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Prevalence of covid-19 in patients taking Arsenicum album 30C as a prophylactic: A cross-sectional analytical study

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Abstract

Background: Covid -19, the greatest pandemic of the 21st century ravaged the entire world causing not only millions of deaths but also an unprecedented social and economic upheaval. It caught the medical industry unaware but highlighted the significance of preventive strategies in combating epidemics. Studies are necessary to evaluate the effectiveness of various prophylactic interventions.

Method: An analytic cross-sectional study was done to compare the prevalence of Covid-19 in patients taking the Homoeopathic prophylactic remedy Arsenicum album 30C and those not taking any other prophylactic remedy. The correlates of Covid -19 in study participants were assessed and the symptom distribution in Covid positive cases in study and control groups were compared. It was done at the Outpatient departments of ANSS Homoeo Medical College Hospitals, Kurichy, Kottayam, Kerala from September 2020 to February 2021. 341 participants were selected for the study by consecutive sampling. Data collection was done through a pretested structured questionnaire. The comparison of prevalence and covariates was done by Chi-square test and analysis of covariates was done by logistic regression.

Results: The overall Prevalence of Covid-19 among the study subjects was 30.2%. In logistic regression analysis, the adjusted Odds ratios with 95% CI was found to be 0.17. After adjusting for all covariates, it is found that in those taking Arsenicum album 30C as a prophylactic there was an 83% less chance of getting Covid infection.

Conclusion: This cross-sectional study has clearly shown the prophylactic effectiveness Arsenicum album 30C against Covid -19. This is an impetus for further controlled studies in this area.

Keywords: Covid-19, prophylaxis, Arsenicum album 30C, homoeopathy, epidemic, observational study

Introduction

The emergence of the COVID-19 pandemic from Wuhan, China in December 2019 and its rapid dispersion across the world caught most countries and healthcare systems off-guard. The novel coronavirus caused quiet 1 million deaths within the first 6 months of the pandemic and an enormous economic and social crisis^[1]. As of November 14, 2021, there have been more than 25 crore cases worldwide, and almost 51 lakh deaths, with India in the second position with quiet 3.4 crore cases and 4.6 lakh deaths and over 50.6 lakh cases, and 35,685 deaths within the state of Kerala only^[2].

Management of COVID-19 is principally by supportive therapy together with mechanical ventilation in severe cases^[3]. There is currently no drug that has been proven as a good therapy for COVID-19. Several candidate drugs are being considered and evaluated for treatment^[4]. Preventive strategies form a serious role in reducing the general public spread of the virus along with successful disease isolation and community containment. Despite great efforts, there is no definite treatment for this disease. However, prevention and management are the best options^[3]. During the Ebola outbreak in 2014 expert group of WHO has recommended that "it is ethical to offer unproven interventions with as yet unknown efficacy and adverse effects, as potential treatment or prevention" keeping in view no vaccine or anti-virals were available^[5].

In epidemic scenarios, the homeopathic community recommends along with the standard preventive measures, public notice of a homeopathic prophylactic remedy against that epidemic, identified by the experts. AYUSH ministry issued an advisory on 6th march 2020 endorsing Arsenicum album 30C, 3 globules in the empty stomach once a day for three days

as the recommended dosage for covid 19 prevention to be repeated monthly ^[6].

Arsenicum album is a homeopathic medicine whose source, preparation, and action on human beings are recorded in Homoeopathic Pharmacopoeia of India (HPI) ^[7]. The original proving and detailed description of its action on the human body are mentioned in Materia Medica Pura ^[8]. The preparation of Arsenicum album 30C from crude arsenic trioxide through a series of potentization to get rid of its toxic property while enhancing the medicinal action is also documented in HPI ^[7].

At this juncture especially in a country like India with its huge population and economic constraints, it is vital to adopt economical alternative preventive therapies like homeopathy to achieve mass immunity. Few studies have already been initiated to check the effectiveness of Arsenicum album and the results are promising but most of them were undertaken in the early months of 2020 and usually followed over 4 -8 weeks only ^[9, 10, 11] In this study we are trying to compare the prevalence of Covid -19 in patients taking Arsenicum album 30C as a prophylactic versus those who are not taking any prophylactic among patients attending Outpatient departments of ANSS Homoeo Medical College Hospitals, Kurichy, Kottayam.

Objectives

Primary Objective

1. To assess the prevalence of Covid-19 in patients who have taken Arsenicum album 30C
2. To compare the prevalence of Covid -19 in patients taking Arsenicum album 30C as a prophylactic (study group) versus those who are not taking any prophylactic (control group) among patients attending Outpatient Departments of ANSS Homoeo Medical College Hospitals

Secondary objective

1. To determine the correlates of Covid -19 in study participants
2. To compare the symptom distribution in Covid positive cases in study and control group.

Methodology

This analytical cross-sectional study is aimed at identifying the prevalence and predictors of Covid-19 in patients taking Arsenicum album 30C as a Homoeopathic prophylactic remedy regularly and in those not taking any prophylactics for Covid-19. It is done at the Outpatient departments of ANSS Homoeopathic Medical College Hospitals, Kurichy, Kottayam, Kerala from September 2020 to February 2021.

Selection criteria

Inclusion criteria

- 1) Patients attending outpatient departments of ANSS Homoeopathic medical college hospitals, Kurichy, Kottayam
- 2) Patients who have been taking Arsenicum album 30C (3 pills OD continuously for 3 days) every month for the last 6 months are considered as study group and those not taking any prophylactic for covid -19 are considered as a control group.

Exclusion Criteria

- 1) Persons who have not taken Arsenicum album 30C

according to the instructed prophylactic dosage

- 2) Anyone vaccinated against Covid -19
- 3) Anyone with severe illness or having an immunocompromised state.

Participants were selected by consecutive sampling and are divided into two equal groups.

Group 1: Patients who have taken Arsenicum album 30C in the recommended dosage by AYUSH (Study group)

Group 2: Patients who have not taken any prophylactic medicines for Covid -19 (Control group)

The sample size was calculated based on the formula for comparing two proportions

$$n = \frac{(P1Q1) + (P2Q2) \times f(\alpha, \beta)}{(P1-P2)^2}$$

P1= Likely percentage in the control group (Taken as 38%)

P2= Percentage in the experimental/study group (taken as 20%)

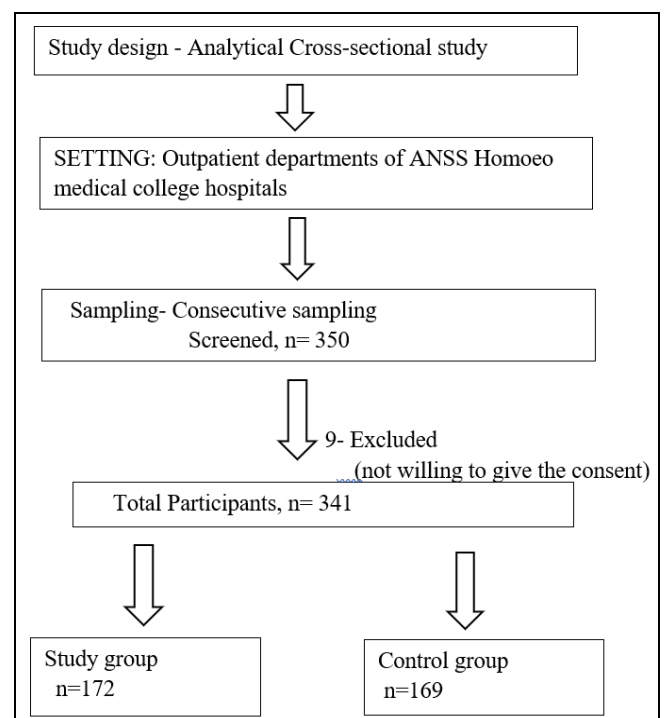
α denotes Significance level (5%)

β denotes the power of the study (90%)

As per observational evidence, an effect difference of 18-20% can be expected, hence the sample size is calculated as, $10.51 \times (20 \times 80 + 38 \times 62) / 18 \times 18 = 128$ in each group (total 256) Adding 30% drop out, 333. Rounded off to 350.

Participants were recruited consecutively till the specified number of subjects obtained in the study and control group.

A flow diagram showing the methodology



The exposure and outcome were assessed using a pre-tested structured questionnaire with close-ended questions. Both antigen test and RTPCR were used to diagnose Covid-19 in the participants. The prevalence of Covid-19 among the study and control group were compared by Chi-square test.

Association of selected study variables (age, gender, consumption of Arsenicum album 30C, history of primary contact, quarantine, and travel) and Covid- positivity among study participants was found using the Chi-square test. A logistic regression analysis was also done to find out the important independent predictors. The prevalence of symptoms in Covid positive cases like fever, cough, weakness, loss of taste and smell, body pain, headache, sore throat, blocked nose, red eyes, skin rash, breathlessness, nausea, and vomiting were also compared between the two groups using Chi-square test.

This study was done before the initiation of Covid vaccination in Kerala, so the effect of vaccination as a confounder is ruled out. It was made sure that 100% of participants were following the personal protective measures like handwashing with soap, sanitization, mask, and social distancing which are also confounding factors. The immunity level of participants can vary which can act as an effect modifier in this study. There is the least chance for response bias as the researchers themselves collected the data through structured questionnaires.

Results

The overall Prevalence of COVID Infection among the study subjects was 30.2%. The rate of COVID 19 infection among the study group (those taken Arsenicum album 30C) was 19.8% and that in the control group was 40.8%. This difference was found to be statistically significant as shown

by the chi-square test $p= 0.001$. (Chi-Square Test value =17.935 with $df=1$ and p value=0.001) (Table 1). In all age groups, Covid positivity was less among the study group as compared to the control group. But this difference was not statistically significant $p= 0.751$. Among males and females, positivity was more in the control group as compared to the study group. While comparing the prevalence of various symptoms in Covid-19 in the study and control groups, there was found to be no significant difference between them (Table 2). There was a significant increase in Covid positivity among those who were primary contacts and those in quarantine.

After adjusting for all covariates, consumption of Arsenicum album 30C was found to have a significant protective effect on COVID infection. An OR of 0.17 at 95% CI means that those with a history of intake of Arsenicum album 30C in the prescribed dosage had 83% less chance of getting COVID infection than those who did not consume the medicine (Table 3).

Table 1: Prevalence of Covid 19 among study group and control group

Infection	Control group	Study group	Total
Absent	100(59.2%)	138(80.2%)	238(69.8%)
Present	69(40.8%)	34(19.8%)	103(30.2%)
Total	169(100.0%)	172(100.0%)	341(100.0%)

Chi-Square Test value =17.935
 $df=1$ p value=0.001

Table 2: Prevalence of symptoms among Covid 19 positives in study and control groups

Sl. No	Symptom	Control group		Study group		Total		Chi square value	P value
		Absent	Present	Absent	Present	Absent	Present		
1.	Fever	17(24.6%)	52(75.4%)	8(23.5%)	26(76.5%)	25(24.3%)	78(75.7%)	0.015	0.902
2	Cough	44(63.8%)	25(36.2%)	22(64.7%)	12(35.3%)	66(64.1%)	37(35.9%)	0.009	0.926
3	Weakness	27(39.1%)	42(60.9%)	15(44.1%)	19(55.9%)	42(40.8%)	61(59.2%)	0.235	0.628
4	Loss of taste	33(47.8%)	36(52.2%)	24(70.6%)	10(29.4%)	57(55.3%)	46(44.7%)	4.775	0.029
5	Loss of smell	37(53.6%)	32(46.4%)	22(64.7%)	12(35.3%)	59(57.3%)	44(42.7%)	1.143	0.285
6	Body pain	33(47.8%)	36(52.2%)	21(61.8%)	13(38.2%)	54(52.4%)	49(47.6%)	1.774	0.183
7	Headache	27(39.1%)	42(60.9%)	16(47.1%)	18(52.9%)	43(41.7%)	60(58.3%)	0.589	0.443
8	Sore throat	47(68.1%)	22(31.9%)	15(44.1%)	19(55.9%)	62(60.2%)	41(39.8%)	5.475	0.019
9	Nose block	59(85.5%)	10(14.5%)	22(64.7%)	12(35.3%)	81(78.6%)	22(21.4%)	5.867	0.015
10	Red eyes	69(100.0%)	0	33(97.1%)	1(2.9%)	102(99.0%)	1(1.0%)	2.049	0.152
11	Skin rash	59(85.5%)	10(14.5%)	24(70.6%)	10(29.4%)	83(80.6%)	20(19.4%)	3.240	0.072
12	Short breath	58(84.1%)	11(15.9%)	31(91.2%)	3(8.8%)	89(86.4%)	14(13.6%)	0.983	0.322
13	Nausea	61(88.4%)	8(11.6%)	32(94.1%)	2(5.9%)	93(90.3%)	10(9.7%)	0.848	0.357
14	Vomiting	62(89.9%)	7(10.1%)	34(100.0%)	0	96(93.2%)	7(6.8%)	3.701	0.054

Table 3: Logistic Regression Analysis Crude and adjusted Odds ratios with 95% CI for variables in LR Unadjusted OR & 95% CI Adjusted OR & 95% CI

Study Variable	OR	95%CI	value	OR	95%CI	P-Value
Adult (18-59)	1.443	0.83,2.49	0.190	1.35	0.72,2.51	0.349
Female Sex	1.218	0.75,1.96	0.416	1.24	0.72,2.11	0.436
Primary contact- yes	5.466	2.89, 10.31	0.001	2.67	0.26, 27.61	0.409
Quarantine-Yes	5.786	3.01,11.13	0.001	4.70	0.44,50.75	0.202
Ars Alb 30- Yes	0.357	0.22, 0.58	0.001	0.17	0.09, 0.29	0.001

Discussion

The prevalence of COVID 19 among the study group (those taken Arsenicum album 30C) was 19.8% and that in the control group was 40.8%. Consumption of Arsenicum album 30C as a prophylactic provided a protective effect against Covid-19. In logistic regression analysis, the adjusted Odds ratio was found to be 0.17 which means in those taking Arsenicum album 30C as a prophylactic, there

is 83% less chance of getting Covid infection.

No significant difference in age and gender in study and control groups was found. There was a significant increase in Covid positivity among those who were primary contacts and those in quarantine. The history of travel made no significant difference between the two groups as the number of participants who had traveled was only 3. There was no significant difference in the prevalence of various symptoms of Covid-19 in the study and control group. The effect of vaccination as a confounder was excluded as the study was done before the vaccination drive was initiated in Kerala. Also, all the participants were following strict personal protective measures against the infection.

The sample size might not be enough for the comparison of symptoms in Covid positive participants in both groups. The rate of exposure is not comparable in all study participants as it includes students, professionals, housewives, etc.

Many studies to evaluate the prophylactic effectiveness of Arsenicum album 30C against Covid-19 are ongoing including controlled trials [12, 13, 14, 15]. But very few have been completed and published to date [16, 17, 18].

Conflict of interest

The authors declare there are no conflicts of interest.

Ethical Statement

Ethical clearance for this study was obtained from the institutional ethical committee of ANSS Homoeopathic Medical College, with reference number-IEC/04/21-22. Informed consent was also collected from the participants for undergoing the study.

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