Role of *Ganoderma lucidum* in Minimizing Recurrences in Five Common Clinical Problems of the Respiratory Tract: a Study of 308 Cases

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Abstract: Common cold, sinusitis, tonsillitis, otitis & bronchitis account for a major chunk of medical problems seen in day-to-day life and clinical practice. Children have an average rate of two to eight cases per year and adults have a rate of two to four cases per person per year. Viruses, bacteria, pollutants, allergens, toxins, climate changes, lifestyles and lack of proper nutrition are major precipitating factors. Modern approaches have been more or less effective to an extent of minimizing, suppressing or temporarily relieving these problems. But recurrences are common and frequent with attendant morbidity. One basic approach to addressing these problems and recurrences is to modulate the immune system to fight the causative agents in a better way. *Ganoderma lucidum* has been rated as the king of herbs and is a powerful immunomodulator with an array of elements & activities beneficial for the body's defenses. A preliminary study of 308 cases was undertaken to assess the role of *G. lucidum* in these respiratory conditions. 308 chronic cases of more than 18 months duration & history of recurrences despite treatment were taken up for study. After administering *G.lucidum* for an average of one to six months very encouraging results were observed. The frequency, severity and duration of recurrences diminished drastically in a large majority of cases. An overall success rate of 82% was observed. *G. lucidum* can have a major role to play in common respiratory problems and their recurrences.

Key words: Respiratory tract, infections, recurrences, *Ganoderma lucidum*, clinical cases, immune system

1 Introduction

Common cold, otitis, sinusitis, tonsillitis and bronchitis are amongst the most common human diseases, accounting for approximately one half of all the acute diseases. It is estimated that there are one billion cases of common cold in the United States alone per year. Each year, approximately 30 million adults and children get sinusitis. Otitis leads to an estimated 25 million visits to doctors and 20 million antibiotic prescriptions per year in the U.S. alone. At least 35 million people in U.S. get seasonal acute allergic respiratory illnesses. The morbidity from these common illnesses accounts for 30 to 50 percent of time lost from work by adults and 60 to 80 percent of time lost from school by children. The economic burden from these conditions runs into billions of dollars worldwide. These conditions are also notorious for recurrences. Being close to the brain as well as to the trunk, they require special attention for monitoring the possible complications. Also, infection in one area can spread to the other because the respiratory tract is a continuous passage with openings at various levels. Viruses and bacteria account for the major chunk of the causative organisms for these illnesses. The major groups of viruses implicated are the rhinoviruses, coronaviruses, respiratory syncitial viruses, influenza and parainfluenza viruses and adenoviruses. The major bacteria implicated are *Streptococcus pneumoniae, Haemophilus influenzae, Streptococcus group A, Staphylococcus aureus* and *M. catarrhalis*. Allergens tend to add to this list.

Modern medical science approaches these illnesses through the use of antibiotics, antihistaminics, anti-inflammatory agents, decongestants, steam inhalation, gargles etc. But it mainly addresses the problems temporarily and symptomatically without major long lasting gains and recurrences are very common. In fact, the number of cases is on the rise despite the developments of the modern science. As an example, cases of rhinitis and sinusitis have increased by 42% in U.K as compared to the situation five years ago. On top of this, cases of multi-drug resistance are on the rampage primarily due to the rampant misuse of antibiotics worldwide. Each drug takes on an average of 8 to10 years to develop and the microorganisms develop resistance much faster than this. As per one projection coming from the University of Ulster in the U.K, the current antibiotics may become useless by the year 2015 and may lead to a catastrophic situation. No major antiviral compounds have emerged to counter the common viral respiratory illnesses. The role of vaccines against the common viruses is questionable because of the large number of serotypes. The developments of modern science are more towards the diagnostics and less towards a satisfactory long-term approach to the illnesses. No major new class of drugs is in the offing to face the futuristic challenges. The scenario is complicated further by the increasing number of allergens and toxins in air, water and food. The immune status of individuals is also declining drastically due to improper nutrition, lifestyles, stress, toxins and a host of other factors. As per one study, the immune system of a person in the U.S. tends to be at 70% of its normal efficiency. The situation will only deteriorate further with the current situations, so called modernization, impaired immune status, increasing drug resistance and no major newer approach in the offing. The specificity of the modern science to attack the endpoint instead of going to the roots is also adding to the problem. Keeping in view these facts, a highly rationale approach can be to support the body itself to face the challenges, recurrences and the future. The need of the hour is to bolster the body's defenses for the same.

G. lucidum is rated as the king of herbs. It is a very powerful immunomodulator. It is classified as an adaptogen, host defense potentiator and biological response modifier as per modern science. It has a wide array of elements comprising mainly of bioactive polysaccharides, organic germanium, triterpenoids, adenosine, LingZhi-8, essential fatty acids etc. The human immune system is a very complex entity with a myriad of functions. It is considered as complex as the brain as regards the levels of functioning. Research has shown that *G. lucidum* through its array of elements has its influence on wide ranging areas of the immune system. The fruiting body and the mycelium of *G. lucidum* are rich in polysaccharides that are instrumental in stimulating the surface receptors in the immune system leading to release of cytokines, lymphokines, interferons etc. Interferons help the blocking of microorganisms and preventing the attacks on tissues. Organic germanium and LingZhi-8 also have immunomodulating activity. The allergic reactions are caused by the release of histamine by breakdown of mast cells. Triterpenoids in *G. lucidum* are known to prevent the breakdown of mast cells thereby inhibiting the release of histamine. Research has also shown anti-inflammatory and antimicrobial activity in *G. lucidum* Improved oxygenation has also been seen.[1-8] In a nutshell, *G. lucidum* can have a major role to play in bolstering the body's defenses to fight the recurrences of the acute respiratory illnesses of common cold, otitis, sinusitis, tonsillitis and bronchitis. A preliminary study was undertaken to ascertain the same.

2 Materials and Methods

Diagnosis was established based on the findings of history, physical examination, radiological examination, culture and relevant means. The major criteria for selection of the cases was more than 1-1/2 years history of recurrences in common cold, otitis, sinusitis, tonsillitis and bronchitis. All age groups were considered as a cross section. The details are shown in Figures 1-7, and Tables 1-5.

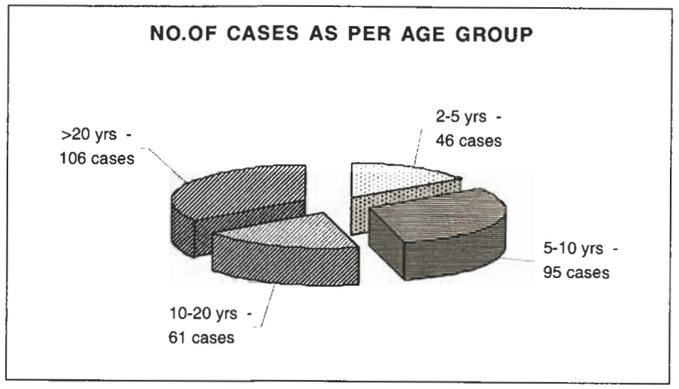

Figure 1. Number of cases per age group

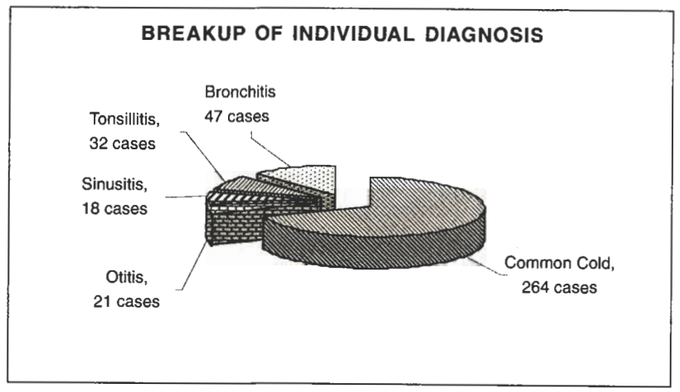

Figure 2. Breakup of individual diagnoses

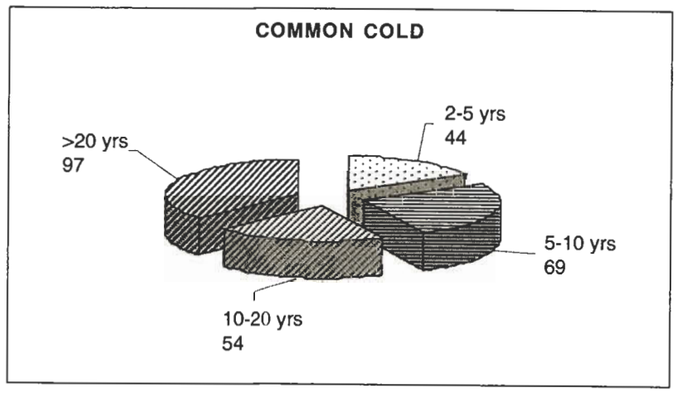

Figure 3. Age distribution of common cold cases

Table 1. Duration of common cold symptoms among different age groups

AGE GROUP	DURATION OF SYMPTOMS		
	1.5-3 yrs	3-5 yrs	>5 yrs
2-5 yrs	41	3	0
5-10 yrs	17	42	10
10-20 yrs	21	27	6
>20 yrs	22	48	27

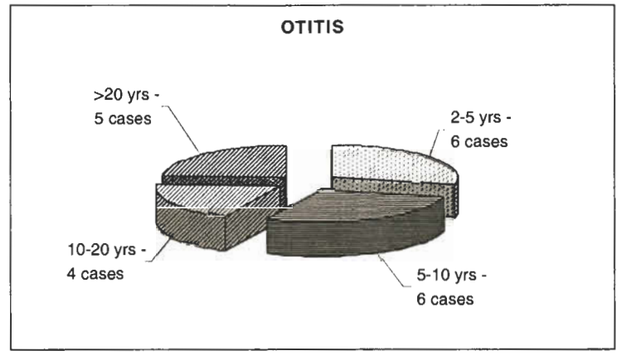

Figure 4. Age distribution of otitis cases

Table 2. Duration of otitis symptoms among different age groups

AGE GROUP	DURATION OF SYMPTOMS		
	1.5-3 yrs	3-5 yrs	>5 yrs
2-5 yrs	6	0	0
5-10 yrs	4	2	0
10-20 yrs	3	1	0
>20 yrs	2	2	1

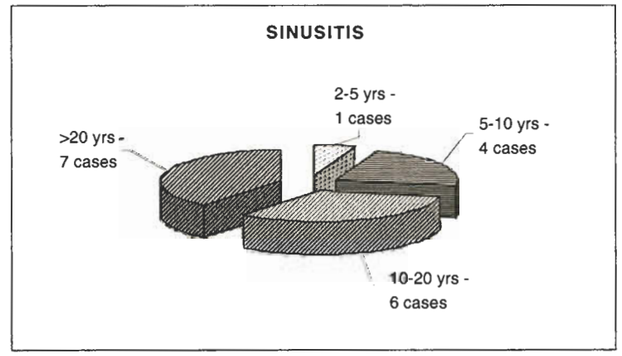

Figure 5. Age distribution of sinusitis cases

Table 3. Duration of sinusitis symptoms among different age groups

AGE GROUP	DURATION OF SYMPTOMS		
	1.5-3 yrs	3-5 yrs	>5 yrs
2-5 yrs	1	0	0
5-10 yrs	3	1	0
10-20 yrs	4	2	0
>20 yrs	4	2	1

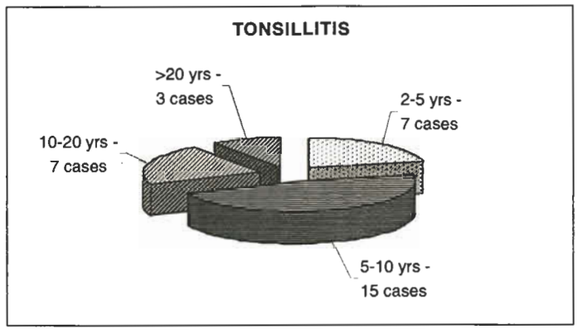

Figure 6. Age distribution of tonsillitis cases

Table 4. Duration of tonsillitis symptoms among different age groups

AGE GROUP	DURATION OF SYMPTOMS		
	1.5-3 yrs	3-5 yrs	>5 yrs
2-5 yrs	7	0	0
5-10 yrs	11	3	1
10-20 yrs	5	2	0
>20 yrs	0	1	2

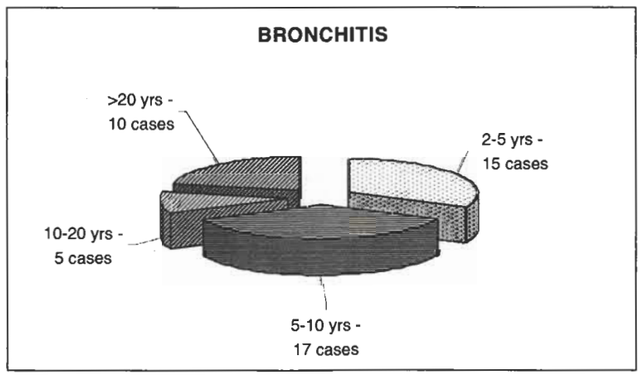

Figure 7. Age distribution of bronchitis cases

Table 5. Duration of bronchitis symptoms among different age groups

AGE GROUP	DURATION OF SYMPTOMS		
	1.5-3 yrs	3-5 yrs	>5 yrs
2-5 yrs	15	0	0
5-10 yrs	12	4	1
10-20 yrs	1	2	2
>20 yrs	2	5	3

A detailed history was elicited and noted, and the symptomatology as a percentage of cases is shown in Table 6.

Table 6. Distribution of symptoms as a percentage of cases

	DISTRIBUTION OF SYMPTOMS AS PERCENTAGE OF CASES	
1	Sneezing	87%
2	Running Nose	87%
3	Nasal Congestion	82%
4	Headache	82%
5	Bodyache	78%
6	Fever	72%
7	Cough	86%
8	Throat Pain	30%
9	Earache	7%
10	Pain in Swallowing	27%
11	Hearing Loss	3%
12	Watering from Eyes	72%
13	Sputum production	18%
14	Breathlessness	15%
15	Toothache	3%
16	Decreased appetite	72%

The selection of cases was made between September 2001 and March 2003. All the subjects were explained the role of *G. lucidum* in augmenting the body's defenses to counter the recurrences. *G. lucidum* in an average dose of fruiting body of 500 mg to 1 gm per day and that of 850 mg to 1.7 gm of mycelium per day was given as capsules. Cases were followed up every two to four weeks and then on every eight weeks to note the changes. *G. lucidum* was given on an average for a period of four weeks to 24 weeks and onwards depending on the frequency, severity and duration of the initial conditions and the responses observed. Cases were followed up for an average period of 1.5 to 3 years after selection. Seven cases were lost on follow-up.

3 Results

After giving *G. lucidum* for an average period of four to 24 weeks, a sizeable improvement was observed in the frequency, severity and duration of the illnesses. A subjective and objective interpretation of the improvements observed was taken for individual cases and the results of improvement are given as percentage for a particular diagnosis (Figures 9-13).

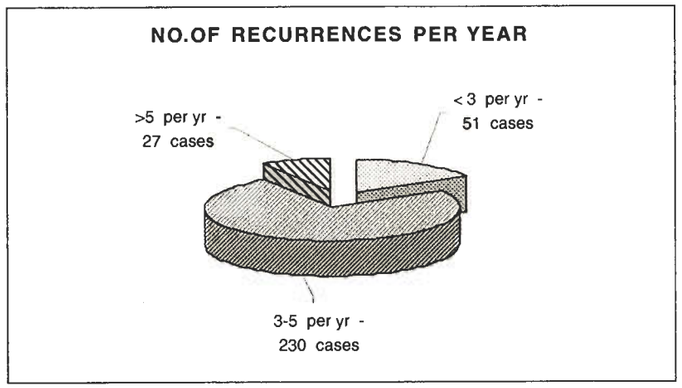

Figure 8. Initial situation related to number of recurrences per year

Table 7. Prior treatment taken

Combination of Allopathy, Ayurveda, Homeopathy, Naturopathy and others	72 %
Either of the approaches as a single option	28 %

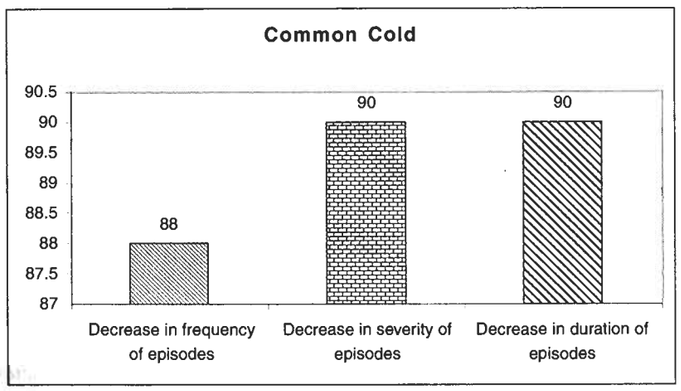

Figure 9. Improvement in percentage of common cold cases post *G. lucidum*

4 Discussion

The results are a big eye opener considering the areas of involvement, the frequency, duration and severity of the problems as well as the facts that they are encompassing all the age groups. Also noticeable is the fact that many lines of treatment had been explored in all these cases previous to study. The results can be explained on the basis of the wide array of elements in *G. lucidum* and their levels of activity. Modern science is mainly targeting the after effects. *G. lucidum* helps the body to fight the root cause. This opens up a new area of focus for approaching the human illnesses and their prevention. *G. lucidum* can be playing a very major role in addressing the illnesses of common cold, otitis, sinusitis, tonsillitis and bronchitis - for the present and the future.

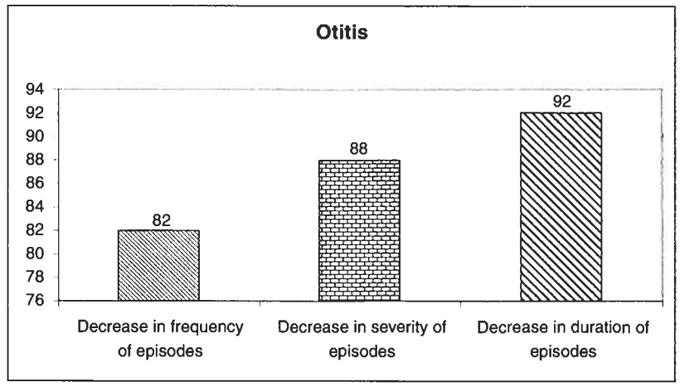

Figure 10. Improvement in percentage of otitis cases post *G. lucidum*

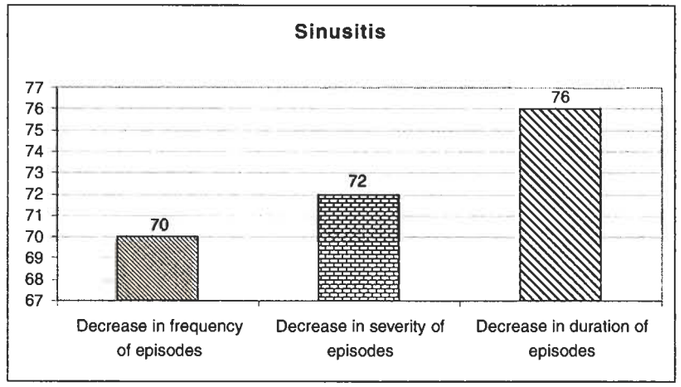

Figure 11. Improvement in percentage of sinusitis cases post *G. lucidum*

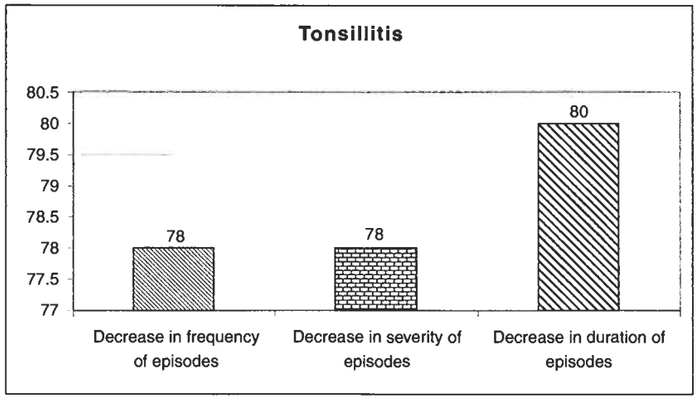

Figure 12. Improvement in percentage of tonsillitis cases post *G. lucidum*

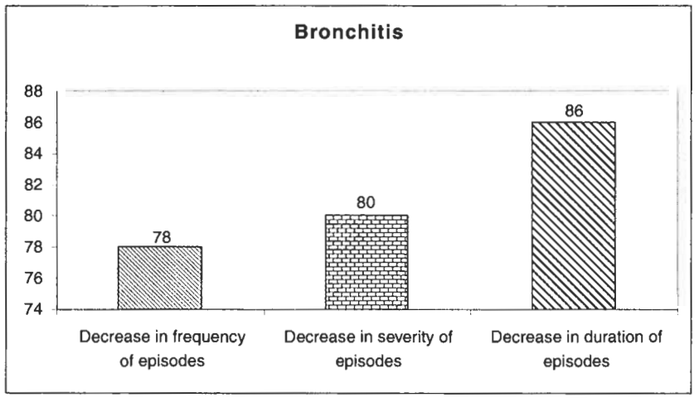

Figure 13. Improvement in percentage of bronchitis cases post *G. lucidum*

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