1,2]

Rank	District	API
1	Bijapur	53.08
2	Sukma	46.51
3	Dantewada	41.45
4	Narayanpur	25.09
5	Bastar	7.91
6	Balrampur	4.49
7	Kondagaon	4.43
8	Jashpur Nagar	4.38
9	Kanker	3.02
10	Korba	1.62
11	Surjapur	1.56
12	Korea	1.53
13	Sarguja	1.47
14	Gariaband	1.30

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15	Kawardha	0.89
16	Raigarh	0.62
17	Dhamtari	0.60
18	Rajnandgaon	0.57
19	Bilaspur	0.55
20	Balod	0.39
21	Durg	0.37
22	Janjgir	0.31
23	Mahasamund	0.12
24	Balodabazar	0.10
25	Mungeli	0.09
26	Bemetara	0.02
27	Raipur	0.02
State	Chhattisgarh	2.63

In the annual reports of the NVBDCP available on Chhattisgarh's Department of Health website, the APIs of Bijapur, Sukma, Dantewada and Narayanpur for the three periods 2018-19, 2019-20 and 2020-21 were not available.

Table 2.API of Selected Four Districts of Chhattisgarh State, 2017 and 2018[2,3]

District	Year		
	2017	2018	2019
Bijapur	65.24	53.08	Data not available
Sukma	50.81	46.51	
Dantewada	55.82	41.45	
Narayanpur	43.10	25.09	

However, the Slide Positivity Rates (SPR) for some of these districts were available and are given below:

Table 3.SPR of selected four districts of Chhattisgarh State, 2018-2021[4]

District	Year		
	2018-19	2019-20	2020-21
Bijapur	Not available	Not available	Not available
Sukma	29.88	28.41	Not available
Dantewada	13.10	12.14	17.37
Narayanpur	13.07	10.03	6.60
Chhattisgarh	1.92	1.11	0.86

Discussion

The "Malaria-Mukt Bastar Abhiyan" campaigns were held in Chhattisgarh initially during the following two times:

Phase 1: Jan - Feb 2020

Phase 2: Jun - July 2020

In these campaigns, every person living in each of the villages in the Bastar region had their finger pricked and a drop of blood drawn which was examined for the Plasmodium antigen using Rapid Diagnostic Kits. These campaigns detected the malarial antigen in both symptomatic persons as well as asymptomatic carriers.[5, 6] If the diagnosis was Plasmodium vivax, the patient was given Chloroquine and, to take care of the hypnozoites, Primaquine. If the diagnosis was Plasmodium falciparum, treatment was by way of Artemisinin-based Combination Therapy (ACT) and, to treat the gametocytes, Primaquine.

The impact of the Phase 1 and Phase 2 campaigns were as follows. In the year prior to November 2019 there were 5272 cases of Malaria in the Bastar region. During the next year until November 2020 there were only 2696 cases. In other words, there was a reduction of about half in the number of Malaria cases.[7]

Therefore, some beneficial effects of these campaigns emerged in that the reservoirs of the malarial parasite, which is, the humans were effectively treated thereby reducing the number of those persons who could be sources of infection to the female Anopheline mosquito.

Conclusion

During 2016, the Indian Government formulated the Malaria Elimination in India framework which spanned 2016 - 2030.[8] It was founded on the WHO Global Technical Strategy for Malaria, spanning the same period, which was formulated during 2015 and updated in 2021.[9] The goal is to reach no Malaria cases in the country by the year 2027 and then after waiting for a period of three years, the WHO can then grant Malaria-free status certification by 2030.

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If an approach of universal diagnosis and radical treatment like that which was used in the "Malaria-Mukt Bastar" campaigns continues to be used in Chhattisgarh, it is likely that the API will come down further and more quickly in the state, especially if it must reach the target of zero cases by 2027. This would enable the country to receive certification of Malaria elimination in 2030.

Conflicts of Interest: None

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