

A PHYSIOLOGICAL APPROACH TO THE MATERIA MEDICA

MICHAEL D. JENKINS, M.B., B.S., M.R.C.P., M.F.HOM.

INTRODUCTION

In some recent discussions at the Royal London Homoeopathic Hospital, the idea was put forward that the kidneys and adrenals, acting in concert, provide the mechanism for the awakening forces to manifest in the physical body. These awakening forces are considered as a function of the astral body by the Anthroposophical school. It was postulated that these enlivening or awakening forces are an equal and opposite reaction to the excretory function of the kidney. Furthermore it appears that the sodium ion, which plays a relatively minor role in the plant kingdom, assumes very much greater importance in the animal kingdom through its role in the awakening process. We know, for example, that the sodium ion plays an important part in neurological function and neuromuscular transmission as well as cardiovascular function. The adrenals and kidneys are responsible for the maintenance of electrolyte and acid-base balance and therefore should be of great importance in the function of the astral as well as the vegetative, or etheric functions. Potassium is the predominant cation of vegetative function; hence its preponderance in the plant kingdom and intracellularly in the animal kingdom.

If one studies the homoeopathic materia medica critically, it becomes clear that the idea that homoeopathic prescribing is based solidly on toxicological studies or provings, is inaccurate. It appears that many prescribing indications are based on the observation that a given remedy seems to benefit patients with certain, sometimes ill-defined, groups of symptoms and characteristics which are given pride of place as mental and general symptoms. It seems likely therefore, that many of these symptoms are not toxicological phenomena but reflections of underlying pathophysiological disorders which empirically improve when a particular remedy or group of remedies is given. Furthermore, since the higher potencies do not apparently contain any of the original substance of a remedy, one can postulate that they do not act in the physical world directly, but in fact work through the subtle worlds of Ideas and Forms and through them manifest in physiological and pathological processes. Indeed it is common prescribing practice to give the higher potencies on constitutional grounds and the lower potencies for local symptoms with gross organic changes.

It was therefore felt worthwhile to look at adrenal physiology and pathology in the light of some of these ideas and see if there is any possible relationship between the known diurnal variations of adrenal function and

various homoeopathic remedies, particularly with regard to time aggravations. The remedies considered here are:

The *Proteus* group which includes *Natrum mur.*, *Conium*, *Cuprum*, *Ignatia* and *Secale*; *Chamomilla*; The *Bacillus No. 7* group which is mainly composed of the *Kali* salts in conjunction with one of the halogens; and finally *Cactus grandiflora*.

ADRENOCORTICAL PHYSIOLOGY

Before considering these remedies, a brief outline of adrenal physiology and pathological syndromes may be helpful.

The adrenal cortex produces steroid hormones which may be classified as glucocorticoids, mineralocorticoids and androgens according to their predominant action. Small quantities of oestrogens are also produced.

The most important glucocorticoid is cortisol. Serial estimations of plasma levels show that there is a diurnal variation of output which is maximal at around 9-11 a.m. and at its lowest around midnight. This variation is due to the diurnal variation of the excretion of ACTH by the pituitary in response to the biological clock function of the limbic system. Control of cortisol excretion is by a negative feed back mechanism with the secretion of ACTH by the pituitary. The effects of glucocorticoids may be summarized as follows:

(1) *Intermediary metabolism*: Protein catabolism, hepatic glycogenesis and gluconeogenesis are all increased with the result that the blood glucose rises. There is, in addition, a peripheral anti-insulin effect. Some of these actions as well as other glucocorticoid effects are mediated via increased synthesis of RNA with a resultant increase in the formation of various enzymes.

(2) *Permissive action*: Small amounts of glucocorticoids are needed for glucagon and catecholamines to exert their calorogenic actions.

(3) *Cardiovascular system and skeletal muscle*: Glucocorticoids are essential to the normal working of skeletal muscle. Adrenalectomy results in early fatigue. In vitro, glucocorticoids have a positive inotropic effect on the myocardium, but the in vivo significance of this is unclear. Cortisol does however seem necessary for the normal responses of vascular smooth muscle to catecholamines. Cortisol also increases the blood pressure and the glomerular filtration rate by an obscure mechanism independent of electrolyte changes.

(4) *Nervous system*: Adrenocortical insufficiency results in the appearance of slow waves on the EEG, personality changes including irritability, apprehension and inability to concentrate, and increased sensitivity to olfactory and gustatory stimuli. The convulsive threshold is decreased by excess glucocorticoid administration.

(5) *Gastro-intestinal system*: Glucocorticoids appear to alter the mucosal resistance to the irritant actions of gastric secretions.

(6) *Water metabolism*: Glucocorticoids are necessary for the excretion

of a water load. This may be due to the reduced glomerular filtration rate which occurs in adrenal insufficiency or there may be a direct effect of cortisol deficiency on the distal tubules, making them permeable to water.

(7) *Resistance to stress* (trauma, fear, anxiety etc): Stress results in an increase in ACTH secretion and consequently a rise in glucocorticoid levels. This rise is essential for survival. Part of the effect is the maintenance of vascular reactivity, but precisely why glucocorticoids are essential for resisting stress is unknown.

The most important of the mineralocorticoids is aldosterone, though cortisol does have a mineralocorticoid effect as well as its glucocorticoid effect.

The primary effect of aldosterone is the reabsorption of sodium from urine, sweat, saliva and gastrointestinal secretions. In the kidney potassium and hydrogen ions are excreted in exchange for sodium ions. The control of aldosterone secretion is through the renin-angiotensin system. Changes in the circulating fluid volume are reflected in changes in the renal artery pulse pressure. These changes may be amplified by high catecholamine levels. A low renal artery pulse pressure results in the secretion of renin by the juxtaglomerular apparatus. Renin acts on angiotensinogen to form angiotensin, which in turn acts on the adrenals to increase the output of aldosterone. The aldosterone action of retaining salt and water restores the extracellular fluid deficit and hence the stimulus to aldosterone production is removed. Angiotensin itself is an extremely potent vasopressor; at least in vitro.

ADRENOCORTICAL SYNDROMES

(1) *Adrenocortical insufficiency* (Addison's disease): Addison's syndrome is the result of diminished mineralocorticoid and glucocorticoid function. It is characterized by weakness, weight loss, pigmentation, vomiting, diarrhoea, hypotension, hyperkalaemia, hyponatraemia, hypoglycaemia and hypochloeraemic acidosis. Other important features include abdominal pain, salt craving; irritability, restlessness, loss of concentration, enhancement of sensory modalities and very rarely, an ascending paralysis with or without sensory disturbances.

(2) *Cushings Syndrome*: Adrenocortical hyperfunction: This is characterized by obesity, a moon-faced plethoric appearance, hirsutism, abdominal striae, hypertension, oedema and glycosuria. In addition there is great fatigueability and weakness and a range of psychological disturbance from irritability and emotional lability to euphoria and toxic psychosis. Very severe cases may develop hypokalaemia and a metabolic alkalosis from the mineralocorticoid effects of cortisol, associated with a proximal myopathy mainly affecting the thighs.

(3) *Hyperaldosteronism*: Conn's syndrome is characterized by diastolic hypertension and sodium retention without oedema, excessive potassium loss in the urine, and a low plasma renin. It is associated with an ascending mus-

cular weakness, severe headaches, tetany secondary to the hypokalaemic alkalosis and polyuria secondary to a hypokalaemic nephropathy.

An even rarer condition, clinically at least, is Barter's Syndrome of hypokalaemic alkalosis with a high renin and high aldosterone levels as a result of juxtaglomerular apparatus hyperplasia. It is quite possible that disorders of other mineralocorticoids such as D.O.C.A. may exist.

ADRENAL MEDULLARY PHYSIOLOGY

The adrenal medulla is, in effect, a sympathetic ganglion in which the post-ganglionic neurones have lost their axons and become secretory. Adrenaline is the major catecholamine excreted. Noradrenaline is also excreted but in much smaller quantities. Most of the circulating noradrenaline is secreted by sympathetic nerve endings.

EFFECTS OF CATECHOLAMINES

Central nervous system: Arousal is mediated by the catecholamine effect of reducing the threshold of the reticular neurones in the brain stem. Any increase in blood pressure also increases the excitability of the reticular formation. This group of neurones occupy the mid ventral part of the medulla and midbrain and are made up of myriads of small neurones arranged in a network. Located in it are centres which regulate respiration, blood pressure, heart rate and other vegetative functions. In addition it contains ascending and descending components which play an important role in the adjustment of endocrine secretions, the formation of conditioned reflexes and the regulation of sensory input, learning and consciousness.

Metabolic Effects: The metabolic effects of catecholamines may be summarized as:

- (1) Stimulation of glycogenolysis in the liver and skeletal muscle hence increasing the blood sugar
- (2) Mobilization of free fatty acids
- (3) Increase in the metabolic rate

Cardiovascular System: The effects of these two catecholamines on the cardiovascular system and smooth muscle differ in that adrenaline has both α and β effects while noradrenaline has primarily an α effect.

The following table summarizes some of the effects of adrenaline and noradrenaline:

The physiological stimulation to catecholamine secretion by the adrenal medulla is through the central nervous system, though hypoglycaemia is another potent stimulus. There is a diurnal variation of secretion. Catecholamine secretion is low in basal states, but adrenaline secretion and to a lesser extent noradrenaline secretion is further reduced during sleep. It is claimed that rage ("anger out") is associated with an increase in noradrenaline levels

NORADRENALINE (α effects)		ADRENALINE (α and β effects)
↓ (Reflex bradycardia)	<i>Cardiac output</i>	↑ Heart rate and stroke volume increases override reflex responses
	<i>Peripheral resistance</i>	↓
↑	<i>Blood pressure</i>	↑
↑ ↑	<i>Free fatty acid release</i>	↑
↑ ↑	<i>CNS stimulation</i>	↑ ↑
↑ ↑	<i>Heat production</i>	↑ ↑
↑	(dependent on adrenal cortex and thyroid)	↑ ↑
	<i>Blood sugar</i>	↑ ↑

and fear ("anger in") with increased adrenaline levels. Also it appears that noradrenaline secretion is greatly increased by emotional stress with which the individual is familiar, while adrenaline levels are increased when facing the unfamiliar.

Phaeochromocytoma: Phaeochromocytomas usually secrete adrenaline in excess but may secrete noradrenaline. The clinical features produced are: headaches, excessive perspiration and palpitations with either paroxysmal or sustained hypertension. Commonly it is associated with pallor, nausea, tremor, weakness, nervousness and epigastric pain. Less common features include chest pain, dyspnoea, flushing, numbness, visual blurring, tightness in the throat, hyperglycaemia, weight loss and rarely postural hypotension.

HOMOEOPATHIC DRUG PICTURES

The clinical syndromes ascribed to the disorders of the adrenal cortex and adrenal medulla represent the extremes of malfunction. It is not at all unlikely that lesser degrees of malfunction are common and may well account for many of the symptoms of which patients complain, without there necessarily being gross clinical or biochemical changes. If this is borne in mind it becomes possible to see the homoeopathic drug pictures in a different way.

B. Proteus Group: The outstanding features of the drug picture of B. Proteus are the sudden onset of symptoms, the "brain storms", arterial spasm, severe migrainous headaches, irritability, anger, dyspeptic symptoms in tense individuals, cramps and convulsions. The picture is one of spasmodic excessive sympathetic drive. Some of the remedies associated with B. Proteus are *Natrum mur.*, *Ignatia*, *Conium*, *Cuprum* and *Secale*.

Natrum mur. The drug picture here appears as a combination of mild hypoadrenalism and compensatory excessive sympathetic activity. There is the emaciation, weakness, forgetfulness and salt craving of the former with

the nervous irritability, tachycardia, palpitations and constrictive sensations of the latter. The hammering, throbbing headaches worse at 10 a.m. or worse sunrise to sunset correspond to the diurnal variations of both catecholamine secretion and corticosteroid secretion. Interestingly enough the rather low grade fever of *Natrum mur.* with its thirst for cold water during the chill and coldness unrelieved by heat also has a 10 a.m. aggravation.

Ignatia: *Ignatia* also has the hyperadrenergic picture but with less of the weakness or "Addisonian" element. Like *Natrum mur.* it is used for the effects of grief, prolonged worry and stress but there is more of a hysterical element in the drug picture: the rapid alteration of mental and physical symptoms, globus hystericus, fainting and the contradictoriness of many of the symptoms such as a sore throat relieved by swallowing solids and emptiness in the stomach relieved by eating.

Conium: *Conium* is a deep-acting anti-psoric and at first sight appears to have little relationship to the other remedies in this group. However, chemically, the plant extracts from which many homoeopathic remedies are made are very complex and this may be the reason why such a wide range of symptoms is covered by one remedy. *Conium* has the wasting, irritability and impaired concentration, weakness, lymphadenopathy and impaired response to stress of hypoadrenalism. It also has breast, testicular and prostatic tumours in its prescribing indications. Although the amounts of androgens and oestrogens secreted by the adrenals are not usually considered significant, in disease states they may well play a crucial part. The classical ascending paralysis of hemlock poisoning is occasionally seen in Addison's disease associated with a marked hyperkalaemia. The time aggravations of *Conium* are night and early morning.

Cuprum: The keynote of *Cuprum* is spasm and cramps. Like *Natrum mur.* and *Ignatia* there is the mental and physical exhaustion from loss of sleep and prolonged stress associated with attacks of anxiety. However the spasm element is more marked, giving rise to asthma, angina, abdominal colic, gangrene, menstrual colic, nocturnal asthma and sensations of praecordial anxiety. It is one of the remedies used in whooping cough, particularly if the cough is relieved by cold water and has a marked nocturnal aggravation. It has also been used in epilepsy and classically in cholera when cramps are a predominant feature. Cramps are known to be associated with disorders of salt and water metabolism and, theoretically at least, disorders of mineralo-corticoid function.

Secale: *Secale* is the crude extract of ergot and is a veritable pharmacological rag-bag containing histamine, tyramine, quaternary ammonium compounds and acetylcholine as well as the ergot alkaloids. In this it is not unlike another member of the Proteus group—*Apis*. This extract also contains very potent vaso-active amines. *Secale* is often used in conditions of poor peripheral circulation such as Raynaud's syndrome, and intermittent claudication, particularly where there is a marked aggravation from heat

when the limb itself is cold to the touch. Emaciation, anxiety and debility with a good appetite and an excessive thirst, angina and hypertension are features which may be related to disturbances of salt and water metabolism and catecholamine secretion.

Chamomilla: This remedy is not usually included in the Proteus group. Nevertheless, it has several features in common with it. The Chamomilla state may be described as irritable, angry, hot, thirsty and numb. There is usually a marked heat aggravation. Characteristically there is an aggravation at 9 a.m. and 9-12 p.m. There are vasomotor disturbances, classically the one red and one pale cheek in the feverish child, colic, spasmodic dysmenorrhoea, acute duodenitis and a very low pain threshold. Running through the remedy is this sympathetic overactivity and the morning aggravation following the normal rise of the catecholamines and adrenal steroids. The evening aggravation is often associated with the child with an upper respiratory tract infection when there is earache, fear and anger in a child who has refused all food for some hours. Pain, fear, and hypoglycaemia are all potent stimuli to catecholamine release.

Baryta mur.: This remedy is not widely prescribed. It has features in common with both Natrum mur. and Baryta carb. It is also regarded as complementary to Conium in the treatment of glandular swellings. It has muscular fatigue, lassitude, palpitations, systolic hypertension, tachycardia and anxiety, particularly about the future. On the other hand, it has the tendency to chronic recurrent infections, chronic bronchitis and generalized arteriosclerosis which one associates more with the Baryta radical. Arteriosclerotic psychiatric disorders, particularly when associated with increased sexual desire are said to be characteristic. Baryta mur. then, appears to represent a later stage of Natrum mur. in which the arterial system in particular has taken the brunt of the degeneration. The time aggravations are in the morning and after midnight.

Aurum mur.: Like Baryta mur., Aurum mur. has hypertension, arteriosclerosis, anxiety and restlessness; but here it is the heart which appears to have suffered rather more than the peripheral arteries. There is congestive heart failure with its oedema and venous congestion, palpitations, tachycardia and a marked heat aggravation. The main time aggravation is, not surprisingly, at night.

Apis mellifica: Apis is complementary to Natrum mur. The mental symptoms are apathy, indifference, inability to concentrate, tearfulness, jealousy and rage. There is also oedema and violent inflammatory reactions, angioneurotic oedema and burning stinging pains. There is an aggravation from heat and a time aggravation for the fever in mid-afternoon. There is thirstlessness with the fever. Chemically Apis in its crude form contains several potent vaso-active amines. Homoeopathically it is interesting to note that it is used in clinical situations such as angioneurotic oedema in which adrenaline or steroids are used in allopathic dosage.

Bacillus No. VII group: *Bacillus No. VII*: The keynote for this nosode is "mental and physical fatigue". There is a general diminution of both nervous and muscular tone. There tends to be a bradycardia, hypotension, myocardial degeneration, chronic airways obstruction and sluggish gastrointestinal and genito-urinary function. Even the thought of doing anything leads to exhaustion. The patient is intensively chilly and sensitive to draughts. The onset of the state is slow and insidious. The asthmatic element has a time aggravation of 2 a.m. The more commonly used remedies related to this bowel nosode are the Kali salts. In this group there is very little of the sympathetic overactivity which runs through the *Proteus* group.

It is perhaps relevant to remember that potassium as the predominant intracellular cation plays an essential role in all the vegetative functions of the body and in clinical terms disorders involving potassium metabolism are often associated with musculoskeletal, cardiovascular and renal dysfunction. Potassium metabolism is integrally connected with sodium metabolism and hence the mineralocorticoids and renal function.

The urinary excretion of water and most electrolytes is normally greater during the day than at night. During the evening and night the excretion of sodium, potassium bicarbonate and chloride ions gradually diminishes, the pH of the urine falls and its concentration rises. The process is reversed in the morning. The mechanisms responsible for this diurnal rhythm are not fully understood. However, it is known that there are diurnal variations in the glomerular filtration rate, anti-diuretic hormone and of course the adrenal steroids. Variations of aldosterone secretion cannot fully explain these phenomena since the excretion of sodium and potassium are under normal circumstances parallel. Reversal or abolition of this diurnal rhythm occurs commonly in the four most frequent causes of generalized oedema, cardiac failure, hepatic failure, nephrotic syndrome and malnutrition. It may also be reversed in chronic renal failure, small bowel insufficiency, Addison's disease and following head injury.

Kali carb.: The early morning aggravation (2-3 a.m.) of this remedy is characteristic. This applies particularly to the pulmonary oedema, asthma and nocturia. It is most often of use in the older age groups in obese, oedematous chilly subjects. Heart failure, facial oedema in the mornings, profuse sweating, backache, weakness and weariness and a general aggravation from cold weather are among the features of this remedy.

Kali bich.: Although this remedy is perhaps thought of most commonly in association with catarrhal secretions and punched-out ulceration, it does have in its drug picture references to albuminuria, nephritis, heart failure particularly in renal disease, and aggravation from heat and in the early morning. Weakness is a feature common to all the Kali salts.

Kali brom.: Kali brom. has the typical weakness and time aggravations of the Kali radical in association with acneiform and psoriasiform skin eruptions and the psychiatric disturbances of depression, night terrors and

loss of libido associated with the bromid ion. Polyuria with intense thirst is also described.

Kali iod. : *Kali iod.* is usually associated with the acrid discharges of its halogen component though it also has asthmatic symptoms, pulmonary oedema, exertional dyspnoea and pleural effusion in its drug picture. As one would expect, there are both nocturnal and heat aggravations.

Cactus : *Cactus* is not listed with any of the bowel nosodes. It has some of the spasmodic element of the Proteus group, manifesting as typical angina pectoris, spasmodic dysmenorrhoea and constrictive sensations in the chest and abdomen. The typical time aggravations are 11 a.m. and 11 p.m. However from the point of view of its use as a cardiac remedy, the drug picture suggests a much later stage than, for instance, *Cuprum met.* There is cardiac decompensation with an enlarged heart going on to congestive cardiac failure associated with the mental symptoms of depression and anxiety about the heart disease. In this situation the catecholamine output is, as it were, flogging the dying myocardium into trying to maintain its function, while the reduced renal perfusion results in secondary aldosteronism and hence salt and water retention; thus aggravating the situation.

CONCLUSIONS

The above discussion does of course contain a large speculative element. It is very difficult to elucidate, even with the most advanced biochemical and endocrinological techniques, minor variations in physiological functions. It is even more difficult to prove that giving a homoeopathic remedy alters these processes. Nevertheless this approach may provide another way of looking at the homoeopathic materia medica. Most of the materia medica as found in the standard text books is presented either in a somewhat disorganized anecdotal form or by anatomical systems or in drug pictures. All of these methods have some value but in general fail to convey, and bring together in a coherent form, the underlying "spirit" of the drug, the toxicological data and the relationship of the remedy to pathophysiology.

I feel therefore that we should begin to consider the remedies from three viewpoints. Firstly the toxicology of the remedies, the provings. It may be useful to extract the observed provings from the hearsay. Secondly a general philosophical approach to underlying themes running through groups of remedies, plant families, organ remedies and related elements. Finally I feel we should combine these two approaches and consider them in relation to what is currently known about physiology and pathology. We need therefore, a new approach to the materia medica founded on Pharmacology, Philosophy and Physiology.

—*The British Homoeopathic Journal*, October, 1976