

A prospective study to assess the efficacy of homoeopathic trituration of potassium sulphate on pityriasis capitis using seborrhea area and severity index

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ABSTRACT

Background: Pityriasis Capitis (Dandruff), is a highly prevalent dermatological disorder, effecting both the physical and the mental aspects of living. Hence, it becomes necessary to find out various methods to resolve the same. This study is focused to understand the effectiveness of homoeopathic remedy, Kalium sulphuricum in the treatment of Pityriasis Capitis. **Methods:** 15 Patients who have attended the outpatient unit of a private Homoeopathic Medical college Hospital were selected for the study. Patients of all the ages and both sexes were included in the study. The severity of spread and intensity of dandruff was calculated before and after the treatment using the Seborrhoea area and severity index (SSI) and the intensity of itching were measured pre and post using Pruritus numerical rating scale (PNRS). **Result:** 11 patients out of 15 i.e. 73.3% showed improvement in their symptoms of dandruff or itching and 26.7% of the individuals showed no marked improved. A mean decrease of 1.02 was seen in SASI scores before and after treatment. A mean decrease of 1.87 was seen in PNRS scores before and after treatment. **Conclusion:** This study shows that Kali sulphuricum has proved to be effective in the treatment of Pityriasis Capitis and has created the scope to investigate the need of external applications in the treatment of cases of dandruff.

Keywords: Pityriasis Capitis, Dandruff, Kali sulphuricum, Homoeopathy, dermatology

Pityriasis Capitis, also termed as dandruff, is one of the commonly seen dermatological condition affecting more than half of the global population. Pityriasis, that means flaking or scaling [1], is derived from a German word which literally translates to Bran or the outer covering of the grain, related to dandruff with respect to its dry and rough appearance. Capitis refers to the location of the affection, i.e. the scalp. The word dandruff (dandruff, dandriffe) is of Anglo-Saxon origin, a combination of 'tan' meaning 'tetter' and 'drof' meaning 'dirty' [2]. Dandruff, although not regarded as one of the most serious conditions in the dermatological science, it becomes important due to its effect on the aesthetic or cosmetic effect on the individual as well the psychological factors involved with the varioussymptoms involved with this condition such as pruritus[3]. Dandruff affects approximately 50% of the general adult

population worldwide. It is also seen that prevalence is more in males than females [4]. It is seen frequently in adolescents, young adults, also in senior adults over 50 years of age. The seasonal variation is also a considerable fact as it is occurring mainly in winter and least during summer.

There are several extrinsic and intrinsic factors that play a role in causing Pityriasis Capitis .Extrinsic factors include lack of physical hygiene, excessive use of hair sprays, gels, wax, creams, persistent aesthetical disturbances, and exposure to dust and dirt. Continuous exposure to sunlight, poor hygiene, overuse of shampoo, cosmetic products such as hair sprays, gels, creams, frequent combing, and environmental pollutants, Further persistent aesthetical disturbance and psychological trauma promotes negative socio-economic impact and

leads to the overgrowth of yeast and cause dandruff. Intrinsic factor includes increased microbial flora, individual susceptibility, allergy, sensitivity, hormonal imbalances, genetic predisposition, and metabolic products of some essential amino acids such as tryptophan.

In cases of Pityriasis Capitis, the shedding of skin cells occurs at a much higher rate than normal. The dead cells that are shed clump together due to the existing oil content in the scalp which gives rise to white flakes.

The scalp has a biotic network out of which *Staphylococcus* spp., *Propioni* bacterium spp., and *Malassezia* species are known components which are usually maintained in equilibrium. However, Disequilibrium in the presence of this major microbial population of bacteria and fungus colonizing the scalp is found to have a very close association to the presence of dandruff according to few studies. *Malassezia* is one of the yeast that is present on healthy as well as dandruff-afflicted scalps. This being a lipophilic yeast is one of the main hypothesis for the presence of dandruff [5]. In cases of Pityriasis Capitis, *Malassezia* levels almost double its normal level [6].

Some metabolic products of tryptophan such as its indole derivatives of *Malassezia* are one of the main cause of dandruff. Individual susceptibility and allergy sensitivity is one of the most important causes of dandruff. Heredity only plays a small role in developing a predisposition for this condition. Other probable causes like stress, poor diet, genetic disposition, hormonal imbalances, and infections further contribute to developing dandruff [7].

The current anti-dandruff treatment seen in other systems of medicine contain antifungal, keratolytic, anti-inflammatory, anti-sebum, and antibacterial agents. Antifungal agents like zinc pyrithione, imidazoles. Anti-keratostatic or keratolytic agents such tar, selenium sulfide, salicylic acid, sulphur compounds and Anti-inflammatory agents like corticosteroids are commonly used based on the underlying disorder [8]. But these agents have shown only temporary relief and the relapse of dandruff in these patients are very common.

Need for the Study : Pityriasis Capitis is seen among more than 50% of the human population. But the abuse of external applications like oils, shampoos, conditioners and other hair products have led to more damage than help of any kind. Hence most cases of Pityriasis Capitis which are complicated this way needs to be dealt with in

a very mild, gentle and safe fashion. Homeopathic Materia Medica tells us about importance of Kali sulphuricum when it comes to skin disorders, especially against that of Pityriasis Capitis.

In the 'The Guiding Symptoms of Our Materia Medica' by Constantine Herring, action of Kali sulphuricum on Pityriasis Capitis is described as-Yellow scales (dandruff) on scalp [9]. Bald spot as large as a silver dollar on left side of head. Hair falls out easily when combing, all over head, also hair of beard. After gonorrhoea.

In the 'Lectures on Homeopathic Materia Medica' by Dr J T Kent, the following indications are given with respect to dandruff [10]. Eruptions on scalp, crusts, eczema, moist, sticky, pimples, scaling. Fullness in head, and hair falls out. Itching of the scalp in the morning. Itching and stinging eruptions. Scaly eruptions on a moist base. DESQUAMATION of the scalp.

John Henry Clarke in his literature 'A Dictionary of Practical Materia Medica' describes the action of Kali sulph on dandruff where the characteristics are Yellow dandruff; moist, sticky, bald spot on the side of head, also beard. Abundant scaling of epidermis.-Burning itches, Papular eruption exuding pus-like moisture. Fine red pimples running together. -Scurf, scaling, chapping. Sores with yellow, sticky secretions [11]. The guiding symptom was "great desquamation of the epidermis." All symptoms are < in evening.

M L Taylor gives a description of the Drug Picture of Kali sulphuricum as white scales on scalp: dandruff. White, scaly dandruff; hair dry and falling out. Biting, burning, stinging itch, scalp, as if it had been rubbed with cayenne pepper Children with eruption on scalp [12], Eczema Capitis of entire scalp, forming massive dirty crusts which mat the hair. Painful and sore to touch. Falling out of hair of scalp.

According to the Manual of Homeopathic Materia Medica by Dr William Boericke [13], Kali sulph may be given for dandruff where the indications are: Psoriasis of the scalp. Seborrhoea. Ring-worm of scalp or beard with abundant scales. Ailments accompanied by profuse desquamation. Dandruff and scald head.

This remedy, according to Schussler [14], is the function remedy of the epidermis and of the epithelium. A deficiency of this cell salt causes a yellow, slimy deposit on the tongue, slimy, thin, or decidedly yellow or greenish discharge and secretions of watery matter from

any of the mucous surfaces, and epithelial or epidermal desquamation. The yellowness is probably due to retrograde metamorphosis and fatty degeneration of inflammatory products and of epithelium, etc.

Aim and Objectives: The main objective of the study is to evaluate the efficacy of triturated Potassium Sulphate i.e. homeopathic remedy Kali sulphuricum 6x in the treatment of Pityriasis Capitis. The objectives were to demonstrate the scope of Homoeopathy in cases of Pityriasis Capitis and to negate the role of external application in treatment of dandruff.

MATERIALS AND METHOD

The following study was a Prospective observational study that was carried out in the Outpatient Department of a private Homeopathic medical college Hospital Mangalore; The Study population consisted of the patients who visited the OPD of the private homeopathic medical college hospital who complied with the inclusion criteria.

The study included individuals of both genders and all ages who are known cases of Pityriasis Capitis with observable dandruff, noticeable flaking of scalp, having scalp irritation, greasiness of scalp or with hair fall.

Individuals with serious co-morbidities, those under specific scalp therapy or have undergone hair fixing treatments, The one's with Parkinson's disease, Pregnant and lactating females, those with immune-deficient conditions like AIDS and Patients under current use of antibiotics or antimycotics were excluded from the study. With 95% confidence level and 80% power, the sample size calculated for the study was 15 with reference to [15] and was calculated using the formula $N = Z_{\alpha/2} Pq / E^2$, Where, $Z_{\alpha} = 1.96$ at 95% confidence level, $P(\text{Prevalence}) = 80$ [15], $q = 100 - P$, $E = \text{Relative Precision } 20\%$ (80% Power) [16]. The method of convenience sampling was followed.

The Proposed intervention was Rx Kali sulphuricum 6x (2tab-2tab-2tab/ 4 weeks) which was procured from Good manufacturing practices (GMP) certified Homoeopathic pharmaceutical unit. Preliminary data was obtained using a pre-structured questionnaire that included the symptoms and its characteristics with regard to the sensation, modalities and accompaniments.

The spread and intensity of the eruptions or dandruff is calculated using Seborrhoea Area and Severity Questionnaire (SASI) [17] and the score is noted. The

intensity of itching is calculated using Pruritus Numerical Rating Scale (PNRS) [18]. The cases in which the symptoms indicated Kali sulphuricum, the proposed intervention Rx Kali sulph 6x (2tab-2tab-2tab) was prescribed orally for 4 weeks. The respondent is advised to not change any habits related to scalp or skin hygiene and avoid adding or removing any products that is already in use. The follow-up was taken after a period of 4 weeks by obtaining the SASI score and PNRS score. Symptomatic improvement was also noted based on its presence and intensity.

Statistical Analysis: Data Analysis was done using the Students paired t-test and Chi square test. Statistical package SPSS vers.23.0 was used to do the analysis. $p < 0.05$ was considered as significant.

RESULTS

The following are the results and observations obtained after the analysis of the data obtained by the respondents over a study period of 6 months. Out of the 15 respondents considered in the study, 80 % of them were adults between the age of 18 to 44 and 13 % between the ages of 45 to 59 years of age. 60 % of them males and 40 % were females. We could see that the majority of the respondents with dandruff were students (40%) followed by skilled workers (33%). 80% of the individuals with dandruff have shown to have family history of Pityriasis Capitis among their first line relatives.

46.6% of the individuals with dandruff were seen to have decreased or disturbed sleeping patterns and 40% of them have intact sleeping patterns. 60% of the participants washed their hair 2-4 times a week whereas we can see only 7 % of the individuals washed their hair only once a week. Out of the 15 respondents, we could see that 60% of the individuals used shampoo 2-4 times a week whereas 13% of them use shampoo.

53% of the individuals who were a part of this study used hair oil only one time a week, whereas 40% of the individuals used hair oil 2-4 times a week. 9 individuals use anti dandruff shampoo regularly whereas 6 individuals do not. 67% of the individuals use hair colouring products or hair dyes regularly. After the treatment of Kali sulphuricum 6x for a period of 4 weeks, we could see that 73% of individuals were symptomatically better whereas 27% of them have shown no marked improvement (Table 1). We could see that 77.8% of the individuals who wash hair 2-4 times per week is improved. The association between the hair washing frequency and improvement is statistically not

Significant ($p=0.635$) (Table 2). 55.6% of the individuals who use shampoo 2-4 times per week is improved. The association between the shampoo usage frequency and improvement is statistically not significant ($p=0.162$) (Table 3).

Table 1 - Symptomatic improvement status

	Number of Participants	Percentage
Improved	11	73.33%
No Marked Improvement	4	26.67%

Table 2 - Association between improvement status vs. hair washing frequency

		Hair washing frequency			Total
		1 time	2-4 times	>5 times	
Improved		1	7	3	11
%		100.0%	77.8%	60.0%	73.3%
Not Improved		0	2	2	4
%		.0%	22.2%	40.0%	26.7%
Total	Number	1	9	5	15
	%	100.0%	100.0%	100.0%	100.0%

$X^2=0.91$ $p=0.635$ ns

Table 3 - Association between improvement status vs. shampoo usage frequency

		Shampoo usage frequency			Total
		1 time	2-4 times	> 5 times	
Improved		4	5	2	11
%		100.0%	55.6%	100.0%	73.3%
Not improved		0	4	0	4
%		.0%	44.4%	.0%	26.7%
Total	Number	4	9	2	15
	%	100.0%	100.0%	100.0%	100.0%

$X^2=3.64$ $p=0.162$ ns

The mean of SASI score before treatment was 3.78 and after treatment was 2.77. Hence we could see that there is a mean decrease of 1.02 in the SASI scoring before and

after treatment which is statistically very highly significant ($p<0.001$) (Table 4). The mean of PNRS score before treatment was 4.80 and after treatment was 2.93. Hence we could see that there is a mean decrease of 1.87 in the PNRS scoring before and after treatment which is statistically very highly significant ($p<0.001$) (Table 5).

DISCUSSION

In the study of 15 patients of Pityriasis Capitis, the highest incidence was from the age group 18-44 yrs. This shows that the incidence is more in the age group of 18-44 because sebaceous glands undergo marked hypertrophy which may be an indication of the hormonal control of these glands. 9 patients i.e. 60% were males and 6 patients i.e. 40% were females. Sebaceous gland is an androgen target organ, and the sebaceous secretion being androgen dependent, males have higher incidence than females. The highest incidence in students indicates that hormonal influence due to stress, improper nutrition and consumption of junk foods including food rich in sugar and fat could be the additional factors

All the data regarding the hair hygiene and habits and its different reaction in different individuals proves the homoeopathic principles of individuality that not everyone reacts the same way as others regarding the action of external agents on the body. Moreover, the usage of external agents for cosmetic reasons is causing more harm than the ones who use it rarely or never

There was a considerable improvement in the symptoms of dandruff and pruritus as evidenced by the usage of scoring scales i.e. SEBORRHEA AREA AND SEVERITY INDEX and PRURITIS NUMERICAL RATING SCALE. The comparison of the pre and post treatment values of both the scales was compared using the STUDENTS PAIRED T-TEST.

This is a conclusive proof of the anti-dandruff and anti-pruritic action of Kali sulphuricum seen in varied degrees in cases of Pityriasis Capitis. All these results being statistically very highly significant proved the efficacy of homoeopathy in treating Pityriasis Capitis without any side effects in less than 4 weeks of treatment.

Homoeopathy which has a holistic approach to the patient also considers psychological and stress factors of the individual and hence, is more beneficial in the treatment of Dandruff. Since this study was done on a sector totality based approach, it is always advised to treat the person to avoid recurrence of the trait using a deep acting constitutional or an anti-miasmatic remedy.

Table 4 - Comparison between pre and post of seborrhea area and severity index

	N	Mean	Std. Deviation	S.E. Mean	Mean difference	SD Diff.	t	p
SASI before	15	3.78	2.71	.70	1.02	.79	4.96	<.001
SASI after	15	2.77	2.54	.66				

Table 5 - Comparison between pre and post of pruritis numerical rating scale

	N	Mean	Std. Deviation	S.E. Mean	Mean difference	SD diff	t	p
PNRS before	15	15	4.80	1.61	1.87	1.06	6.82	<.001
PNRS after	15	15	2.93	1.75				

The small number of sample sized selected based on the key article had no much effect in understanding the action of Kali sulphuricum on dandruff as the results obtained were conclusive which was statistically highly significant. However, a larger sample size could have given a better clarity in understanding the role of hair wash frequency, usage of hair oil, anti-dandruff shampoo and hair colouring products on incidence of dandruff and pruritus and a better association between the maintenance of these precipitating factors in the treatment duration. A study based on a larger sample size is advised to get more accurate results on the action of Homoeopathy with dermatological conditions.

The proof of anti-dandruff and anti-pruritic action of the drug could be better studied if there was a placebo controlled group to understand the authenticity of the results. Hence a future study with a control group with either placebo treatment or a control group with external applications could be useful in understanding the action of homoeopathic drugs on skin conditions like Pityriasis Capitis.

CONCLUSION

This study proves that the Homoeopathic preparation of potassium sulphate i.e. Kali sulphuricum 6x is efficient in treating Pityriasis Capitis in removing the symptoms as evidenced by the Seborrhoea Area and Severity Index and Pruritus Numerical Rating Scale and has created the scope to investigate the need of external applications in the treatment of cases of dandruff.

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