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Individualised Homoeopathic Medicines in Cases of Simple Myopia in the Age Group of 18–30 Years: A Case Series Study

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ABSTRACT

Background: Myopia is a fast-growing refractive error, and spectacles, contact lenses and surgery correct it without stopping its progression. Individualised homoeopathy has been proposed as a safe additional option, but evidence is limited.

Objectives: To describe the change in refractive error after individualised homoeopathic treatment in young adults aged 18–30 years with simple myopia, and to identify the commonly prescribed medicines.

Methods: A prospective case series was conducted over 18 months in the college hospital OPD, institutional camps and the guide's OPD. Of 308 people screened, 48 met the inclusion criteria and 30 were included. Refraction was measured with a Snellen chart and a computerised auto-refractor before and after treatment. Individualised prescriptions were based on case-taking and repertorisation (RADAR, Synthesis Treasure Edition). Pre- and post-treatment values were compared with paired t-tests and Wilcoxon signed-rank tests.

Results: The mean age was 21.5 years (range 19–24) and 22 participants were women. Mean right-eye power changed from –2.04 D to –1.73 D (mean reduction 0.32 D, 95% CI 0.20 to 0.44; $t = 5.40$; $p < 0.001$) and left-eye power from –1.93 D to –1.53 D (0.39 D, 95% CI 0.26 to 0.52; $t = 6.21$; $p < 0.001$). Myopia was lower in at least one eye in 23 participants (76.7%) and unchanged in both eyes in 7 (23.3%). Pulsatilla, Argentum nitricum and Phosphorus were each prescribed in three participants.

Conclusion: A small reduction in measured myopia (about 0.3–0.4 D) followed individualised homoeopathic treatment. The change is of a size that can overlap with measurement variability, and there was no control group, so the findings cannot show that the medicines caused it; they support a controlled study with cycloplegic refraction and axial length.

Keywords: Simple myopia, Homoeopathy, Snellen's chart, Auto-refractor, Case series study, Refractive error.

Introduction

Myopia, or short-sightedness, is a refractive error in which parallel rays of light are focused in front of the retina when accommodation is relaxed, so that distant objects look blurred. (1) The International Myopia Institute defines myopia as a spherical-equivalent refractive error of –0.50 D or more myopic and high myopia as –6.00 D or more myopic. (2) The global burden is large and growing: it was estimated that about 1.4 billion people were myopic in 2000 and that nearly 4.8 billion could be myopic by 2050 if current trends continue. (3) A meta-analysis of Indian school-based studies has documented the burden of myopia among children in India over four decades. (4)

Myopia is more common among students and professionals who spend long hours on near work and screens, and it often continues to change in young adulthood. Spectacles, contact lenses and refractive surgery correct the blurred vision but do not stop the underlying change. Interventions to slow progression have mostly been studied in children, (5) and low-dose atropine, one of the best studied, can be followed by a rebound in progression when it is stopped. (6) This leaves a need for safe, acceptable approaches that can be studied alongside standard eye care.

Homoeopathy is an individualised system in which a medicine is chosen for each person according to the totality of physical, mental and general symptoms. A systematic review of randomised placebo-controlled trials of individualised homoeopathy found trials of limited quality and cautioned against firm conclusions. (7) Evidence on myopia is sparse. A pilot study of potentised *Physostigma venenosum* in 15 myopic people aged 7–35 years reported improvement in 11 of them, (8) and a retrospective study of *Ruta graveolens* in childhood myopia has been reported. (9) Both are small and uncontrolled or retrospective, and neither addressed young adults treated by individualised prescribing.

Rationale of study

Myopia is common in young adults, who often have heavy near-work and screen exposure, and conventional options correct vision without altering its course. Published work on homoeopathic management is limited, and little of it has examined individualised prescribing in adults. This study therefore followed 30 young adults with simple myopia who received individualised homoeopathic medicines, in order to describe the change in refractive error, to record the medicines most often indicated, and to document the process in a form that can inform a controlled study. Homoeopathic treatment was meant to supplement and not replace refractive correction and ophthalmic care.

Material & Methods

Study design and Study settings

This case series was conducted over a period of 18 months in the college hospital OPD, institutional camps conducted in relation to eye check-ups, and the private and guide's OPD. A total of 308 people were screened for refractive-error-related complaints, 48 fulfilled the inclusion criteria and 30 were included in the final analysis, 30 were chosen from the 48 by simple random sampling, and 18 were not included due to irregular follow-ups. People aged 18–30 years with blurring of distant vision for more than 3 months, or diagnosed simple myopia, with associated symptoms, who gave written informed consent, were included. People with congenital or pathological myopia, myopia associated with other eye disease such as cataract or glaucoma, and other refractive errors such as hypermetropia were excluded. Those who were irregular in follow-up, who stopped the medicine or who were not cooperative were to be withdrawn. There was no comparison group.

Ethical clearance

Ethical clearance for the study was obtained from the Ethical Committee of Motiwala (National) Homoeopathic Medical College and Hospital, Nashik before starting the study, dated 26/04/2024. Written informed consent was obtained from each participant, and confidentiality was maintained throughout the study.

Outcome assessment and Data analysis

Screening used a Snellen chart, (10) and people whose vision fell short were examined with a computerised auto-refractor (11) by a qualified optometrist, before treatment and again at the end of follow-up. It was a Dry Refraction, the same instrument and examiner were used, and the value recorded was spherical equivalent. Data were collected in a structured Case Record Format. Each case was analysed on the basis of the totality of symptoms and repertorized with RADAR software using the Synthesis Treasure Edition, (12) and an individualised medicine was prescribed after reference to the Homoeopathic Materia Medica. Potencies were 30, 200 or 1M, and doses were repeated or changed according to the response, with placebo given between doses. Follow-up was taken in the interval of nearly 28-30 days, over about six months of all 30 cases.

The primary outcome was the dioptric power of each eye at the final follow-up compared with baseline. Cases were classed as improved when the myopia was lower in at least one eye at the final measurement, and as not improved when the power was unchanged in both eyes. Associated symptoms such as headache, eye strain and watering of the eyes were noted at each visit but were not scored on a validated scale. The magnitude of myopia was graded by the more myopic eye as low (less than 3 D), moderate (3 to less than 6 D) or high (6 D or more).

Statistical analysis

Continuous data are summarised as mean (standard deviation) and categorical data as number (percentage). Right-eye and left-eye dioptric power before and after treatment were each compared with a paired t-test (29 degrees of freedom), and the mean change is reported with its 95% confidence interval. Because the data are ordinal in steps of 0.25 D and many differences were zero, a Wilcoxon signed-rank test was added as a sensitivity analysis, and the standardised effect size is reported as Cohen's *d*. The mean of the two eyes in each participant was analysed as a further summary, because the two eyes of one person are not independent. Two-sided $p < 0.05$ was taken as significant, and no adjustment was made for the separate tests on the two eyes. Calculations were done with standard formulae and checked in Python (SciPy).

Statistical results

Mean right-eye power changed from -2.04 D (SD 1.36) before treatment to -1.73 D (SD 1.16) after treatment. The mean reduction in myopia was 0.32 D (SD 0.32; 95% CI 0.20 to 0.44), with $t(29) = 5.40$, $p < 0.001$ and $d_z = 0.99$. Mean left-eye power changed from -1.93 D (SD 1.32) to -1.53 D (SD 1.10), a mean reduction of 0.39 D (SD 0.35; 95% CI 0.26 to 0.52), with $t(29) = 6.21$, $p < 0.001$ and $d_z = 1.13$. Taking the mean of both eyes, the reduction was 0.35 D (SD 0.29; 95% CI 0.25 to 0.46; $t(29) = 6.65$; $p < 0.001$). The Wilcoxon signed-rank tests gave the same conclusion for each analysis ($p < 0.001$). The changes are statistically significant, but they are small in absolute terms, and as there is no control group they cannot by themselves show that the treatment caused them.

Observation and Results

Screening of 308 people for refractive-error-related complaints identified 48 who fulfilled the inclusion criteria, and 30 were included in the final analysis. Ages ranged from 19 to 24 years (mean 21.5, SD 1.2); the largest group was aged 22 years (12 participants, 40.0%), followed by those aged 21 years (8, 26.7%) and 20 years (5, 16.7%).

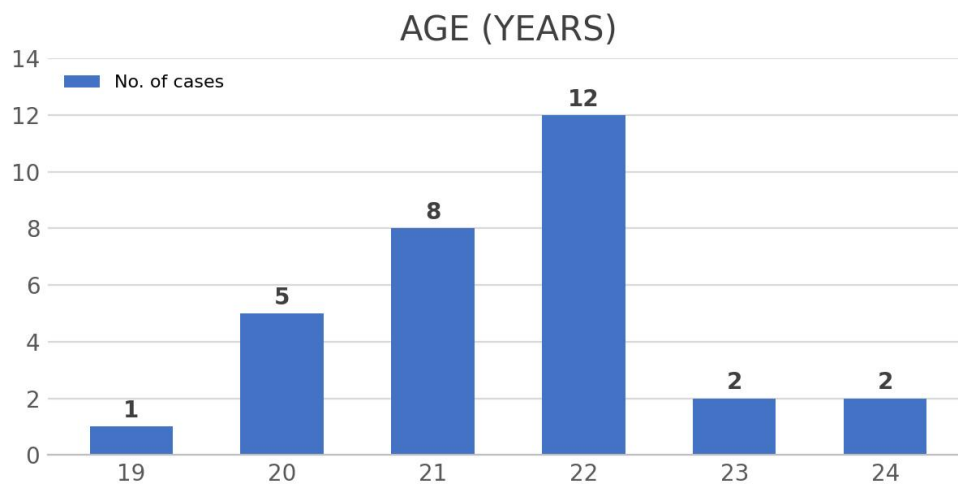


Fig 1. AGE WISE DISTRIBUTION

Gender distribution showed a predominance of women: 22 participants (73.3%) were women and 8 (26.7%) were men.



Fig 2. GENDER WISE DISTRIBUTION

Graded by the more myopic eye, 23 participants (76.7%) had low myopia, 6 (20.0%) had moderate myopia and 1 (3.3%) had high myopia.

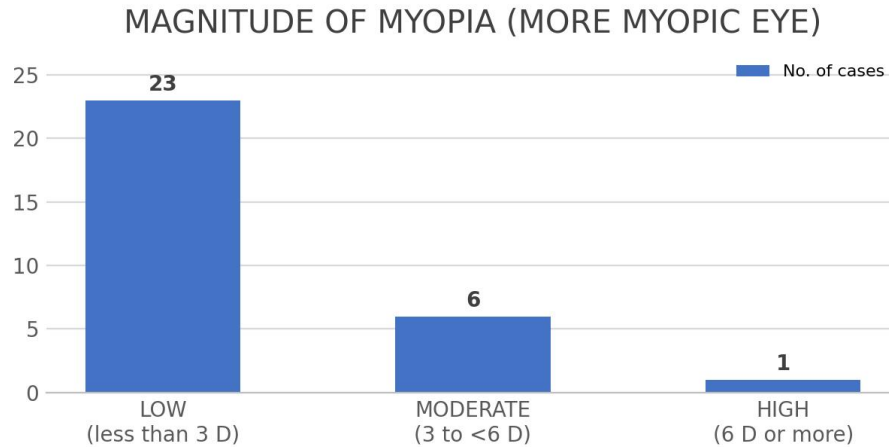


Fig 3. MAGNITUDE OF MYOPIA

Regarding prescription trends, eighteen different medicines were used as the principal remedy. Pulsatilla, Argentum nitricum and Phosphorus emerged as the most frequently indicated, in three participants (10%) each. Natrum muriaticum, Calcarea carbonica, Arsenicum album, Belladonna, Lachesis and Gelsemium were each prescribed in two participants. Physostigma, Sulphur, Lycopodium, Ruta graveolens, Phosphoric acid, Thuja, Tuberculinum, Natrum carbonicum and Lilium tigrinum were each prescribed in one participant, reflecting the individualised nature of homeopathic prescribing. In five participants a second medicine was added or substituted during follow-up (Calcarea carbonica after Physostigma, Ruta graveolens as an intercurrent medicine with Sulphur, Nux vomica after Gelsemium, Gelsemium as an intercurrent medicine with Calcarea carbonica, and Nux vomica after Argentum nitricum), and several others had repeat doses or a higher potency.

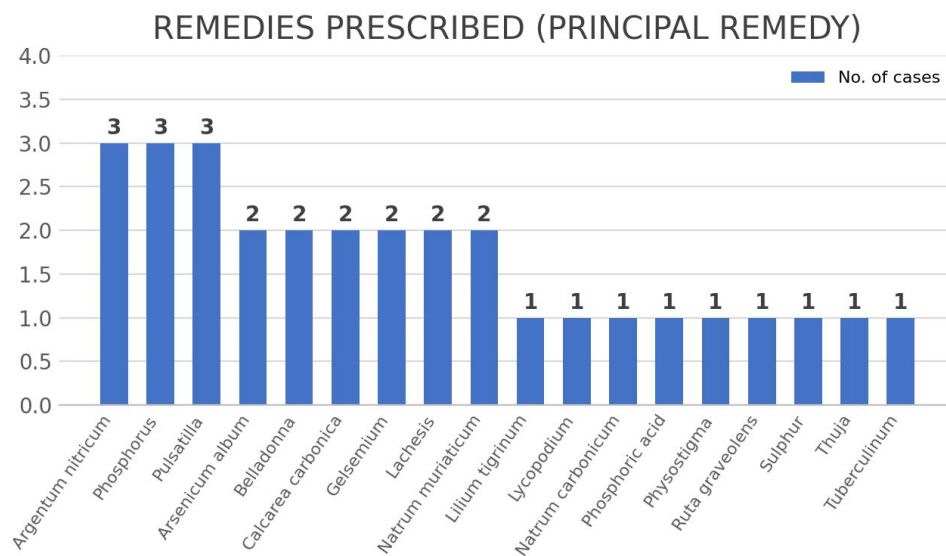


Fig 4. REMEDIES PRESCRIBED

The mean dioptric power of the right eye changed from -2.04 D to -1.73 D, and that of the left eye from -1.93 D to -1.53 D.

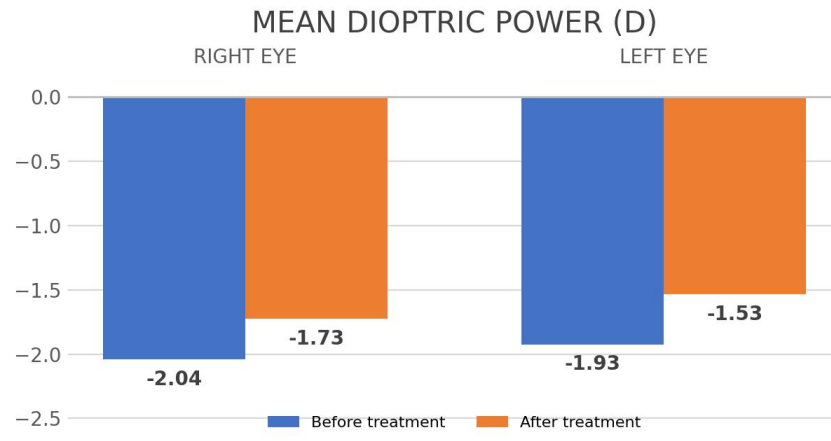


Fig 5. MEAN DIOPTRIC POWER BEFORE AND AFTER TREATMENT

Clinical outcomes revealed that myopia was lower in at least one eye in 23 participants (76.7%), in both eyes in 19 and in one eye only in 4, whereas power was unchanged in both eyes in 7 participants (23.3%). No participant had a higher overall power at the end, although the right eye of one participant, whose left eye improved, was 0.25 D more myopic. Each of the seven participants with no change in refraction had improvement recorded in associated symptoms such as headache or eye strain in the case summaries, but this was not measured on a validated scale.

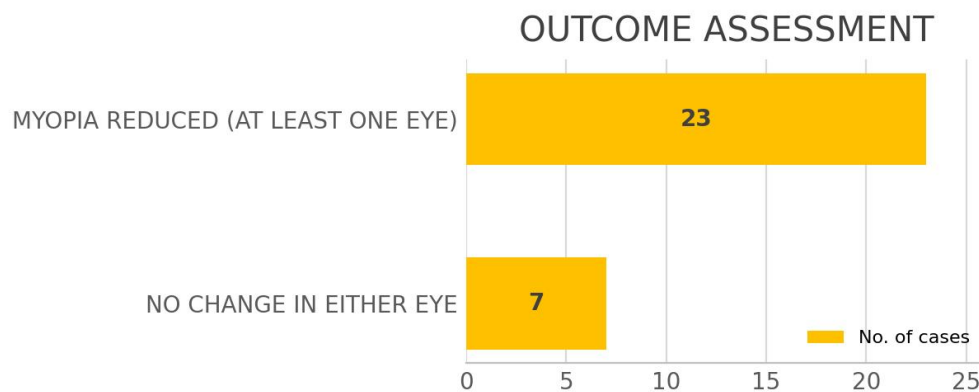


Fig 6. DISTRIBUTION OF OUTCOME ASSESSMENT

Eye by eye, right-eye myopia was reduced in 20 participants, unchanged in 9 and increased in 1, and left-eye myopia was reduced in 22, unchanged in 8 and increased in none. A reduction of 0.50 D or more occurred in 12 right eyes and 15 left eyes, and in both eyes of 8 participants. The largest reduction was 1.00 D in the right eye and 1.25 D in the left eye.

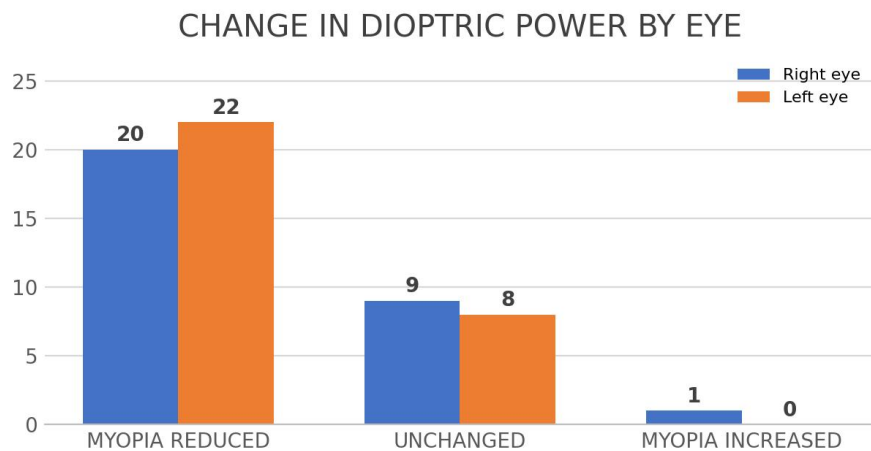


Fig 7. CHANGE IN DIOPTRIC POWER BY EYE

Discussion

Thirty young adults with simple myopia, most of them women aged 20–22 years with low myopia, were followed after individualised homoeopathic treatment. Measured myopia fell by about 0.3 D in the right eye and 0.4 D in the left, in 23 of 30 participants, and the change was statistically significant. The remaining seven participants had unchanged refraction, and in none did the myopia worsen overall.

The size of the change needs careful reading. A reduction of 0.25 to 0.50 D is small, and it is of an order that can overlap with test–retest variability of refraction. Autorefraction without cycloplegia in young adults is also sensitive to accommodation, so a lower reading can reflect relaxed accommodation, for example from rest, counselling about near work or the effect of repeated visits, and not a change in the eye's refractive state. Distinguishing true myopia from accommodative contribution requires cycloplegic refraction, and a controlled design with axial length measurement has been recommended for myopia research of this kind. A fall in measured myopia is also not the usual course of myopia in young adults, which tends to stay stable or progress, and this makes the result interesting; but without a control group, blinding or a standard measurement protocol it cannot be attributed to the medicines.

The medicines chosen were varied. The most frequent were constitutional medicines, and the pattern follows the symptoms recorded in the case summaries, which often involved headache on reading, eye strain, watering and burning of the eyes, with mental and general features guiding the choice because local ocular symptoms are sparse in myopia. Physostigma, which has been proposed for ciliary muscle strain, was used in one participant, in whom refraction did not change. (8) The prescribing was not standardised: potencies ranged from 30 to 1M, doses were repeated, and a second medicine was added or substituted in five participants, so no medicine-specific effect can be estimated.

Our proportion of improved cases (76.7%) is similar to that reported in the Physostigma pilot (11 of 15), (8) but the studies differ in design, age, outcome definition and measurement, and neither had a control group. Larger controlled work is needed before any comparison is meaningful.

The study has strengths: it was prospective, used an objective measure of refraction for the primary outcome in both eyes, followed a structured case record, and reports the data of every participant so that the analysis can be checked. Its principal limitations are the small sample, the single centre, the absence of a control group and of blinding, and the use of a measurement that may not have been cycloplegic. Selection is also unclear, as only 30 of 308 screened and 48 eligible people were analysed. Follow-up was short for a condition assessed over a year or more, axial length was not measured, lifestyle factors such as screen time and time outdoors were not standardised, associated symptoms were not scored, and the classification of improvement was based on a change of at least one step of 0.25 D in either eye. Findings should therefore be read as preliminary.

Conclusion

Among 30 young adults with simple myopia treated with individualised homoeopathic medicines, measured myopia was lower after treatment in 23 (76.7%), with a mean reduction of about 0.3–0.4 D that was statistically significant. Pulsatilla, Argentum nitricum and Phosphorus were the most frequently prescribed medicines. Because the change is small, there was no control group and refraction may not have been cycloplegic, these results describe outcomes in practice and do not show that homoeopathic medicines reduce myopia. They support a registered, controlled study with cycloplegic refraction, axial length, a standard follow-up schedule and validated symptom scales, and homoeopathic treatment should continue to accompany, and not replace, refractive correction and ophthalmic care.

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Conflict of Interest

Not Available

Financial Support

Not available

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