

ROLE OF ENDOCRINOLOGY AND CORELATORY PARAMETERS FOR SCREENING OF HOMOEOPATHIC DRUG

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Introduction

Endocrinology is a biological science concerned with the synthesis, secretion and action of hormones. Hormones are synthesised and secreted by endocrine glands under the control of neuro-endocrinal axis called hypothalamo - pituitary target glands and regulate various physiological processes viz. metabolism, growth, resistance to stress, reproduction and maintenance of stability of internal environment of the body.

On the basis of their chemical nature and mechanism of action, hormones are classified into four categories:

1. Polypeptides : Vasopressin, Oxytocin, Glucagon, Thyrocalcitonin, Somatostatin etc.
2. Steroids : Cortisol, Corticosterone, Estrogen, Progesterone, Testosterone, Aldosterone etc.
3. Protein : Thyroxin, (Iodinated protein), Insulin etc.,
4. Catecholamines: Adrenaline, nor-adrenaline.

Hormones are discharged from cells of endocrine glands into the blood or lymph circulation and eventually distributed to the tissue fluid everywhere. Hormone has an effect on particular organs or tissues termed as target organs or receptors. Though some effects occur in seconds, but some other require several days simply to start and then continue for weeks or months or even year.

The endocrine system consists of several glands viz. Pituitary gland or Hypophysis, Thyroid gland, Par-

athyroid gland, Adrenal or Suprarenal gland, Islets of Langerhans in the pancreas, Testis, Ovary etc.. A deficiency or over secretion of any hormone produce various biological disorders and endocrine diseases. Hormone deficiency states are Diabetes mellitus (deficiency of insulin), Cretinism (Hypothyroidism in children), Myxoedema (Hypothyroidism in adults), Dwarfism (Hyposecretion of GH or STH) and Hypogonadism. Hormonal excess may manifest as Gigantism (STH hypertrophy), Goitre (Hyperthyroidism), Cushings disease (excess of corticosteroids) etc.

Thus, the field of endocrinology is a vast area to discuss with regards to its origin, neuro-secretion, mechanism of hormonal action, feed back mechanism, neuro-endocrine interaction, immuno neuro-endocrine interaction, dysfunction of endocrine glands etc.

Endocrinology in Homoeopathy

Why endocrinological studies are required for screening of Homoeopathic drugs may be a question to all. Say for e.g. in allopathy system of medicine it is very much clear and plenty of scientific experiments indicate that the scientists and doctors know the details of absorption, distribution, biotransformation and excretion about each and every drug. When a drug is taken orally it is being absorbed in gastrointestinal tract. The drug after absorption is distributed in the body through blood and reacts at the site of action. The liver is the main site for biotransformation (chemical changes), here the drug undergoes chemical reactions such as oxidation, reduction, acetylation etc. After biotransformation drugs get inactivated and water soluble, and are ready for excretion through urine. But in Homoeopathy we do not know the mechanism of such action of drugs. In addition to this, it is also required to study the basic problem of Homoeopathy i.e. potency determination. How the character of original drug molecule is inherited to higher potency, say for e.g. in 200 potency of homoeopathic drugs, how at such a

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higher state of dilution drugs are showing therapeutic response? What is the role of dynamisation i.e. potentiation of dilution, what are the basic, fundamental differences between dynamised and undynamised dilutions, how and to what extent dynamisation is responsible for such inheritance of original character of drug to higher potency, how and why dynamised dilution have more therapeutic response than undynamised dilutions? These are still some of the questions which remain unexplained.

In Homoeopathy though the drugs are prescribed on the basis of "symptoms similarity" but it is essential to study thoroughly about drug absorption, distribution, biotransformation, excretion and mechanism of action especially on endocrine glands.

A lot of homoeopathic drugs, the symptoms of which are available in Homoeopathic Materia Medica are being widely used on different hormonal/endocrine dysfunctions which includes the hyper or hypo functions of endocrine glands in general. It is true that Homoeopathic drugs can control number of hormonal dysfunctions by the appropriate and timely administration of selected medicines, the therapeutic efficacy of which has been recorded in Materia Medica after its thorough human trials long before, but in most of the cases the mechanism of action of these drugs in terms of physiology and endocrinology remain unexplained. Hence, indepth studies of these drugs must be conducted in a scientific way to come to a solid conclusion of mechanism of action of these drugs, otherwise this science would remain static which cannot be accepted by the scientists engaged in this field.

Keeping in view these aspects the experiments are being conducted on laboratory animals (i.e. rabbits, albino mice & albino rats) to evaluate the drugs therapeutic potentiality and its consequential influence on various endocrine glands and their hormonal secretions at Homoeopathic Drug Research Institute, Lucknow.

Parameters for Screening of Homoeopathic Drugs

Histological studies

Since histology refers to the study of cells, tissues and organs, it embraces a study of function of

endocrine glands and provides structural basis for the study of physiology.

Histochemical studies

Histochemistry is the study of intracellular distribution of chemicals, reaction sites, enzymes etc. So it is helpful to determine the histochemical changes in endocrine glands after administration of homoeopathic drugs in the form of mother tincture as well as different potencies at optimum dose level and optimum duration in order to estimate the drug's efficacy.

Histopathological Studies

Histopathology is the study of cytologic and histologic structure of abnormal or diseased tissue. This study is helpful to determine the toxic and other abnormal effects of Homoeopathic drugs in order to locate the drug's action at molecular and cellular level on endocrine glands.

Hormonal Assay

Radio-immunoassay (RIA) is an analytical technique which is being widely used for the measurement of hormones. This study is very much essential to determine the hormonal level viz. thyroxin, vasopressin, prolactin, progesterone, estrogen, testosterone, cortisol etc., in terms of its release or inhibition after administration of homoeopathic drugs.

Hypoglycaemic Studies

Homoeopathic drugs (potentised and unpotentised dilution) are being screened for its anti-diabetic activity by conducting experiments on animals to know the drug action on Islet of Langerhans (endocrine portion which is responsible for diabetes) of pancreas.

The science has developed so rapidly and it is impossible for one person to become expert in all the complicated techniques which are involving in the endocrinological research. This article is just a basic introduction to what can be done in the field of endocrinology in Homoeopathy.