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## HOMOEOPATHY FOR ACUTE UPPER RESPIRATORY TRACT INFECTION IN ADULTS

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### ABSTRACT

Acute upper respiratory infection (URTI) is common illness in children, but a substantial reason for compromised quality of life and workdays losses in adults. Present clinical study was conducted to explore efficacy of Homoeopathic treatment for acute upper respiratory tract infection especially in adults. In this prospective clinical study, enrolled patients from 18 to 45 years of age group who reported for acute URTI at the outpatient department of the Homeopathic Medical College. Individualised Homoeopathic medicine was prescribed to them considering symptoms totality. They were assessed by symptoms score on the fifth day of medication for treatment outcome and severity of illness was monitored by serum C-reactive protein, a biomarker for infection and inflammation. The study results revealed a significant improvement in symptoms score (P – 0.000, 5% level) and reduction in serum C – reactive protein level (P – 0.008, 5% level) after treatment. Results also inferred that treatment helped

patients to abolish impact of illness on usual activity (P = 0.000, 5% significant level) and recover from status of illness (P = 0.000, 5% significant level). Adults treated with homoeopathy for acute upper respiratory tract infections saw clinical improvement and a reduction in the burden of illness on daily activities.

**Keywords: Acute, upper respiratory tract infection, Adult, Homoeopathic Treatment, Serum C-reactive protein**

**Abbreviations: URTI: Upper respiratory tract infection; CRP: C-reactive protein**

## 1. INTRODUCTION

On an average adult suffers 2-3 episodes of URTI per year. Effects of URTI on work productivity and quality of life increase the non-fatal burden on society in both financial and social sense. URTI is one of the reason for considerable Disability adjusted life years. Global Burden of Disease study (2019) estimated incidence of more than 17 billion cases of URTI and it accounts for about 43% of all Global Burden of Disease study diseases and injuries [1].

Massive unexpected incidence of upper respiratory tract infection may pose threat to human health like of current pandemic due to SARS-COV 2. Respiratory infections due to influenza results in 3 to 5 million cases of severe illness and about 2,90,00 to 6,50,000 deaths yearly worldwide [2].

Anatomically, Upper respiratory tract includes nasal passage, pharynx, sinuses and larynx. Infection of any part of this respiratory tract is known as an upper respiratory tract infection (URTI), which is named specifically. These includes rhinitis, pharyngitis, nasopharyngitis, tonsillitis, sinusitis, and laryngitis. Viruses are the

most often aetiological organism of URTI, but bacterial primary infection can occur in some patients or superinfection especially in immunocompromised host [3]. URTIs are transmitted through droplet, airborne route or direct contact.

Common symptoms of URTI are nasal or post discharges, blockage of nose, sneezing, fever, headache, cough, pain in throat, difficulty in swallowing, facial pain and hoarseness. Symptoms appear usually one to three days after exposure and last for seven to ten days, can remain for three weeks. Different pathogens causes similar types of symptoms in upper respiratory tract infection.

Complications in few individual can be developed like secondary bacterial infections, bronchitis, pneumonia, tonsillar abscess, rheumatic fever, meningitis, otitis media and worsening of underlying chronic diseases that can cause life threatening conditions.

URTI is mostly treated clinically with decongestants, anti-inflammatory medications, painkillers, antipyretics, and antitussives.

This medication gives relief in symptoms but there is no evidence that they shows benefit in shortening duration of symptoms. Antibiotics are used in cases where bacterial infection is suspected.

Studies have stated inappropriate use of antimicrobial medicines for URTI resulted in antimicrobial resistance; eventually increase in morbidity, mortality and expenditures [4].

The CRP concentration is a highly helpful non-specific biochemical marker of infection, and its measurement is crucial for screening for organic disease, evaluating the effectiveness of treatment in inflammation and infection, and other purposes [5]. Acute phase Protein, CRP is used as an early indicator of infection or inflammation. It is produced in the liver and rise quickly during infection or inflammatory disease states within the first 6 to 8 hours, may reach a peak up after 48 hours. CRP binds to polysaccharides and peptosaccharides found on bacteria, parasites, and fungi as well as to phosphocholine expressed on the surface of injured cells. This binding supports activation of the immune system's classical complement cascade and modifies the activity of phagocytic cells with involvement of CRP in opsonisation (i.e., the process by which a pathogen is tagged) [6]. CRP has a plasma half-life of approximately 19 hours, which is constant in both healthy and diseased states. The circulating CRP

concentration drops quickly, when the trigger for synthesis disappears [7]. In specific, CRP levels reflects severity of the acute phase of illness and have been considered as strong predictor of disease condition [8, 9, 10].

Homoeopathy is medical system developed in Germany and currently used in over 80 countries. According to the World Health Organisation, homoeopathy is one of the most commonly utilised complementary therapies. Homeopathy treats patients through holistic approach and using ultra-high dilutions of drug. Consistent homoeopathic therapy for URTI can lessen the severity, frequency, and duration of illness and prevent repeated URTI attacks who have predisposition for it. Homoeopathic medicine helps in recovering from infection by enhancing immunity.

For acute upper respiratory tract infections commonly indicated Homoeopathic medicine are Aconite Napellus, Pulsatilla Pratensis, Belladonna, Kali Bichromicum, Mercurius Sollubilis, Hepar sulphuris Calcareum, Spongia Tosta, Rumax Crispus, Gelsemium, Arsenicum Album and others. Survey reports described advantages of homoeopathic treatment for URTI in terms of lesser treatment costs, decreased need for antibiotics, less side effects and drug interactions [11]. A systemic review concluded effectiveness of Homoeopathy therapy for URTI, stated requirement of

additional studies to evaluate possible integration of Homoeopathy for standard care in URTI [12].

### **Objectives**

Present study was conducted to evaluate the effectiveness of Homeopathic treatment for acute URTI in adults. Study will draw conclusions from clinical outcome based on symptoms score and changes in serum CRP levels.

## **2. MATERIALS AND METHODS**

### **Participants**

In this is a prospective clinical study, Patients reported at outdoor department of Homoeopathic medical College Hospital for upper respiratory tract infection during period of September 2021 to October 2022 were enrolled for the study after taking their written consent. In a view of feasibility to conduct study, conventional sampling method was followed. Male and female in age group of 18 to 45 years having sign and symptoms of upper respiratory tract infection, reported within week of illness and not on any other medication for the same were included in the study.

### **Intervention**

Individualized Homoeopathic medicine was prescribed to patients of acute respiratory tract infection by considering present symptoms. Medicine was prescribed in 30c, 200c and 1m potency dispensed with cane sugar globules in repetitions as required for

the case and mode of administration was oral.

### **Assessment**

On the first visit, they were clinically assessed for symptoms, complete blood count and serum CRP levels for severity of illness. Their symptoms score was recorded on a four point Likert's scale - absent, mild, moderate, and severe through a questionnaire designed for the study. Simultaneously, their status illness and effect of illness on their usual activities were also recorded. After four days of medication, all patients were evaluated for treatment outcome by means of symptomatic improvement, status of illness and effect on usual activity. Those who had serum CRP level above normal value on the first reporting were assessed again for it on follow up to evaluate severity of illness. Data of Participants who had not reported for the follow up were excluded from analysis. For measuring serum CRP level Automated nephelometric mispa i3 method was used. Study data were reported by descriptive statistics and non-parametric test (software IBM SPSS 25 version). Study approval was taken from Institutional Ethics committee for human research.

## **3. RESULT**

70 out of the 74 patients showed up for the follow-up, of which 48.6% were female and 51.4% male. In age wise distribution

majority of patients were from 21 to 25 years of age group (**Figure 1**).

Of total 80% patients reported within four days of onset of their illness, 20% reported afterwards within a week. Mean haemoglobin value in male patients was 14.8g/dl with range of 10.6 to 16.6g/dl and in female patients mean value was 11.1g/dl with range from 6.9 to 13.2g/dl. Total white blood cell count mean value was 7976/cu.mm. (Range 4110:19510)

In this study, the prescribed homeopathic medicines were Arsenicum Album (48.5%), Pulsatilla (12.8%), Hepar Sulph (10%), Phosphorus (8.5%), as well as Rhus Tox (4.2%), Allium Cepa (2.8%), Bryonia Alba (2.8%), Nux Vomica (2.8%), Aconite (1.4%), Gelsemium (1.4%), Kali Bichrom (1.4%), Kali Muriatricum (1.4%), and Medorrhinum (1.4%). Among the patients, 65.7% received medicines in 200c potency, 32.8% received medicines in 30c potency, and only in one patient 1M potency was given.

### 3.1 Analysis for symptoms score

Total symptoms score of all patients before treatment was 448, mean 6.4 and standard deviation 4.17. After treatment total symptoms score was decrease to 111, mean 1.58 and standard deviation 1.24.

Nasal discharge, cough, sneezing and throat pain were the most common symptoms present in the patients. On follow up noticeable symptomatic improvement was

seen in fever, headache, facial pain and nasal blockage (**Table 01**).

After receiving treatment, all patients showed improvement in the illness. Of the 70 participants, 56 had greater than 50% of improvement, and 11 patients recovered completely (**Figure 2**).

On analysis of total symptoms score by Non-parametric Wilcoxon sign test (**Table 2**), there were 70 negative ranks, 0 positive ranks and 0 ties. Z statistic value was -7.295 with 5% level of significance and p – value was 0.000 (less than 0.05) which is highly significant. We can conclude on the basis of this data that total symptoms score was significantly decreased after applying the treatment.

### 3.2 Analysis for status of illness and effect on usual activity

Analysis on findings for status of illness by Wilcoxon sign test showed Z statistic value was -5.013 with 5% level of significance and p – value was 0.000 (less than 0.05) which is highly significant. We can conclude that status of illness was significantly improved after Homoeopathic treatment.

On analysis with Wilcoxon sign test for effect on usual activity of illness, Z statistic value was -4.817 with 5% level of significance and p – value was 0.000 (less than 0.05) which is highly significant.

### 3.3 Analysis for serum C-reactive protein level

Out of total 70 patients only in 9 patients CRP found elevated above normal value of  $< 6\text{mg/l}$  (**Figure 3, 4**).

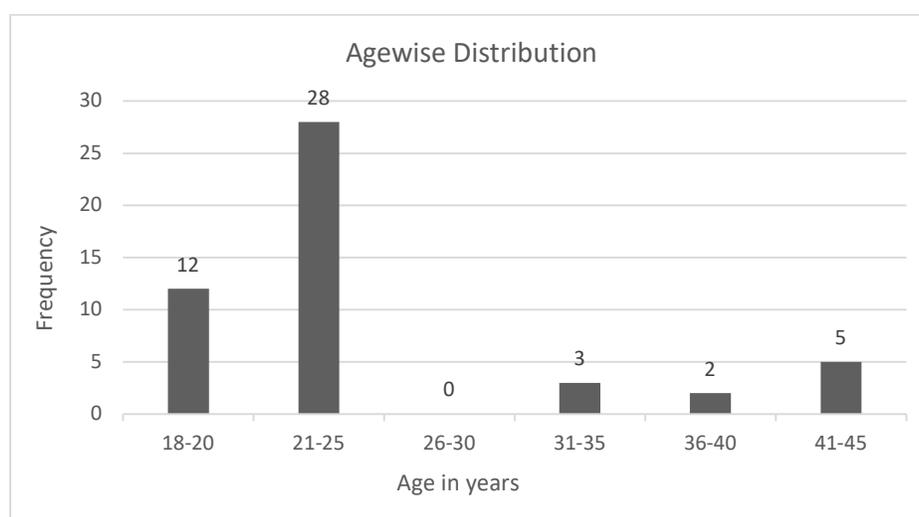
Mean CRP before treatment was 22.178 with standard deviation 12.2710 and it reduced to 4.2889 with standard deviation 3.45704 after treatment.

Analysis with Wilcoxon sign test of the CRP data of these nine patients revealed Z statistic value -2.666 with 5% level of significance and p – value 0.008 (less than 0.05). So it concludes CRP significantly decreased after treatment. Analysis with Wilcoxon sign test for total symptoms score of these patients showed Z statistic value -2.67 with 5% level of significance and p – value was 0.007 (less than 0.05) which is

significant. We can conclude significant improvement in symptoms after treatment applied along with recovery in CRP.

### 3.4 Analysis for correlation of total symptoms score and serum C-reactive

Elevated CRP level was found mostly on those patients reported within four days of illness and their symptoms score was seen comparably higher than those reported illness afterwards (**Figure 5**). Highest CRP value was 50.7 mg/l and lowest was 0.5mg/l. Spearman's rank correlation coefficient 0.507 and p-value 0.000007 indicates a significant positive relationship between total symptoms score and CRP,  $r(68) = 0.507, p < 0.001$ .



**Figure 1: Age wise distribution of all Patients**

Table 1: Single Symptom score before and after treatment of acute URTI

Symptoms	Symptoms score of patients in categories wise before and after treatment								
	Mild		Moderate		severe		Total		Improvement (In Percentage)
	Before	After	Before	After	Before	After	Before	After	
Fever	13	3	19	0	1	0	33	3	90.9
Headache	13	3	11	0	5	0	29	3	89.7
Nasal Discharge	31	18	13	0	4	0	48	18	62.5
Nasal blockage	8	4	6	0	3	0	17	4	76.5
Sneezing	22	19	13	0	5	0	40	19	52.5
Cough	26	28	19	2	2	0	47	30	36.2
Throat Pain	21	14	17	1	2	0	40	15	62.5
Hoarseness	10	15	11	0	1	0	22	15	31.8
Facial Pain	3	1	2	0	1	0	6	1	83.3

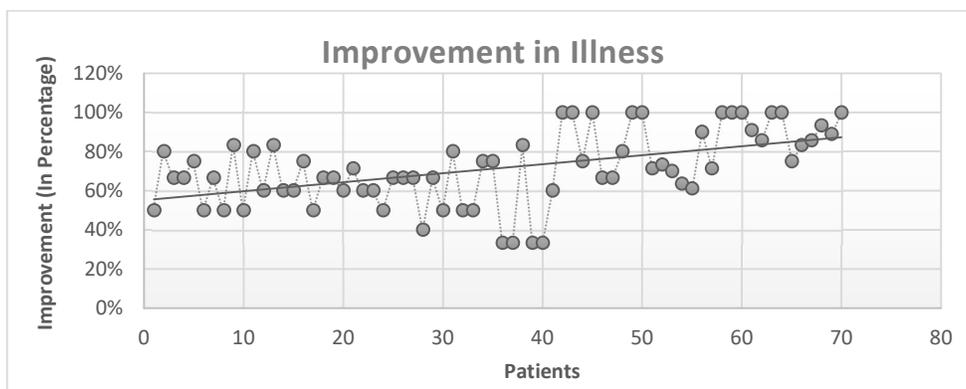


Figure 2: Improvement in illness after Homoeopathic treatment for acute URTI

Table 2: Analysis of total symptoms score by Non-parametric Wilcoxon sign test

Comparison in between	Ranks	N	Mean Rank	Sum of Ranks	Z	p - value
Total symptoms score After - Total symptoms score Before	Negative Ranks	70	35.50	2485.00	-7.295	0.000
	Positive Ranks	0	0.00	0.00		
	Ties	0				
	Total	70				

Table 3: Percentage wise Distribution of patients for status of illness and effect on usual activity

Category		Absent	Mild	Moderate	Severe	Total
status of illness	Before Treatment	*	72.9	24.3	2.9	100
	After Treatment	17.1	81.4	1.4	*	
Illness affecting usual activity	Before Treatment	61.4	18.6	20	*	
	After Treatment	84.3	15.7	*	*	

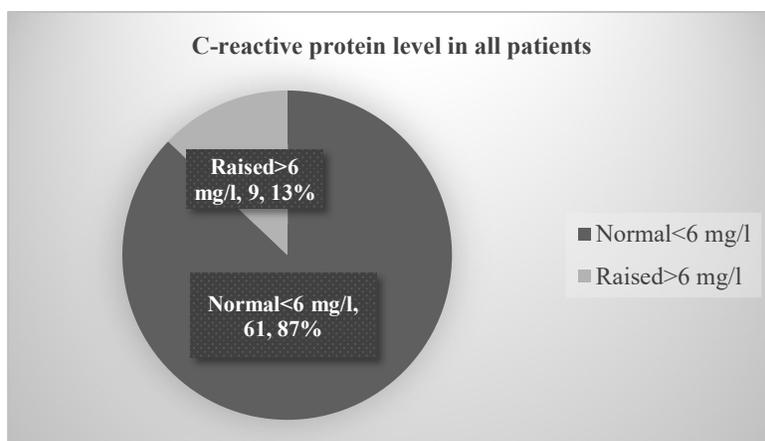


Figure 3: Serum C-reactive protein level of all patients on first visit

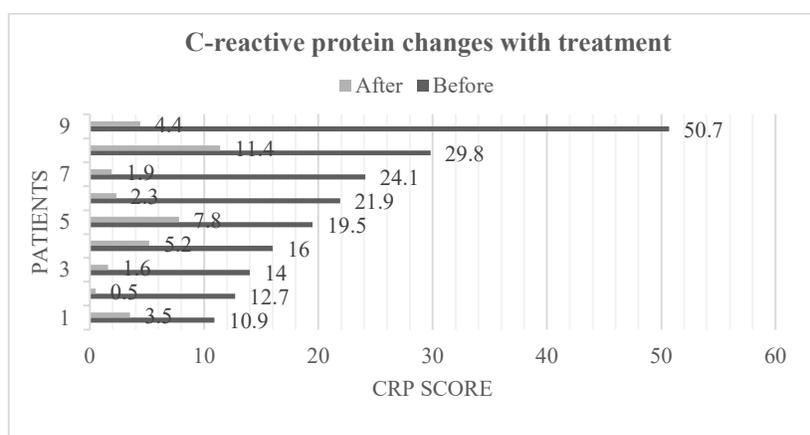


Figure 4: Serum C-reactive protein level before and after treatment

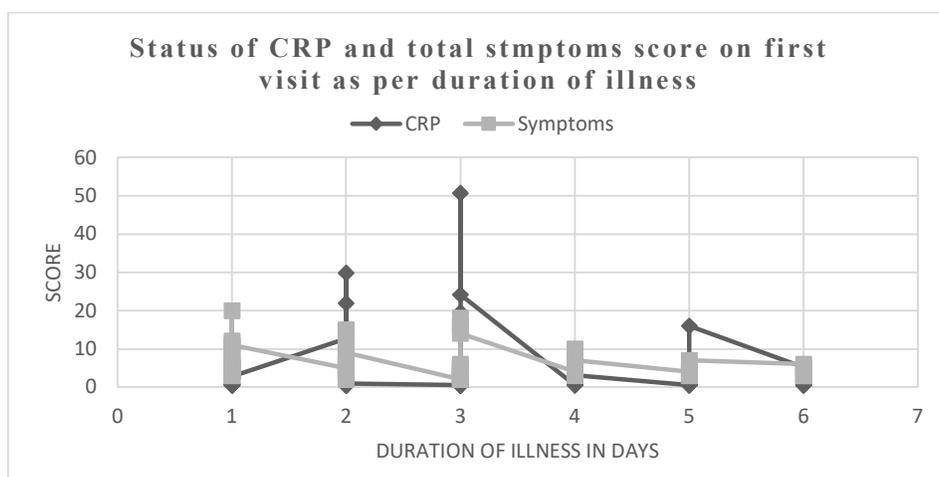


Figure 5: Symptoms score and Serum C - reactive protein level as per duration of illness on first visit

#### 4. DISCUSSION

Usually symptoms of acute URTI last for seven to 10 days and may up to three weeks.

Though upper respiratory infections are self-limiting, they cause suffering that interferes with daily activities like employment, social

interactions, physical discomfort, and even emotional distress [13]. Some individuals may experience consequences which include aggravation in pre-existing conditions, secondary bacterial infections, pneumonia, bronchitis, sinusitis, otitis media, and meningitis. When several symptom unites to manifest at once, it interferes with the day to day normal activities that necessitate the use of medication.<sup>13</sup> Patients spend money on medication that, while providing some symptomatic relief, does not actually shorten the length of the disease especially in viral URTI [14, 15].

In viral infection CRP significantly remain lower than bacterial infection [16]. A Study result mentioned that moderately elevated CRP in illness lasted less than seven days, does not support bacterial infections [17]. Cut off CRP values are recommended by various studies for decision on use of antibiotics at point of care.

At most of the health centre primarily management of acute URTI is carried out usually on symptomatic base with the aim to alleviate suffering rather than of determining the causative agents unless required.

In acute URTI especially in early phase or when antibiotics are not advised, Homeopathic treatment can be useful complementary alternative therapy.

In homoeopathy, a patient is treated in accordance with their current symptoms and individualised homoeopathic medicine in

appropriate potency and doses. This personalised method of care aids in disease recovery and to maintained the quality of life. Homoeopathic medicines posse properties of ultra-high- dilutions and dynamic effects on curing disease for restoration of previous healthy state. According to the study's findings, homoeopathic treatment is found effective with (P- 0.000, 5% significant level) in alleviating upper respiratory tract infection symptoms. The effect of the illnesses on daily living activity was demonstrated to be improved. Homoeopathic treatment for acute URTI aided in shortening duration of illness, recovery and prevention of complications.

## 5. CONCLUSION

According to the study, individualised homoeopathic treatment supported patients with acute upper respiratory tract infections to recover and attain well-being. However, it is recommended to do in-depth study to learn more about the significance of homoeopathic treatment for acute upper respiratory tract infection by conducting randomised studies and on larger samples.

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### CONFLICT OF INTEREST

The authors do not have conflicts of interest to declare.

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### ETHICAL STATEMENT

This research was reviewed and approved by the institutional Ethics committee for Human Research, Jawaharlal Nehru Homoeopathic Medical College. Ref. No. 2/JNHMC/IECHR/20.

Ethical approval from institute Ethics committee for human research was obtain before enrolling participants. Written informed consent was taken from all participants prior to participation.

### REFERENCES:

- [1] Jin X, Ren J, Ren J, Li R, et al. Global burden of upper respiratory infections in 204 countries and

territories, from 1990 to 2019. *E Clinical Medicine* 2021; 37:100986. DOI:10.1016/j.eclinm.2021.100986

- [2] Liu Q, Qin C, Du M, et al. Incidence and Mortality Trends of Upper Respiratory Infections in China and Other Asian Countries from 1990 to 2019. *Viruses* [Internet]. 2022; 14: 2550. Available from: <http://dx.doi.org/10.3390/v14112550>
- [3] Jain, D.G. Upper respiratory Tract Infection. In: Munjal, Yash Pal (ed.) *API Textbook of Medicine*. New Delhi, India: Jaypee Brothers Medical Publishers (P) Ltd ; 2015. p. 2313
- [4] Mortazhejri, Sameh et al. Systematic review of patient-oriented interventions to reduce unnecessary use of antibiotics for upper respiratory tract infections. *Systematic reviews* 2020; 9: 1 106. DOI:10.1186/s13643-020-01359-w
- [5] Aguiar F, Ferreira-Júnior M, Sales M. C-reactive protein: clinical applications and proposals for a rational use. *Revista da Associação Médica Brasileira*, 2013; 59(1) <http://dx.doi.org/10.1590/S0104-42302013000100016>
- [6] C-reactive protein concentrations as a marker of inflammation or infection for interpreting biomarkers

- of micronutrient status, WHO/NMH/NHD/EPG/14.7, CRP/WHO\_NMH\_NHD\_EPG\_14.7\_eng.pdf
- [7] Pepys M B, Hirschfield G M. C-reactive protein: a critical update. *The Journal of Clinical Investigations*. 2003; 111(12): 1805-1812. Available from: <https://www.jci.org/articles/view/18921/pdf>
- [8] Jae-sik J, Insoo R, Jae . C – Reactive Protein and Respiratory Viral Infection. *Korean Journal of Clinical Laboratory Science*, 2017; 49: 15-21. <https://doi.org/10.15324/kjcls.2017.49.1.15>
- [9] Sadeghi-Haddad-Zavareh M, Bayani M, Shokri M, et al. C-Reactive Protein as a Prognostic Indicator in COVID-19 Patients. *Interdiscip Perspect Infect Dis*. 2021 Apr 23;2021:5557582. doi: 10.1155/2021/5557582. PMID: 33968148; PMCID: PMC8083820.)
- [10] Sarwat T, Kumar D, Singh NP, Kakru D. C-reactive protein as a prognostic marker in coronavirus disease-2019. *Eastern J Med Sci* [Internet]. 2021 Dec. 4 [cited 2023 Jan. 27]; 6(3):46-9. Available from: <https://mansapublishers.com/index.php/ejms/article/view/3034>
- [11] Bell IR, Boyer NN. Homeopathic medications as clinical alternatives for symptomatic care of acute otitis media and upper respiratory infections in children. *Glob Adv Health Med*. 2013;2(1):32-43. doi:10.7453/gahmj.2013.2.1.007
- [12] Bellavite P, Marzotto M, Andreoli B. Homeopathic Treatment of Upper Respiratory and Otorhinolaryngologic Infections: A Review of Randomised and Observational Studies. *Journal of Alternative Complementary & Integrative Medicine*. 2019. 5: 073 DOI:10.24966/ACIM-7562/100068
- [13] Obisesan O. The evaluation of upper respiratory tract infection symptoms to show the significance of developing a quality-of-life evaluation instrument for upper respiratory tract infections to assess respiratory disorder-related disability. *Am J Ther*. 2005;12(2):142-150. doi:10.1097/01.mjt.0000140214.02583.85
- [14] Hull J D, Barton I P, Torgersen J, McNeil C M. A Survey of the Experience and Impact of Acute Upper Respiratory Tract Infections on People in Six Countries in the 2011/2012 Common Cold and Flu

Season. *Open Journal of Respiratory Diseases*, 2013; 3: 175-187.

DOI: 10.4236/ojrd.2013.34026

- [15] Thomas M, Bomar PA. Upper Respiratory Tract Infection. [Updated 2022 Jun 27]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing. <https://www.ncbi.nlm.nih.gov/books/NBK532961/>[https://www.researchgate.net/publication/51156674\\_Management\\_of\\_upper\\_respiratory\\_tract\\_infections\\_in\\_children](https://www.researchgate.net/publication/51156674_Management_of_upper_respiratory_tract_infections_in_children)
- [16] Elle Vardić-Kajtažović<sup>1</sup> and Altijana Hromić-Jahjefendić<sup>1</sup>, Periodicals of Engineering and Natural Sciences ISSN 2303-4521 Vol. 8, No. 3, September 2020, pp.1217-1232
- [17] Melbye H, Hvidsten D, Holm A, Nordbø SA, Brox J. The course of C-reactive protein response in untreated upper respiratory tract infection. *Br J Gen Pract.* 2004;54(506):653-658