

The effect of musical rhythm on the autonomic nervous system with homeopathic management of ARRHYTHMIA

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Abstract:

Rhythm is our universal mother tongue which represent as a language of the soul. Rhythm classifies mainly in the 3 types – slow, medium, & fast. Sympathetic and parasympathetic nervous system have a key role in maintenance of the homoeostasis. This article is trying to show the interrelation between rhythm of the body esp. heart and the musical rhythm and give special attention to the homoeopathic medicine for the specific heart rhythms.

Index Terms: Autonomic nervous system, Heartbeat, Homoeostasis, Murphy repertory, Music, Pulse, Rhythm, Tone.

I.INTRODUCTION

"गीतं वाद्यं तथा नृत्यम्, त्रयम् संगीतम् उच्यते"

Sarangdev's 'SANGEET RATNAKAR'¹

Music is a soulful combination of Gayan, Vadan and Nrutya. Ancient Literature 'SAMVED' is a most important source which helps to understand the music. In vaidik era, Sanskrit shlokas or mantras were sung in specific tone and rhythm.²

Music is a universal art form that is prevalent in every society globally and has mainly been a cultural tool used for entertainment and religious purposes. An ancient Greek philosopher Pythagoras was known to treat bodily and psychological ailments by using music as he proposed that by listening to music, one could comprehend and retrace the outer "physical" harmony of the universe, which would lead to a state of inner "mental" harmony, thus reestablishing balance in the body and helping to cure mental disorders. Other than him, around 400 BC, the father of medicine - Hippocrates, was known to play music for his patients with mental illness. In the paleolithic ages, music was embraced for therapeutic purposes because they believe that music would have positive effects on body systems, including the cardiovascular system. In 1914, the American Medical Association first acknowledged the possible benefits of music in hospital treatments & in 1918, Columbia University introduced the first course on music therapy, entitled "Musicotherapy".³

Tone (Swar) and Rhythm (Lay) is basic two pillars of any types of music. They both are complementary to each other. But many musicians gave more emphasis on Rhythm than tone. Various tones are

originated from different types of the rhythm. Old legislator had determined various types of rhythm from duration and Pattern of tone of various birds.²

Human's actual involvement with music is mainly “experienced” rather than being solely “reasoned” and “interpreted” and it impinge upon our body and our mind for which we react to both either positively or negatively.⁴ Prediction of the Nobel Prize Winner Robert Koch in 1910 was,⁴

‘One day man will have to fight noise as fiercely as cholera and pest.’

The musical experience can be described in terms of,

1. A specific relationship between the material bodies of the listener and the vibrational properties of the sounds

2. More conscious appreciation of the traditional musical forms and parameters.⁵

Past studies evaluate the impact of music on the electrocardiogram (ECG), blood pressure (BP), heart rate (HR) respiratory rate (RR), ventilatory efficiency, exercise performance, cortisol levels, and endothelial function. Modern life is facilitated by extended light hours at night and longer hours of eating ultimately leads to compromised sleep, sedentary life, and modern diet which adversely affect human health.³

II.LITERATURE SURVEY

Rhythm (Lay) can define as⁶, “the serial pattern of variable note durations in a melody”. As word meaning rhythm is ‘Tic-Tac’ beats of clock. But it is so mechanical or its continuous working like machine. In universe everything has its own Rhythms (Lay). A planet is a large round object in space that moves around with definite Rhythms (Lay). Sun, Moon, Earth etc., has their own Rhythms (Lay) or tempo⁷. But Musical rhythm’s quality is far beyond this. This musical Rhythm can be manipulated by artist and can measure with the help of beat as it is regularly going on parallel with time. Generally, to express and to understand beat artist use to play clap with hand.²

Basic root of the tone (Swar) is voice (Naad).²

There are 2 types of voice (Naad):

1. ANAHAT – Voice that is audible without any vibration or the friction or the blow of thing. This can only produce through yogic experience.
2. AHAT – Voice produces due to the vibration or the friction or the blow of thing.

This AHAT voice only can hear if after beating it produce minimum 40 to maximum 4000 oscillation (Andolan). If this voice produces irregular number of oscillation (Andolan) or movement after beating – it is known as unwanted or disturbing sound or “NOISE” that affects the health and wellbeing of the human living organism. In Hindustani classical music, by using different type of the instrument, we can produce various types of AHAT voice (Naad).⁷

Approximately one beat considers as timing of 1 second. In Indian classical music mainly 2 types of the method of singing are prevalent.

1. North Indian classical music
2. South Indian classical music

In comparison to North Indian classical music, the Southern one gives more importance to the Rhythm (Lay). In their performances on stage, along with main singer 4 to 5 peoples are playing from Rhythms (Lay) section. Ex. PAKHAVAJ, GHATTAM, and DANDIKA: and a person who is giving beats manually on specific relevant Taal.²

There are three types of Rhythm (Lay)

1. Vilambit (very slow) - classical BADA KHYAL GAYIKI performed in this Rhythm (Lay).
2. Madhya (medium, almost double to vilambit lay) -classical CHOTA KHYAL GAYIKI, Bhajan, Thumri, Gazal, Light vocal music performed in this Rhythm (Lay).
3. Drut (fast, almost double to medium lay) - Sargam, Tarana, Taan etc., performed in this Rhythm (Lay).⁷

All three types of Rhythm (Lay) have their own beauty and able to create pleasant atmosphere specially when played with integration of Tone (Swar) of Ragas. Same way in human organism also integrated function of cell, tissue and organ is require for homeostasis and good health. Because like music human organism is also work on definite Rhythm (Lay) that helps to maintain homeostasis.⁸

In 1929 the American physiologist WALTER CANON defined the term Homeostasis as⁸, “The maintenance of nearly constant condition in internal environment”. Ex. oxygen to extracellular fluid provided by lungs, which is used by the cell also, constant ion concentrations maintain by kidney and nutrients provided by GIT. Disease is a state of disturb homeostasis that leads to disorganized Rhythm (Lay) of human organism.⁸

According to the book principle of anatomy and physiology by tortora⁹ –

“The alternate expansion and recoil of elastic arteries after each systole of the left ventricle create a travelling pressure wave that is called as the pulse.”

Systemic studies show the therapeutic effects of music on Autonomic nervous system [ANS] dysfunction.¹⁰ ANS include both sympathetic and parasympathetic nervous system. If we try to understand role of this system on heart, then sympathetic stimulation increases overall activity of heart, heart rate and force of contraction while parasympathetic stimulation causes reduce heart rate and strength of contraction.⁶

Studies in the history show the effect of fast tempo music to increase heart rate as well as respiratory rate.¹¹

In human organism, normal pulse rate is 72/min. The abnormal or irregular heart-beat is known as the **ARRHYTHMIA**.

Arrhythmia divides into 2 types:

1. Normotropic arrhythmia.
2. Ectopic arrhythmia.

Normotropic arrhythmia further divided into 2 types:

1. Sinus Tachycardia – heart rate increase - >100/min
2. Sinus Bradycardia - heart rate < 40/min.⁹

When a person come in a contact with a slow beat music, the parasympathetic nervous system is stimulated to decrease the heart rate and other side fast beat music stimulate sympathetic nervous system and increases the heart rate. A cross sectional study was conducted on the 100 healthy adults of age group 18 to 25 years by Chengalpattu Medical College, Tamil Nadu which shows the following results.

1. Slow music – significant reduction in pulse rate and blood pressure
2. Fast music - significant increase in pulse rate and blood pressure.¹²

Brian Harris, a certified neurologic music therapist at Harvard-affiliated Spaulding Rehabilitation Hospital, stated that¹³, "There is no other stimulus on earth that simultaneously engages our brains as widely as music does,"

Literature mention about the role of ragas like Todi, Bhupali, Ahir Bhairav, Puriya, Hindol, Bhimpalas, & Kausi Kanada are effective in decreasing the blood pressure.

Raga Bhupali, which consider as an evening raga, has been found to be useful for lowering heart rate and modulating other cardiac regulation factors by lowering the sympathetic activity and raising the vagal tone.¹⁴

HOMOEOPATHIC LITERATURE:

Father of the repertory, von Boenninghausen defines repertory as¹⁵, “An index of symptoms arranged systematically.”

Rubric is the converted form of symptom into the reportorial language.¹⁵

In homeopathic medical repertory by robin Murphy, has given some very special Rubrics, Sub rubrics, & their relevant medicine under chapter - PULSE.¹⁶ Ex.

RUBRIC	SUB-RUBRIC	MEDICINE
Fast, pulse, elevated, exalted, quick – Beats per minute,	80	<i>phos.</i>
	85	LACHESIS.
	86	<i>kali-carb.</i>
	89	<i>merc.cor.</i>
	96	TARENTULA.
	100	<i>Ign., kreo.</i>
	108	<i>Cycl., kali-iod.</i>
	110	<i>Phyt.</i>
	120	<i>bapt.,cina.,cupr-m.,ign,lach.,lyco.,merc-cy.</i>
	140	<i>Cina</i>
SLOW, pulse-	30	<i>dios.</i>
	40	<i>kalm.</i>
	Shock, in 54	<i>hyper.</i>
	60	<i>crot-h.</i>
	60, below in rest, above 120 after motion	ARNICA
	65	<i>mosch.</i>
	68, sitting	<i>aml-n.</i>
	80 to 64, fro	<i>ars-i.</i> ¹⁶

III.PROPOSED APPROACH

This article follows the subjective approach in the field of music and medicine with special mention about the role of the homoeopathic medicine for the same. This article deals with the retrospective data of the different Indian classical musical rhythm as well as bodily rhythm produce due to effect on the Autonomic nervous system. So, this article collectively based on the SUBJECTIVE RETROSPECTIVE APPROACH.

IV.RESULT AND DISCUSSION

The study of the article titled: The effect of musical rhythm on the autonomic nervous system with homeopathic management of ARRHYTHMIA Was carried out to understand the relationship between the bodily rhythm and musical rhythm. The best way to describe rhythm is as a controlled movement of music in a time. It is a pattern of regular or irregular pulses which happens in a music. According to Hamilton’s humanistic view, rhythm depends on human perception. Indian classical music principally deals with 3 types of rhythm: Vilambit (very slow), Madhya (medium, almost double to vilambit lay, & Drut (fast, almost double to medium lay). Human organism also has different type of the bodily rhythm

which mostly observed by using different equipment is to judge the vital parameters like, Pulse rate, Respiratory rate, & Blood pressure, etc. Human body and their rhythms physiologically work in a harmony to maintain normal homoeostasis through the active involvement of Autonomic nervous system. ANS readily influenced by different types of the musical rhythm. Ex. Slow music can significantly decrease pulse rate and blood pressure while Fast music significantly increases pulse rate and blood pressure in human body. Homoeopathic literature shows different types of rhythms in a book like, Materia medica & repertory, etc. they show different kind of symptoms or rubrics related to the rhythmic changes especially in cardiovascular system. Music with the life style modification and appropriate medication preferably homoeopathic medicine can help patient to heal faster and in a more better way.

V.CONCLUSION

This article gives special attention to the efficacy of different musical rhythm to influence bodily rhythm with the administration of suitable homoeopathic remedy for the better result. This article opens the door for the further study of the 2 measures – music and body rhythm.

It gives information about the lengthy homoeopathic literature in this fascinating topic. This correspondence study of 3 parameters – musical rhythm, body rhythm, and homoeopathic medicine can be helpful in a therapeutic process of healing.

Further recommendation:

Clinical prospective study can be done to understand correlation between musical rhythm and bodily rhythm to find a finer way to heal the patient.

REFERENCES:

1. Chowdhur S., sarngdev krut Sangitratnakar, sangit karyalay, hathras, Uttarpradesh, India.
2. Damle R, Sangit Suman snatkottar shastra, Bhargavi Damle with publishers.
3. Kulinski J., Ofori E. K., Visotcky A., Smith A. Sparapani R., Fleg J. L., Effects of music on the cardiovascular system, Effects of music on the cardiovascular system - PMC (nih.gov)
4. Munzel T., Gori T., Babisch W., Basner M., Cardiovascular effects of environmental noise exposure, Cardiovascular effects of environmental noise exposure - PMC (nih.gov)
5. Reybrouck M., Podlipniak P., Welch D., Music and Noise: Same or Different? What Our Body Tells Us, Music and Noise: Same or Different? What Our Body Tells Us - PMC (nih.gov)
6. Annual review of psychology, The Psychology of Music: Rhythm and Movement, Daniel J. Levitin¹, Jessica A. Grahn², and Justin London, The Psychology of Music: Rhythm and Movement | Annual Reviews
7. Dr Doshi M., Sangeet visharad shashtra, paravin parakashan PVT. LTD., Rajkot, Gujrat.
8. Hall J. E., Hall M. E., Guyton and Hall Textbook of Medical Physiology, 3rd South Asia edition, ELSEVIER edition.
9. Tortora G., Derikson B., Tortora's principle of Anatomy and Physiology, www.Wiley. Com.
10. Ellis R., Thayer J., Music and autonomic nervous system [Dys] function, Music and Autonomic Nervous System (Dys)Function | Music Perception | University of California Press (ucpress.edu)
11. Watanabe K., Ooishi Y., Kashino M., Heart rate response induced by acoustic tempo and its interaction with basal heart rate, Heart rate responses induced by acoustic tempo and its interaction with basal heart rate - PMC (nih.gov)
12. S. S., K. D., The effects of music on pulse rate and blood pressure in healthy young adults, international journal of research in medical sciences, volume 5, No 12, 2017, December, The effects of music on pulse rate and blood pressure in healthy young adults | International Journal of Research in Medical Sciences (msjonline.org)

13. Tuning in: How music may affect your heart, Harvard Health publishing, Harvard Medical School, : How music may affect your heart - Harvard Health
14. Chatterjee S., Mukherjee R., Evaluation of the Effects of Music Therapy Using Todi Raga of Hindustani Classical Music on Blood Pressure, Pulse Rate and Respiratory Rate of Healthy Elderly Men., Journal of Scientific Research Institute of Science, Banaras Hindu University, Varanasi, India, Volume 64, Issue 1, 2020, p. 159 -166,
<http://dx.doi.org/10.37398/JSR.2020.640123>
15. Dr Salim S., Dr Mohan G., Dr Genesis D., Repertory Expert a new experience on understanding repertories, Dr salim's center for Homoeopathic Healing, Kozhikode, Kerala.
16. Murphy R., Homoeopathic Medical Repertory, 3rd revised edition. B. Jain Publishers; PVT Ltd.