

PHARMACODYNAMICS

OF THE

MICRO HOMOEOPATHIC DOSES IN MODERN PERSPECTIVE

“ A Weaker dynamic affection is permanently extinguished in the living organism by a stronger one, if the latter (whilst differing in kind) is very similar to the former in its manifestations.”
(Aph.No.26)

This homeopathic law of nature is due in every real cure of physical affections and moral affections, According to Dr. Hahnemann, this law was however vaguely surmised and was not fully recognized by the orthodox school of medicine till he emphatically enunciated it and brought it in practice with the birth of Homoeopathy after the historical golden “experiment of Cinchona” in the year 1790.

Later, the Law of Similia was soon coupled with Law of Minimum alongwith other Cardinal principles of Homoeopathy. Over the years number of researchers have endeavored to explain the “Modus Operandi” of Micro-Homoeopathic doses. But the micro-doses phenomenon still continues to remain in controversy in the modern scientific fraternity.

After the in-vitro research carried out by Late Dr.Jacques Benveniste of South Paris University, France, which was debunked by the “Nature” magazine in the year 1988, there is hardly any substantial advancement in this direction. It is earnestly felt that the Post Graduate Students and Scholars in Homoeopathy should explore this area in their research projects. This write up is intended only to provide a basis to farther the research in this regard in consonance with the modern Pharmacology.

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PHARMACODYNAMICS deals with interaction of drugs with RECEPTORS and the molecular consequences of these interactions along with their effect in patient.

RECEPTORS are specialized target Macromolecules which are present on the cell surface or Intracellularly. According to the Modern Pharmacology most drugs exert their effects, both beneficial and harmful by interacting with Receptors.

Cells may have tens of thousands of receptors for certain Ligands (DRUGS). In Latin-Ligandus means "to be bound". So Ligand is a molecule that binds to another (usually larger).

Receptors largely determine the quantitative relations between dose of a drug and pharmacologic effect. There is specificity of the Receptor for a Ligand (Drug). This specificity of the receptor for a Ligand can be attributed to the nature's law of cure (Similia Similibus Curenter) on which is based our Homoeopathic system of Medicine.

DRUG RECEPTOR INTERACTIONS

The Receptor binds Drugs which initiates events leading to alterations in Biochemical and Biophysical activity of a cell and consequently function of an organ. This concept is closely related to formation of complex between Enzyme & Substance or Antigen & Antibody. This interaction can be put as follows:-

DRUG+RECEPTOR -----> DRUG RECEPTOR COMPLEX -----> BIOLOGIC EFFECT

There are two major Receptor families and the type of Receptor a Ligand (Drug) will interact with, depends on nature of Ligand.

- **HYDROPHOBIC LIGANDS**

They have morbid aversion to water and they interact with Receptors which are found on Cell Surface.

- **HYDROPHILIC LIGANDS**

They have an affinity for water and can enter cells through Lipid bilayers of a cell membrane to interact with receptors found inside the cell.

DOSE RESPONSE RELATIONSHIP

1. **AGONIST**- When a drug binds to a receptor and produces biologic response that mimics the response to the endogenous Ligand is known as agonist.
2. **ANTAGONIST** - Drug that decrease action of another Drug or endogenous Ligand are known as Antagonist.

The receptor have ability to recognize a Ligand. They can also couple or Transduce (i.e. convert one form of energy to another) into a response by causing a conformational change or a biologic effect. This is termed as PHARMACOKINETICS which incorporates in itself the Absorption, Distribution, Localization in tissues, exertion and BIOTRANSFORMATION.

CHEMISTRY OF RECEPTORS AND LIGANDS

The Size, Shape and Charge distribution of any drug Molecule determines which of the sites in the cells and tissues of patient can interact with Ligand. ("Region" of our Homoeopathic Materia Medica). The Type of Receptor a Ligand will interact with depend on nature of Ligand. The magnitude of drug effect depends on drug concentration at the receptor site, which in turn is determined by DOSE of drug administered and by factors characteristics of Drug i.e. the Pharmacokinetic profile.

BIO-TRANSFORMATION

The Ligand must diffuse into the cell to interact with receptor. The activated Ligand-Receptor complex migrates to the nucleus. However, Cellular responses are not observed until considerable time has lapsed. The duration of response is from minutes, hours to days or much greater (Co-relation - Short acting or Long acting Homoeopathic Remedies. There is one more type of Agonist which is called as -

3] PARTIAL AGONIST- These have efficacies (intrinsic activities), Greater than ZERO but less than that of full Agonist. It can produce an *E_{max}* (maximum energy) of as greater a magnitude as that of a full agonist under appropriate conditions.

Probably this unique feature of the PARTIAL AGONIST can open a avenue to explain the Modus Operandi of the highly potentised Homoeopathic doses especially when they are dissolved in WATER. Hahnemann wrote in Aphorism 246 of the 6th Edition of Organon, about selection of a remedy stating that "The Medicine selected with utmost care must be perfectly Homoeopathic. It should be highly potentized, dissolved in Water and given in proper dose at suitable intervals. But with the precaution that the degree of every dose deviates somewhat from the preceding and following, in order that Vital principle which is so altered to a similar medicinal disease do not arouse to untoward reaction".

In the 1840's he was looking for a way to attenuate his remedies even more. He seems to have begun the LM Potency (LM=50,000 in roman numerals) Earlier he had experimented with the routine dilution of the remedies in to one, two or three glasses of water. Probably due to the fact, now well known that WATER is a good Solvent due to its polarity. Substances that mix well and dissolve in water (e.g. Salts) are known as hydrophilic ("Water loving") substances, while those that do not mix well with water (e.g. Fats and Oils) are known as hydrophobic ("Water fearing") substances. The ability of a substance to dissolve in water is determined by whether or not the substance can match or better the attractive forces that water molecules generate

between other water molecules. If a substance has properties that do not allow it to overcome these strong intermolecular forces, the molecules are “Pushed out” from the water and do not dissolve. The Highly attenuated Homoeopathic remedies overpower this pushing out and enhance the attractive forces which water molecular generates. This phenomenon has been called as MOLECULAR MEMORY by the researchers.

As Hahnemann describes the process of his new LM Potency in the Organon, he talks of its implications. He says the spirit from the matter or energy from the mass has been finally released by this process. We would now say that, he achieved the transmutation which had been the goal of alchemists and chemists for thousand of years. The Medicinal substance that seems to us in its crude state to be only matter, Sometimes even non-medicinal matter, is at least completely transformed and refined by these progressive dynamisations to become a spirit like medicinal force. This spirit-like medicinal force by itself was no longer perceptible to the senses but had been acting as a carrier and had been demonstrating its curative power in the sick organism. A scientific explanation is necessary to establish a scientific basis for the curative action of this spirit like medicinal force i.e.PHARMACODYNAMICS. It is the need of the day.

In the recent past (2010) a Scientific team of IIT Mumbai comprising of Dr.Jayesh Bellare and Mr.Prashant Chikarmane presented a paper titled “Extreme Homoeopathic dilutions retain starting materials ; A nanoparticulate perspective “. The 30 and 200 potency dilutions were checked under electron microscopes to find nanoparticles of the original metal (Gold and Copper). It has been showed that certain highly diluted Homoeopathic remedies made from METALS still contain measurable amount of starting material.They found that contrary to their arithmetic, there are nanogram quantities of the starting material present in these high potency homoeopathic medicines. These observations undoubtedly is a scientific breakthrough. But we have a long way to go to elicit the phenomena in potentised Homoeo medicines from other sources such as Plants, Animals, Nosodes, Sarcodes, Imponderabilia, etc. We may recall here that around four years back British Research papers rubbished Homoeopathy as mere

placebo. It is for the first time that the Indian Scientists used equipments such as a transmission electron microscope, electron diffraction and emission spectroscopy to map physical entities, in extreme dilutions. The hypothesis is that nanobubbles form on the surface of the highly diluted mixtures and float on the surface, retaining the original potency. This hypothesis coupled with the modern Pharmacology can initiate a new dimension of Research in Homoeopathy.

As a matter of fact, a fundamental principle of Pharmacodynamics is that drugs only modify underlying biochemical and physiological processes and they do not create “de novo” (New). But the wonderful cures of some systemic diseases with reversible or borderline pathological changes has proved it beyond doubt that “de novo” is created in some intractable cases under the action of perfect Similimum.

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