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Pre-membership Course in Medical Homeopathy

A Blended Open-Learning Course in Homeopathic Medicine for Healthcare Professionals

Unit 63

Materia medica Studies for Week 7

Acid Remedy Groups in Homeopathy (notes compiled by Russell Malcolm)

Welcome to Week 7 ***Materia Medica Studies***. We have selected ***The Acids*** as the topic for this week to accompany the '*Models for Fatigue States'* therapeutic studies. We hope that this short introduction provides you with some awareness of the reasons for this connection.

There are almost 100 acids described in the homeopathic materia medica. Many of these are incompletely described or have very niche indications.

Some have had detailed provings including:

Acetic acid
Benzoic acid
Carbolic acid
Fluoric acid
Muriatic acid
Nitric acid
Oxalic acid
Picric acid
Phosphoric acid
Sulphuric acid

Of these, *Nitric acid* and *Phosphoric acid* are truly polychrest remedies and you will need to spend a little time familiarising yourself with their guiding symptoms, affinities and mind picture.

What are the common features?

Generically, all acids dissociate in aqueous environments yielding one or more protons. As you are aware protons are stable subatomic particle, symbol p , H , or ^{1}H with a positive electric charge of +1 e elementary charge. Its mass is slightly less than that of a neutron and 1836 times the mass of an electron.

Monobasic acids eg H Cl (Hydrochloric acid) dissociate to yield one proton per molecule
Dibasic acids eg H2 SO4 (Sulphuric acid) dissociate to yield two protons per molecule
Tribasic acids eg H3P)4 (phosphoric acid) dissociate to yield three protons per molecule

Generally those that dissociate completely as classed as **strong acids**: eg.

Hydrochloric acid
Sulphuric acid
Nitric acid

and those that dissociate partly, and therefore yield a lower concentration of free H+ ions, are classed as **weak acids**: eg.

Formic acid
Acetic acid

Their reactivity is largely due to how easily they dissociate. Those that dissociate completely are highly reactive and therefore 'corrosive' to a wide range of materials. Weaker acids are more 'reluctant dissociators' and are therefore less reactive and corrosive. The electrical conductivity of acids also relates to the concetration of free ions.

Mineral acids, are usually manufactured from entirely inorganic sources

Hydrochloric acid
Sulphuric acid
Nitric acid
Fluoric acid
Phosphoric acid

Organic acids can be extracted from living systems (mostly plants):

Citric acid
Formic acid
Tartaric acid
Lactic acid
Oxalic acid

Oxalis acetosella (Wood sorrel)

Some mineral acids can also be found in their native state in organic systems: eg Hydrochloric acid is secreted in the mammalian stomach.

Biological Aspects

The role of acids in pH balance is living systems is critical

Regulation of body fluid pH is one of the most important physiological functions of homeostasis, because activity of most chemical reactions via enzyme proteins is dependent on fluid pH.

The normal physiological pH of mammalian arterial blood is strictly maintained at 7.40. Blood has pH buffers such as Hb (hemoglobin) and albumin. A decrease of more than 0.05 units from the normal pH results in acidosis.

In the context of our homeostatic functions, the small range of tolerances for pH control means that derangement is common in illness states. Transient derangement and correction occurs quickly in healthy states, but is of delayed or incomplete in chronic illness states.

To maintain homeostasis of body fluid pH, various buffering systems are active, in combination with proton excretion from the cytosol to the extracellular space and ultimately excretion outside of the body.

If production of organic acid is elevated, or the buffering and excretion systems are impaired, the body fluids turns acidic, leading to abnormal conditions. A typical example is elevation of lactic acid production in skeletal muscle in response to strenuous exercise, which leads to body fluid acidosis, preventing muscle contraction.

Proton transport across the plasma membrane of muscle cells is important for maintaining the appropriate intracellular pH. Skeletal muscle is a major metabolic organ that generates acids, in particular during contraction. Strenuous muscle contractions can cause a radical reduction in intramuscular pH to −6.5 with accumulation of more than 40 mM lactate, regardless of cellular buffering capacity.

Proton Transporter Function

Several studies have shown that intracellular pH is reduced during muscle contraction and has a delayed recovery to basal conditions during the recovery phase in the absence of proton transporters. This delay suggests that proton transporters play a key role in maintaining pH homeostasis. Functionally proton transporters appear to be an essential component in regulating the body's pH within an appropriate range.

It is likely that homeopathic preparations of the acids act, especially in the metabolically mediated fatigue states, by functionally altering the activity of the body's trans-membrane proton transport.

Lactic acid

Over 80% of the intracellular protons are transported through lactate co-transport in contracting muscle, although remaining parts are transported through other mechanisms including bicarbonate-depending transport.

In the 'metabolic' subgroup of fatigue states we often encounter highly impaired exercise tolerance. This raises the question of whether derangement of lactate co-transport is occurring as a primary or secondary disturbance in these patients.

In his description of Lactic acid, Nash observes wandering 'rheumatic' pains (< motion) as a concomitant to all the other proving symptoms of the remedy. (See also Hippuric acid)

Acids and their relationship to Fatigue and/or Weakness

When we examine the homeopathic picture of the acids, we need to distinguish, whenever possible between *weakness* (loss of stamina) and *tiredness*. This is a difficult distinction and may be lost on many patients.

But where, for example, mental energy is relatively well preserved, but the patient complains of muscle weakness Sarcolactic acid may be favoured as the treatment of choice over some of the mineral acids.

Failing muscle tone (including Myasthenia Gravis): Pic-ac

By this stage, you will be aware that <u>fatigue and/or weakness</u> is fundamental part of the symptomatology in patients for whom the acids may be indicated.

Acetic acid / Butyric acid in Hepatic Disease

The liver is another organ closely associated with the metabolism of organic acids. The liver generates ketone bodies (i.e., acetoacetic and β-hydroxybutyric acids), metabolizes lipids, and converts lactate to glucose via gluconeogenesis. Liver function therefore generates acidic conditions and intracellular pH needs to be maintained, both by proton extrusion and various buffering functions.

Acetic acid has long been associated with **fatigue** in illness states where deranged liver function is tied either to problems of GI assimilation or to hepatic disease. Fatigue and cachexia in some cancer patients are among the important indicators for homeopathic *Acetic acid.*

Similarly *Butyric acid* may be indicated in cancer patients where there is appetite loss, increasing fat intolerance - often with steatorrhoea - as biliary function begins to fail (perhaps as a result of hepatic secondaries). In these cases, hepatic toxicity results in changes to the body odour as the eccrine and apocrine glands become more involved with the elimination of toxic groups. The homeopathic materia medica focusses on the offensive smell of the urine (like horses urine) in these patients and describes offensive foot sweat.

Fatigue in Diabetic Patients

Acidic conditions can also result in physical fatigue of diabetic patients. Therefore, maintaining normal pH is important for physiological homeostasis.

Homeopathically, the following acids are all associated with diabetic symptoms / syndromes and/or secondary metabolic states and complications:

Acet-ac, Benz-ac, Carb-ac, **Lac-ac***,* Mur-ac, *Nit-ac,* **Ph-ac**, *Pic-ac*, Sal-ac, *Sul-ac*

Body fluid acidosis can also contribute to the development of metabolic diseases. Various *in vitro* experiments support the hypothesis that lower extracellular pH may cause insulin resistance in skeletal muscle cells.

Hyperlactacidemia is found in patients with obesity and type 2 diabetes (*Muriatic acid*), which supports the strong negative relationship between acidic condition and insulin sensitivity. Even in healthy subjects, acids level could be an independent risk factor for the development of type 2 diabetes.

Obesity in the elderly who are diagnostic for type 2 diabetes may have indications for *Phos-ac* and *Fl-ac*.

Renal tubular acidosis - **Benz-ac.**, *Phos-ac*., Pic-ac

The tubules of the kidneys remove acid from the blood can sometimes be damaged when a person takes certain pharmaceutical drugs, perhaps in combination with another disorder affecting the kidneys.

In renal tubular acidosis, the renal tubules tend to malfunction in one of two ways that lead to metabolic acidosis:

1. Too little of the proton load that the body produces are excreted, so acid levels in blood increase.

2. Too little of the bicarbonate that filters through the kidney tubules is reabsorbed, so too much bicarbonate is lost in the urine. (ie there is a loss of buffering).
Bloods show high acid levels and a derangement of the body's acid-base balance.

Renal tubular acidosis may lead to the following problems:

Low or high potassium levels in the blood
Calcium deposits in the kidneys, which may lead to kidney stones
Dehydration
Painful softening and bending of the bones (osteomalacia or rickets)

Renal tubular acidosis may be an intermittent problem in people who have disorders, such as diabetes mellitus, sickle cell disease, or an autoimmune disorder (such as systemic lupus erythematosus [SLE or lupus]). Renal tubular acidosis may also be a temporary condition brought on by blockage of the urinary tract or by drugs such as acetazolamide, amphotericin B, angiotensin-converting enzyme (ACE) inhibitors, angiotensin II receptor blockers (ARBs), and diuretics that conserve the body's potassium (so-called potassium-sparing diuretics).

As in other forms of acidosis **muscle weakness and diminished reflexes occur**, particularly when the disorder becomes chronic.

Key remedies: **Benz-ac.**, *Phos-ac*., Pic-ac

In renal tubular acidosis, the balance of other electrolytes is also affected.

Symptoms
Confusion or decreased alertness. (*Ph-ac., Pic-ac*)
Fatigue. (*all acids*)
Impaired growth in children.
Increased breathing rate. (See also *Carbonic acid* and, if severe, *Hydrocyanic acid*)
Kidney stones. (*Benz-ac, Ph-ac*)
Nephrocalcinosis (too much calcium deposited in the kidneys) (*Benz-ac, Ph-ac*)
Osteomalacia (softening of the bones) (*Ph-ac*)
Muscle weakness. (*all acids*)

Fatigue in uraemic syndromes and gout: *Uric acid, Benzoic acid*

Metabolic syndrome: *Carb-ac., Pic-ac*

It has been established that body weight and waist circumference have a negative correlation with both insulin sensitivity and urine pH.

Patients with metabolic syndrome also display a significantly lower pH in 24 h urine collection, compared to normal subjects and there is a negative correlation between the mean 24 h urine pH and the clinical indicators for metabolic syndrome.

Weakness in multi-morbid / chronic states, perhaps in association with polypharmacy: Carb-ac

Metabolic fatigue states are mainly treated homeopathically with inorganic acids**.**

Phosphorylation in Kreb's Cycle: (homeopathic *Phosphoric acid*)

The maintenance of pH in metabolic organs is achieved through various regulatory systems. Physical exercise and appropriate diet contribute to pH homeostasis.

Habitual exercise adaptively accelerates the entry of fatty acids both from the plasma into the muscle cell and from the cytosol into the mitochondria, while also enhancing Krebs cycle function in the resting state.

eg. Fatigue states in athletes following acute drug use for threatening viral illness: *Phos-ac.*

'Crash Fatigue States' may represent a form of acute dysregulation as a result of physiological lactic acidosis together with a confounding drug or stressor.

In established fatigue states with myalgia, *Lactic acid* and *Sarcolactic acid* may also be indicated.

'Neurasthenia' (Oxalic acid, Picric acid)

The insulin action is required for neuronal survival within the central nervous system. Fluctuating glucose levels resulting from a defective insulin response have been suggested to lead to apoptosis, energy starvation, formation of neuritic plaques and neurofibrillary tangles - the hallmark lesions of Alzheimer's disease - and altered acetylcholine levels in the hippocampus.

It is likely that future treatments which either help to maintain the interstitial fluid pH within the normal range, or facilitate the recovery of the interstitial pH to the normal range, would also help to reduce neuronal loss in metabolic brain disorders.

Fatigue in neurological conditions: **Oxalic acid, Picric acid**

Misc.
Meniere's: *Hydrobromic acid, Salicylic acid*

Nutritional Factors

It is well known that adequate diet is important for controlling pathological conditions in patients with metabolic disorders. In addition, intervention studies in humans have reported that several bioactive factors included in foods such as antioxidants and n-3 unsaturated fatty acids improve energy metabolism.

Additional factors such as carotenoids, alpha lipoic acids, amino acids/peptides, and minerals may also offer preventive or therapeutic effects to combat hyperglycemia and several animal and culture studies have demonstrated their efficacy in improving insulin sensitivity. The effects of these nutrients are only beneficial when administered in combination.

Fasting

Impact of fasting on human brain acid-base homeostasis using natural abundance 13C and 31P MRS

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Fasting brain bicarbonate concentrations (6.7 ± 2.5 mM for 12hr fasting, P=0.002 and 8.3 ± 2.1 mM for 4 hr fasting, P=0.015) are significantly reduced compared to fed state (11.6 ± 1.3 mM). However, no significant difference in brain pH is observed, confirming the critical role of pCO2 in intracerebral pH homeostasis.

Conclusion

This study demonstrated that the intracellular HCO_3^- in human brain is readily modified by diet but appears to have no measureable effect on cerebral pH.

Acid group remedies in **non-metabolic** fatigue states tend to be from the **organic acid group**.

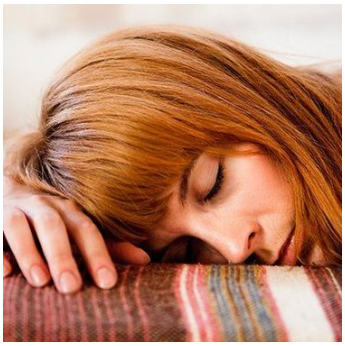
Fatigue coexistent with allergy: *Succinic acid*
Fatigue in inflammatory arthritides: *Formic acid* (Gout: *Benzoid acid*)
Fatigue in gut dysbiosis: *Acetic acid, Butyric acid, Tartaric acid*
Fatigue in chronic dermatoses: *Acid Chrysarobinum (Chrysarophanic acid)*

Tissue affinities of the acids:

Mucosal (ulceration): Carb-ac, Fl-ac, Mur-ac, Nit-ac, Ox-ac, Ph-ac., Pic-ac, Sul-ac
Mucosal (bleeding): Nit-ac., Mur-ac., Tannic acid
Mucocutaneous junction / body orifices (fissures) Nit-ac
Mucocutaneous (fistulae) Fl-ac
Pseudo-membranes on surface of organs: Acet-ac, Chr-ac, Sul-ac, Sal-ac, Nit-ac., Mur-ac
Hepatic parenchyma: Acet-ac, Butyric-ac, Ph-ac.,

Fatigue after trauma / injury: *Nit-ac., Sul-ac*

Constitutions and Trigger Events in the Pathography of Acid Remedy States



Emotional trauma + phosphoric constitution ⋙ Phos-ac

Fatigue states supervening on Natrum mur / Kali mur / Mag mur constitutions ⋙ Mur-ac

Physical / Mental trauma + sulphur constitution ⋙ Sul-ac

Chronic unremitting stress + Arg-nit / Kali-nit constitution ⋙ Nit-ac, Nitro-muriatic acid

Cardiovascular emergencies + any Carbon constitution ⋙ Hydrocyanic acid, Carb-ac