Effect of Homoeopathic Ruta graveolens followed by an Individualized Treatment on Progression of Simple Myopia : A Retrospective Study

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Abstract

Background and aim :

Simple (childhood) myopia is a common variety of myopia that progress during the period of body growth and stabilize by early twenties. Heredity plays an important role in its incidence however increased prevalence and its progression during last few decades especially in Asian countries was mainly attributed to excessive near work. Out of different studies done so far to control myopia, topical use of modern medicine *Atropine* 1% was found effective in controlling myopia but has side effect, ethical issues and rebound effect after cessation of treatment. Homoeopathy mentions medicines for myopia, out of which *Ruta graveolens* (Ruta) seems to have more similarity to myopia associated with excessive near work due to its action on accommodation and sclera. In homoeopathy hereditary diseases are treated by use of individualized medicines that helps to correct abnormal susceptibility in an individual. So these medicines were used in this study with an aim to evaluate the effect of Ruta 3C followed by individualized homoeopathic (IH) treatment on annual myopia progression rate in patients suffering from simple myopia.

Material and Methods:

Eleven cases of simple myopia in progressive stage were studied retrospectively from the record of institute's OPD. Subjects aged 8 to 16 years and myopia of -1.5 to -7.0 diopters (D) were included. Myopia or spherical equivalent of refraction (SER) before starting the treatment was assessed from previous refraction reports. *Ruta* 3C in BD dose was used orally for 2 years with a gap of 7 days after every 21 days of medication. Thereafter Individualized homoeopathic (IH) treatment was given and subjective refraction

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findings on Snellen's chart during Ruta and after IH treatment were recorded. Annual myopia progression rate (AMPR) before, during Ruta and after IH treatment was calculated and analysed with paired *t*-test.

Results:

Mean myopia or SER before treatment was -2.80 (± 1.37) D and at the start of Ruta treatment was -3.98 (± 1.62) D. that has occurred in average of 18.2 (± 9.36) months, so the mean AMPR before treatment was -1.04 (± 0.68) D. After 2 years of Ruta treatment, mean myopia was -4.72 D. and AMPR was -0.37 (± 0.27) D. This reduction in AMPR of -0.67 D. was statistically significant (t = -2.82, *P* = 0.018). After IH treatment, mean myopia was-4.92 (± 1.67) D and AMPR was further reduced to -0.22 (± 0.22) D.

Conclusions:

Homoeopathic Ruta 3C in BD dose over 2 years was useful in controlling annual myopia progression rate in patients suffering from simple myopia and the rate was further reduced after individualized Homoeopathic treatment.

Key words: Individualized Homoeopathy, Myopia, Ruta graveolens

Introduction

Myopia is defined as that state of refraction in which parallel rays of light entering the eye at rest are brought to focus in front of retina. [1] Simple or childhood myopia is a common variety of axial myopia that occurs between 6 and 18 years of age, progresses during the period of body growth and stabilizes by the late teens or early twenties. [2] Once myopia begins to develop, the mean rate of progression in children between 8 to 13 years of age is 0.55 D/year for Caucasian children;[3] and 0.82 D/year determined for Asian children by meta-analysis. [4] The prevalence of myopia varies in different parts of the world affecting as high as 85% to 90% of young adults in some Asian countries such as Singapore and Taiwan, [5, 6] while between 25% and 50% of older adults in the United States and Europe. [7,8] Aetiology and pathogenesis of myopia have been debated for decades but the exact mechanism of its development is still unclear. Different aetiological factors postulated were heredity, excessive near work, reduced rigidity of sclera, hormonal changes, systemic diseases, diet etc. Heredity is known from ancient times to play a major role in development of myopia which can be appreciated from facts such as multiple twin studies have shown that monozygotic twins tend to resemble each other more closely in refractive error and ocular component values than do dizygotic twins. [9] Different studies have shown a higher risk for the children to become myopic, if their parents are myopic. Higher prevalence of myopia was seen among some ethnic groups and they show almost the same incidence even though they settle in other countries. Genetic factors make an individual more susceptibility for environmental influences like excessive near work for the development and rapid progression of myopia. Even though heredity plays a major role in myopia development but it can't explain higher incidence and rapid progression of myopia observed world over especially in Asian countries during last few decades. So this situation of myopia has been mainly attributed to environmental factors particularly an excess of near work as the genetic makeup can't change considerably over such a short period of time. Different epidemiological studies has reported higher myopia progression rates with earlier age of onset of myopia, greater amount of time spend on reading and near work, shorter reading distance and less time spend on outdoors activities. [10] So many researchers state that both genetic and environmental factors in combination play a major role in the higher incidence and rapid progression of myopia. Individuals having myopia especially of higher grade has to face different problems in their future especially from medical, occupational and economic point of view. Higher the grades of myopia more are the chances of blinding complication in future such as myopic macular degeneration, retinal detachment and glaucoma. [11] Myopia has been implicated as the sixth leading cause of vision loss. [12] Many myopes are disqualified in services where more visual acuity is required such as military and transport services. Progression of myopia in children leads to financial burden to their parents in frequent change of glasses or contact lenses. So progression of simple myopia not only creates loss at personal level but also affects the economy and prosperity of the whole nation.

Lot of research is going on world over to control myopia and different measures used were vision therapy or exercises, optical devices, local use of modern medicines etc. In optical devices controlled studies on

use of bifocal and progressive spectacles for slowing progression of myopia had achieved a small treatment effect ranging from 0.15 to 0.50 D over 1.5 to 3 years. [13] However it is useful only in children having near point esophoria and treatment effect occurred mainly in the initial period of treatment thereafter myopia progression were at a similar rate to those of control group. Out of different modern medicines used, topical use of *Atropine* 1 % was found effective in controlling myopia. But it has not yet been approved as standard treatment for myopia due to its side effects, ethical issues and rebound effect after discontinuation of its treatment.[10] Laser refractive surgery only corrects the existing myopia but doesn't help to control its progression. So there is a great need of research to have a medical line of treatment that is effective, safe, economical and easy to use to control myopia.

In homoeopathy different medicines were mentioned under the heading of myopia. However these medicines are used for different varieties of myopia. Myopia associated with near work is concerned, *Ruta graveolens* (Ruta) seems to have more similarity as compared to other medicines. [14] *Allen TF* has mentioned Ruta as a valuable medicine in weakness of accommodation especially in near-sighted people. [15] *Clark JH* has stated its use in ailments from overstraining eyes, from reading too much, especially fine work at night. [16] Ruta has affinity for eyes in general and sclerotic portion of the eye in particular. [17] Reduced rigidity of sclera is one of the important factors in incidence and progression of myopia especially of hereditary one. *Moffat JL* and *Norton AB* have stated indication of Ruta in weakness of ciliary muscles than internal recti. [18,19] Ciliary muscle are used in the process of accommodation during near work. Different studies have observed reduced accommodative response in myopic individuals as compared to emmetropes. [20] So *Ruta* can be used as an organ remedy to strengthen weakness of accommodation in myopes. Organ remedy help to support weaker organ as to give tone and strength to organ so that constitutional medicines can work in a better way without causing much aggravation.[21] Individualized (Constitutional) homoeopathic treatment is usually given in homoeopathy when a disease is hereditary in nature. Constitution in an individual is a sum total of his characteristics in three planes - emotional, intellectual and physical. [22] Constitutional treatment helps to remove abnormal susceptibility in an individual for a particular disease.

A previous study of *Ruta* on myopia has been carried out and has shown its controlling effect on myopia. [23, 24] However effect of individualized homoeopathic treatment on myopia after *Ruta* was not studied so far. So this retrospective study which is based on previous study was carried out with an aim to evaluate the effect of *Ruta* followed by individualized homoeopathic treatment on annual myopia progression rate in patients suffering from simple myopia.

Material and Methods

Study design and Settings:

It was a retrospective observational study done from the record of 11 diagnosed cases of simple myopia in their progressive stage which were enrolled during the year 2005 to 2007 in institute's Out-patient Department (OPD).

Population :

Inclusion criteria were : subjects suffering from simple myopia in its progressive stage and those who have completed 2 years of Ruta treatment, Age group between 8 to 16 years with myopia between -1.5 to -7.0 diopters (D) and corrected visual acuity up to 6 / 6 on Snellen's chart, subjects with previous refraction reports from 4 to 37 months, subjects with normal ocular health other than myopia and in good general health. Subjects excluded were those of > 16 years age and who had previous refraction reports < 4 months before starting the treatment.

Therapy :

Homoeopathic *Ruta graveolens* 3C was procured from a licensed homoeopathic pharmacy in sufficient quantity so that the same batch was used in all participants. It was given in a dose of 4 globules twice a day for the total duration of 2 years with a gap of 7 days after every 21 days interval.

Thereafter a placebo was given to all the subjects for one month as a wash out period. It was followed by individualized homoeopathic (IH) medicines selected as per law of simila on the basis of mental general, physical general and characteristic particular. Symptoms were evaluated and rubrics for repertorisation were

listed. It was followed by the process of repertorisation with the help of HOMPATH Vital © homoeopathic software. Final selection of medicine was done after referring materia medica. Medicines were prescribed singly at a time and from potency 30C or 200C rising up to 1M, 10M depending on basis of medicine selection and further response of patient in their symptoms and myopia status. An intercurrent medicine was prescribed, if patient did not show any improvement in their complaints or if myopia continues to progression in spite of rising potency. Follow-up of patients was done after every month. Each patient was treated with an IH medicine for the minimum period of 6 months. During treatment period patients were advised to use corrected glasses regularly and no alteration in their diet and regimen was suggested.

Criteria for assessment :

Myopia is defined as Spherical Equivalent of Refraction (SER) in diopters as an outcome measure assessed by subjective refraction and it is defined as a spherical refraction plus half of cylindrical refraction. Refraction before starting treatment was assessed from patient's previous refraction reports. While during Ruta treatment, it was checked after every 4 months with the help of Snellen's chart and finalised after Duochrome test. [25] Refraction findings before, at the start, after 24 months of Ruta treatment and after IH treatment were recorded.

Method of Statistical Analysis :

Average of both eyes was used to evaluate the magnitude of change in refraction (SER). Mean change in SER before starting the treatment was calculated by subtracting SER value at the start of treatment from SER value before starting the treatment for each participant by taking into consideration their previous oldest refraction report up to maximum of 3 years. From this change in SER, annual myopia progression rate (AMPR) in diopters (D) before starting the treatment was calculated by multiplying 12 months to mean change in SER value divided by number of months required for this change in SER. It was calculated for each participant and from AMPR values of 11 participants an average rate was calculated.

Mean change in SER during Ruta treatment was calculated by subtracting SER value after 2 years of treatment from SER at the start of treatment and then a yearly myopia progression rate was calculated. In a similar way, AMPR after IH treatment was assessed. Results on AMPR before, during Ruta treatment and after IH treatment were analysed with paired *t*-test and probability value (*P*) of < 0.05 was considered statistically significant.

Results

Flow of the participants :

Total 16 subjects were assessed for eligibility that has completed 2 years of Ruta treatment as this study was based on a controlled clinical study of Ruta that has started in the year 2005. [24] Out of 16 subjects 2 were excluded as the age was more than 16 year in one, while other was willing to go for contact lenses. Out of 14 subjects selected, 3 were lost to follow-up. One had shifted the residence after 2 months of follow-up, while other had less than 3 months of follow-up and was not contactable. Remaining one was lost after 3 months as he was not able to come for follow-up due to his school and tuitions. So total 11 subjects were taken for analysis [Figure1]

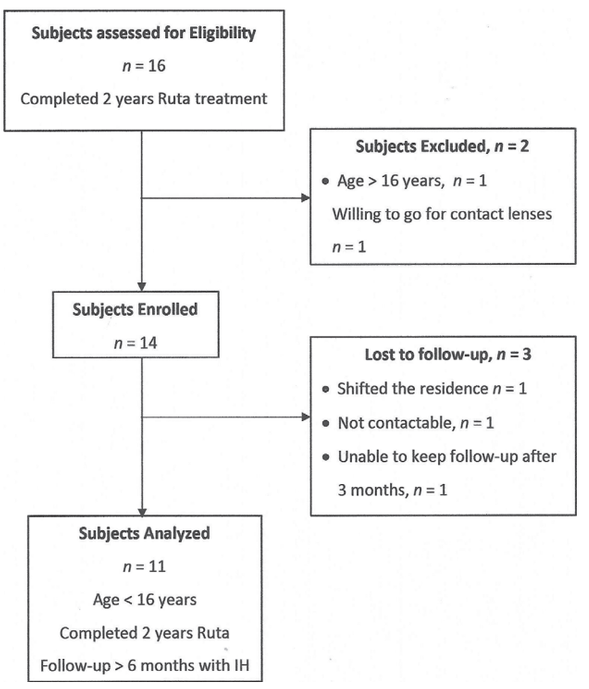

Figure 1. Flow diagram of study participants

Baseline characteristics :

The mean age at baseline was 11.0 (± 2.21) years. Gender is concerned, 7 were female subjects and 4 males. All children were involved in school education and were living in urban area. In 6 children there was a history of myopia in their parents while 5 had no parental myopia. They had an average near work of 4.1 (± 1.1) hours. The mean myopia (SER) before starting the treatment was -2.80 (± 1.37) D, while at the start of treatment it was -3.98 (± 1.62) D.

Main Results :

The mean change in SER before starting the treatment was -1.19 (± 0.47) D that has occurred in average of 18.2 (± 9.36) months. So mean AMPR was –1.04 (± 0.68) D before starting the treatment. After 24 months of Ruta treatment the mean SER was -4.72 D (± 1.66) and the mean change in SER was -0.73 D (± 0.55). So the mean myopia progression rate was -0.37 (± 0.27) D per year. This substantial difference in AMPR after Ruta treatment of -0.67 (± 0.40) D was found to be statistically significant (t = -2.28, *P* = 0.018). Mean SER after IH treatment was -4.92 (± 1.67) D, so the mean change in SER after IH treatment was -0.20 D (± 0.17) that has occurred in the average of 12.18 months (± 2.48). The mean AMPR after IH treatment was -0.22 D (± 0.22). The difference in AMPR between Ruta and IH treatment of -0.15 D was not found statistically significant (t = -1.46, *P* = 0.175). Out of 11 subjects, AMPR in majority of subjects (7) was e™ -0.75 D. before starting the treatment, whereas after Ruta treatment it was < -0.5 D. in majority (9). Refer table 1 to see myopia and annual myopia progression rate values in all individual subjects and figure 2 to see mean annual myopia progression rate before treatment, during Ruta and after IH treatment. Refer table 2, 3 to see statistical outcome

Table 1. Myopia and annual myopia progression rate in subjects before, during Ruta and after individualized treatment.

	Before Treatment				Ruta Treatment			Individualized Treatment			
Age / Gender	SER Mean (D)	Myopia Duration (Months)	SER Start T. (D)	AMPR (D)	SER Mean (D)	Changed SER (D) (2 Years)	AMPR (D)	Treatment Duration (Months)	SER Mean (D)	Changed SER (D)	AMPR (D)
8 / M	-1.75	15.0	-2.50	-0.60	-3.25	-0.75	-0.38	11.0	-3.63	-0.38	-0.41
9 / M	-1.13	18.0	-2.25	-0.75	-4.25	-2.00	-1.00	12.0	-4.50	-0.25	-0.25
10 / F	-3.38	24.0	-4.94	-0.78	-5.38	-0.44	-0.22	8.0	-5.38	0.00	0.00
11 / F	-1.00	16.0	-1.75	-0.56	-2.25	-0.50	-0.25	11.0	-2.50	-0.25	-0.27
11 / F	-4.00	8.0	-5.38	-2.06	-5.75	-0.38	-0.19	13.0	-5.87	-0.12	-0.11
11 / M	-3.50	12.0	-5.00	-1.50	-5.38	-0.38	-0.19	8.0	-5.88	-0.50	-0.75
12 / F	-3.75	28.0	-4.12	-0.16	-4.88	-0.76	-0.38	14.0	-5.25	-0.38	-0.32
12 / F	-5.00	23.0	-6.75	-0.91	-8.25	-1.50	-0.75	15.0	-8.50	-0.25	-0.20
12 / F	-1.63	4.0	-2.38	-2.25	-3.13	-0.75	-0.38	14.0	-3.25	-0.13	-0.11
14 / M	-3.88	37.0	-5.25	-0.45	-5.75	-0.50	-0.25	13.0	-5.75	0.00	0.00
16 / F	-1.75	15.0	-3.50	-1.40	-3.63	-0.13	-0.06	15.0	-3.63	0.00	0.00

SER: Spherical Equivalent of Refraction; **D:** Diopter; **T:** Treatment; **AMPR:** Annual Myopia Progression Rate

Table 2. Statistical outcome on annual myopia progression rate in diopters before and during Ruta treatment

	Before Treatment (n = 11)	Ruta Treatment (n = 11)	Before and During Ruta treatment		
	Mean (± SD)	Mean (± SD)	Difference (95% CI)	*t value*	*P* value
Annual myopia (diopters) progression rate	-1.04 (± 0.68)	-0.37 (± 0.27)	-0.67 (-1.20 to -0.14)	-2.82	0.018

Table 3. Outcome on annual myopia progression rate in diopters during Ruta and after individualized treatment.

	Ruta Treatment (n = 11)	**Individualized Treatment** (n = 11)	**During Ruta and After Individualized treatment**		
	Mean (± SD)	Mean (± SD)	Difference (95% CI)	*t value*	*P* value
Annual myopia (diopters) progression rate	-0.37 (± 0.27)	-0.22 (± 0.22)	-0.15 (-0.37 to 0.08)	1.46	0.175

Table 4. Individualized homoeopathic medicines prescribed with their indications based on totality of symptoms.

Medicine (*n*)	**Symptoms**		
	Mental general	**Physical general**	**Particulars**
Argentum nitricum (1)	Childish speech, Weeping mood	Hot patient, Desires sugar Sleep with limbs drawn up	Myopia, Eructation loudWhite spots on nail
Natrium muriaticum (2)	Anger doesn't express, Dwells on past events Can't tolerate contradiction	Hot patient, Face oily Desire for salt, repeated URTI	Headache from exposure to sunColdness of extremities
Natrium sulphuricum (2)	——-	Hot patient, desires salt Repeated URTI, F / H - Warts	Chronic nasal catarrh with obstruction of nose < monsoon
Pulsatilla nigricans(4)	Weeping disposition, Timid, Fear of alone, Indisposition to talk	Hot patient, thirstless, aversion for milk, desire sour food, uncovers feet during sleep, Sleeps on abdomen	Offensive perspiration over the feet.
Sulphur (2)	Irritability, quarrelsome	Hot patient, dry skin, red lipsDesires - sweets, aversion - milk, Uncovers feet during sleep	Heat or perspiration over palm of hand, urticarial from hair oil Sneezing in the morning

Table 5. Baseline characteristics, difference in AMPR before Ruta, during Ruta and after individualized homoeopathic treatment.

Age / Gender	Myopic Parents	Near Work Hrs.	AMPR BT (D)	AMPR During Ruta (D)	Difference AMPR (D) (Ruta - BT)	Reduction AMPR (D) By Ruta	AMPR After IH (D)	Difference AMPR (D) (IH - Ruta)	Reduction AMPR (D) By IH	Individualized Homoeopathic **Medicines**
8 / M	Yes	3.0	-0.60	-0.38	**0.23**	**Yes**	-0.41	**-0.03**	**No**	Sulphur
9 / M	Yes	4.0	-0.75	-1.00	**-0.25**	**No**	-0.25	**0.75**	**Yes**	Sulphur
10 / F	Yes	3.0	-0.78	-0.22	**0.56**	**Yes**	0.00	**0.22**	**Yes**	Pulsatilla nigricans
11 / F	No	5.0	-0.56	-0.25	**0.31**	**Yes**	-0.27	**-0.02**	**No**	Natrium sulphuricum
11 / F	Yes	4.0	-2.06	-0.19	**1.88**	**Yes**	-0.11	**0.08**	**Yes**	Pulsatilla nigricans
11 / M	Yes	3.5	-1.50	-0.19	**1.31**	**Yes**	-0.75	**-0.56**	**No**	Natrium sulphuricum
12 / F	No	4.0	-0.16	-0.38	**-0.22**	**No**	-0.32	**0.06**	**Yes**	Natrium muriaticum
12 / F	No	6.0	-0.91	-0.75	**0.16**	**Yes**	-0.20	**0.55**	**Yes**	Argentum nitricum
12 / F	No	3.0	-2.25	-0.38	**1.88**	**Yes**	-0.11	**0.27**	**Yes**	Pulsatilla nigricans
14 / M	No	4.0	-0.45	-0.25	**0.20**	**Yes**	0.00	**0.25**	**Yes**	Pulsatilla nigricans
16 / F	Yes	6.0	-1.40	-0.06	**1.34**	**Yes**	0.00	**0.06**	**Yes**	Natrium muriaticum

AMPR : Annual Myopia Progression Rate, **D :** Diopters, **BT :** Before Treatment, **IH :** Individualised Homoeopathy

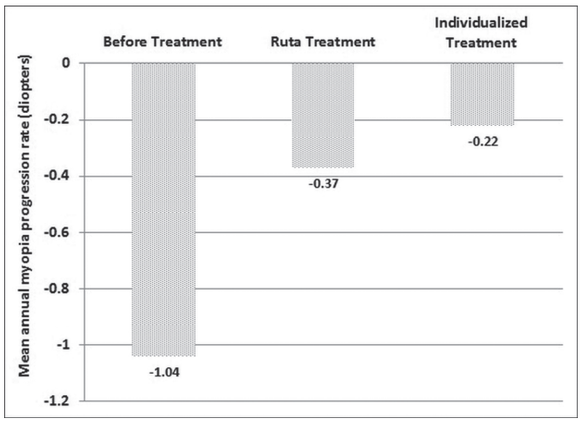

Figure 2. Mean annual myopia progression rate in diopters at different phases of study.

of treatment on AMRP. The difference in AMPR before and during Ruta treatment is concerned, there was a reduction in rate after Ruta treatment in majority (9) of subjects [Table 5]

Effect of an individualized homoeopathic medicines on myopia :

There were five different remedies prescribed, namely, *Argentum nitricum*, *Natrium muriaticum*, *Natrium sulphuricum*, *Pulsatilla nigricans* and *Sulphur*. Whereas intercurrent medicines used were *Medorrhinum*, *Sulphur and Tuberculinum*. Refer table 4 to see individualized homoeopathic medicines prescribed with their indications. After starting IH treatment following Ruta, there was a reduction in AMPR in 8 subjects, whereas in 3 subjects there was a minor increase in the rate. The most useful medicines found were *Pulsatilla nigricans* and *Natrium muriaticum* used in 4 and 2 subjects respectively [Table 5].

Apart from beneficial effect of individualized homoeopathic treatment on myopia other associated complaints reduced were: offensive foot sweat, allergy to artificial jewelry, repeated URTI, repeated cold, oiliness of face, white spots over nail, headache from sun heat.

Discussion

Key findings :

The study results have shown a significant reduction in the annual myopia progression rate by -0.67 D after the use of Ruta 3C in BD dose. Similarly an individualistic homoeopathic treatment following Ruta treatment has resulted in further slowing down the myopia progression rate by -0.15 D as compared to the rate during Ruta treatment although this difference was not significant.

Possible mechanism of action :

Retinal defocus theory regarding mechanism of development of myopia associated with near work has been accepted now a days because in experimental animals use of negative lenses that causes hyperopic retinal defocus has resulted in development of axial myopia. In humans studies a high accommodative lag at near has been associated with myopia. This insufficient accommodation results in hyperopic retinal defocus during excessive near work and leads to development of axial myopia. Use of Ruta has probably improved the power of accommodation in myopes by its action on ciliarly muscles, thereby causing proper focusing of an image on the retina even during excessive near work and this might have resulted in slowing down the progression of myopia. While individualized homoeopathic treatment has shown an improvement in associated complaints in individuals apart from its controlling effect on myopia. So probably IH treatment has improved immunity and has taken care of increased susceptibility of myopic individuals to near work thereby leading to further slowing down the progression of myopia.

Averaging refraction from both eyes :

Average of right and left eye refraction was used to analysed magnitude of change in refraction in this study because myopia can be considered as a local manifestation of general disease, as it is hereditary in nature and usually affects both eyes simultaneously as well as it progresses during the period of body growth. So a systemic approach of treatment is more helpful and is bound to affect both eyes equally. So to know effect of medicines on myopia progression in an individual as a whole, an average of refraction of both eyes was used to analyse the results. Statistical literature also states that averaging data from both eyes can be used, if a treatment is applied which affects both eyes equally.

Baseline characteristics of subjects benefited and not benefited :

In this study it has been observed that in 9 children

there was a reduction in AMPR after Ruta treatment as compared to rate before starting the treatment. The beneficial was observed in all age groups, both gender and in children having both parental and no parental history of myopia. Whereas in 2 children myopia continued to progress even after giving Ruta treatment, however after shifting to an individualized homoeopathic treatment *Sulphur* in one and *Natrium muriaticum* in other progression rate in these children was reduced. Their history has revealed a parental history of myopia in one child while in other history of myopia in their distant relation i. e. from maternal uncle was found out. This shows that an individualized homoeopathic treatment has probably corrected an abnormal susceptibility in myopic individual and controlled myopia. Individualized medicines Natrum muriaticum, Pulsatilla nigricans, Sulphur prescribed in this study were found useful in controlling myopia and homoeopathic literature has also mentioned these under the heading of myopia. So this study has again clinically verified effect of these medicines on myopia. Apart for controlling progression of myopia, IH treatment has shown an improvement in associated complaints in these individuals. This shows that IH medicines have treated an individual as a whole apart from treating his local condition myopia. This fulfills the basic concept mentioned in homoeopathic literature about treating an individual an a whole.

Ruta dosage :

Ruta was used in low (3C) potency in this study, as myopia is a disease localized to a single organ (eye) with only organ symptoms. It is associated with the changes in shape of eye ball (increased axial length). Myopia is usually hereditary in origin and associated with weakness of accommodation and reduced rigidity of sclera. Ruta was prescribed by taking into account its particular effect on ciliary muscle (accommodation) and sclera. So it was given as an organ remedy to improve tone of ciliary muscles and strength of sclera. Organ remedies support the weaker organ, improves their strength and tone so that constitutional remedy can work without causing any aggravation. [21] They are usually given in lower potency, divided doses, repeated frequently. *Ruta* was prescribed with an intension to reduce daily ocular stress which the children are constantly exposed during their competitive education, so it was used in lower potency and BD dose.

Strength and Limitations :

This was a complete treatment study on simple (childhood) myopia where the effect of Ruta as an organ remedy followed by an individualized homoeopathic treatment on myopic individuals was evaluated. This type of study has not been carried out before.

Limitations of this study were a small sample size, with no control group and effect on measurement of axial length during treatment was not evaluated. So a multicentric controlled clinical study in large number of subjects and in different race is required to know the efficacy of Ruta and individualized homoeopathic treatment. Similarly a study is required to see the effect on myopia after stopping the treatment for 1 year so as to know term effect of medication.

Conclusions

This study shows that *Ruta graveolens* in 3C potency and BD dose was effective in controlling myopia. Similarly an individualized homoeopathic treatment after Ruta has further reduced myopia progression rate. So this line of treatment can help the myopic children to keep their myopia in low grade and thereby prevent the visual complications associated with higher grade of myopia.

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