COMPLEMENTARY AND ALTERNATIVE ALLERGY TESTS

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ABSTRACT

This article reviews the common tests employed by complementary and alternative medical practitioners to diagnose allergies and intolerances. These tests include VEGA, applied kinesiology, hair analysis, auriculocardiac test, stool and live blood analysis, leucocytotoxic tests and IgG ELISA tests. None of these tests has proven to be as accurate as specific IgE measurement in allergy diagnosis and they cannot be recommended.

Many unconventional allergy tests are available which purport to diagnose a number of maladies. Tests range from electrodermal tests to trace metal estimation in hair samples.[1] These unvalidated tests are promoted by complementary and alternative medicine (CAM) practitioners. Superficially many of these tests sound plausible, but are based on unproven theories and explained with simplistic physiology. Most of these tests diagnose non-existent illnesses,[2,3] are a waste of money, and divert attention from actual allergies, thus delaying conventional treatment that may offer genuine allergy relief.

CAM practitioners base their allergy tests on controversial theories about what might cause allergies. Examples include:

- Chemical fumes from cleaning solvents, petrol, paints and perfumes
- Electromagnetic radiation from power lines and electronic devices
- Food with traces of colourings, antibiotics, pesticides and preservatives
- Micro-organisms such as *Candida albicans* and exotic parasites
- Prescription and over-the-counter medication
- Multiple foods such as wheat, yeast, sugar and coffee
- Endogenous hormones particularly progesterone.

WHO 'TESTS' THEIR TESTS?

CAM practitioners cite anecdotal case reports and clinical studies published in fringe medical journals. Individuals may well develop non-specific irritant reactions and side-effects to medication or vaso-active amines occurring in foods but this is of a non-allergic nature. Environmental or multiple chemical sensitivities, systemic candidiasis, attention deficit disorder (ADDH) and chronic fatigue are commonly diagnosed as resulting from 'allergies' to various environmental chemicals and naturally occurring fungi and parasites. Although *Candida* can cause vaginitis and oral thrush, there is no convincing evidence that systemic infections are related to allergy.[4,5] Exotic parasite infestations are diagnosed on a droplet of blood with no convincing supportive evidence. Few of these tests are ever validated, checked or run with control samples. None is routinely recalibrated or appraised with recognised scientific checks of equipment.

A recent article in Britain's *Daily Mail* newspaper (19/11/05) reported on an adolescent girl who tested 'positive' to 33 toxic chemicals found in household cleaners, foods and the modern 'environment'. This caused enormous consternation to her caregivers but when one considers the accuracy of these tests and whether traces of chemicals in hair samples or other body fluids have any health implications at all, the unnecessary anxiety generated by these 'tests' becomes apparent.

Once many of these fictitious conditions are diagnosed, the naïve patient is then put onto various elimination diets, rotation diets and many unnecessary vitamin and trace element supplements. Herbal remedies such as ephedria (now banned in USA), spirulina, grape seed oil, nettle, vitamin C and more recently flax seed oil are prescribed and symptom improvement may be related to undisclosed 'salting' with steroids in these so-called natural remedies.[6] The illegal addition of corticosteroids to these 'natural and traditional' remedies gives them obvious therapeutic effect but may result in dangerous side-effects if used for prolonged periods of time.[7]

Warner[8] is of the opinion (and this is also the author's experience) that health journalists are unlikely to investigate or expose these pseudoscientific tests as fallacious for fear of alienating their 'complementary medicine' readership. Some of these CAM allergy tests may someday be proved to be safe and efficacious, but to date no convincing studies have proved any of their efficacies in diagnosing allergies.

This article reviews the common 'allergy tests' used by complementary and alternative medical practitioners.

SOME COMMON TESTS

The leucocytotoxic test (Bryan's test)

Bryan's leukocytotoxic test was originally developed in 1956 by Black, and further elucidated by Bryan in 1960. The basis of the test is that if the patient's white blood cells are mixed with the offending allergen, they swell. The test then measures any swelling of the leukocytes and if a certain threshold of swelling is measured, using a Coulter counter, a positive result is recorded. Studies to date have shown poor correlation between this test and clinical allergy. The marketers, who rely on anecdotal evidence of efficacy, do not mention these disappointing clinical studies. A large number of allergens are tested for and patients are usually positive to a number of foods, additives and other agents. Personal communication with Katelaris in Australia and Steinman in South Africa plus Lieberman's study[9] in USA confirm that preliminary studies on the ALCAT test found no diagnostic accuracy. At present the test is also marketed under the name 'Nutron'. Despite claims to the contrary, no large studies have ever shown the test to be accurate despite its having been available for over 50 years!

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The original protagonists of the ALCAT test (which includes the leucocytotoxic test and Nutron test) could only cite a few non-peer-reviewed congress abstracts as evidence that it worked, while the antagonists (personal communication with the leading opinion leaders in the field of food allergy such as Bindslev-Jensen, Potter and Katelaris) have substantial data on record to show a poor diagnostic accuracy. The lack of mainstream acceptance of these tests is often blamed on 'a conspiracy' by the larger multinational diagnostic companies trying to remove the defenceless opposition from the market. This perception is not a true reflection of the situation.

The IgG ELISA allergy test

Another allergy test of questionable accuracy is the IgG ELISA test. This test measures IgG antibodies to various foods which should not be confused with IgE antibody testing in conventional RAST and UniCAP. Most people develop IgG antibodies to foods they eat and this is a normal non-specific response. There is no convincing evidence to suggest that this test has any allergy diagnostic value.[10,11] In fact, the IgG response may even be protective and prevent the development of IgE food allergy! IgG4 antibodies produced after high level cat allergen exposure in childhood confer cat allergy protection and not sensitisation.[12]

Applied kinesiology (muscle testing)

Applied kinesiology was developed in the USA by Goodhart in 1964 and relies on energy fields within the body to diagnose allergy and intolerance. Kinesiology is popular among chiropractic practitioners in the South Africa. In this test, the practitioner tests the patient's muscle strength when the allergen is placed in a vial in front of them. The shoulder strength (deltoid muscle) is usually tested for weakness. The patient holds out an arm and the practitioner applies a counter pressure – if the patient is unable to resist the counter pressure, the test is considered positive to that allergen. The antidote to the allergy is then also held in front of the patient and if their weakness is reversed – this indicates it is the correct antidote. There are a number of variations to the technique of muscle testing and many practitioners complement the test by holding a magnet in front of the patient. There is no convincing evidence that this test has any useful role to play in allergy diagnosis.[1,13]

VEGA testing (electrodermal testing)

This test was developed by German physician Dr Reinhold Voll in 1958. The VEGA test (or electrodermal test) involves measuring electromagnetic conductivity in the body using a Wheatstone bridge galvanometer. The patient has one electrode placed over an acupuncture point and the other electrode is held while a battery of allergens and chemicals are placed in a metallic honeycomb. A fall in the electromagnetic conductivity or a 'disordered reading' indicates an allergy or intolerance to that allergen. Newer transistorised/computerised versions of the original VEGA or Voll test are called Dermatron, BEST, Quantum and LISTEN Systems which have a similar application and give more rapid results. Some claim to test for 3 500 allergens in 3 minutes! Katelaris *et al.*[14] and Lewith *et al.*[15] performed independent double-blind testing, comparing VEGA testing with conventional testing in known allergy sufferers, and the VEGA tests had no reproducibility or diagnostic accuracy at all.[1] The manufacturers aggressively promote the test and offer free training courses for potential 'allergy' diagnosticians.

Hair analysis testing in allergy

Hair is analysed for allergies in two ways. First of all, the hair is tested for toxic levels of heavy metals such as lead, mercury and cadmium and then deficiencies of selenium, zinc, chromium, manganese and magnesium. There is no scientific evidence to support the hypothesis that these heavy metals have any bearing on allergic diseases. Hair samples are usually sent away for analysis and numerous studies have failed to find any accuracy in hair analysis diagnosing allergies.[1] Another hair test is called dowsing. The dowser swings a pendulum over the hair and an allergy is diagnosed if an altered swing is noted.

Auriculocardiac reflex

Suspected allergens are placed in filter papers over the skin of the forearm. A bright light is shone through the ear lobe or back of the hand. At the same time the pulse is assessed. If the filter paper contains an allergen to which the patient is allergic, the pulse increases by 12 or more beats per minute. To date, no scientific data are available to validate this test.[1]

Provocation-neutralisation tests

The allergen is applied sublingually, or by skin injection. Increasing test doses are given until a wheal appears on the skin (provocation dose); the dose is then decreased until the wheal disappears. This is the neutralisation dose which is used to treat the allergy and 'desensitise' the patient. This test has also not been validated by studies and has no diagnostic reliability in allergy or treatment.[1]

Nampudripad's allergy elimination technique (NAET)

NAET has to be the most unsubstantiated allergy treatment proposed to date. It consists of a combination of methods of diagnosing and treating allergy such as kinesiology, VEGA testing and acupuncture. It was proposed in 1983 by American chiropractor Devi Nampudripad, hence its name. The premise is that allergy (contrary to our current understanding) is due to some form of internal energy blockage triggered by abnormal energy fields in the brain. Nampudripad proposed that after 20 or so treatments she can reprogramme the brain and body energy flow and eradicate all allergies and many other diseases affecting mankind. However, as a cause of allergies, energy flow and electrical fields in the body have not ever been proven.

Live blood analysis

With the aid of a simple microscope and a short course in microscopy, many CAM practitioners are now professing to be able to diagnose all sorts of chronic ailments including allergies. The finger is pricked and a fresh blood specimen is examined under the light

microscope for blood cell 'deterioration', rare parasites, or coagulation disorders. It is impossible to determine parasitaemia, bacteraemia or coagulation abnormalities on a drop of blood, without specialised stains and testing methods.

Stool analysis and microscopy for yeasts and parasites

Fringe laboratories in the USA operate a postal service, analysing stool samples for bizarre metabolites and an array of exotic parasites and organisms that are purported to cause non-specific symptoms supposedly related to lifestyle allergies. Great Smokies Laboratories in the USA will do a full assessment of exotic micro-organisms, bizarre biochemicals and proteins on a stool sample and send a 'comprehensive' report of these.

BEWARE OF ANECDOTAL AND UNSUBSTANTIATED ALLERGY TESTS

There are a plethora of so-called tests for 'intolerances' including urine, stool and saliva as well as bioresonance (vibrational medicine) and iridology. These tests are often promoted as 'wonder' diagnoses and anecdotal stories of lifelong allergies finally being accurately diagnosed abound. It would be naïve for any medical practitioners to accept these individual anecdotal reports of diagnostic efficacy without any scientifically validated studies to prove their worth. We often read about similar tests in the media and unsuspecting patients flock to part with their hard-earned money. Conventional medical practitioners may be accused of bias against these supposedly simple and 'cheap' tests and feel pressurised to try them out. On the other hand, a convincing CAM practitioner armed with an impressive allergy-diagnosing 'contraption' can talk even the most sensible patient into believing their pseudo-scientific explanations and anecdotal reports of allergy cures. Once patients realise that they have been incorrectly diagnosed, they may feel embarrassed, put the matter down to bad experience and hardly ever complain about the treatment or costs involved. For more information on these dubious tests visit the Quackwatch website at www.quackwatch.com.

Declaration of conflict of interest

The author has no conflict of interest.

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PRODUCT NEWS

IgE testing in persistent cough

IgE testing is helpful for GPs in determining those young children with persistent cough who will and will not develop asthma at age of 6 years.

Cough is the main complaint in at least 13% of general practice consultations for children from birth to 4 years of age. Clinical parameters alone cannot identify the subgroup of children for whom the risk of developing asthma is high, and therefore if a special investigation could be found to have a high predictive effect, this would be of great benefit to the clinician.

A study in The Netherlands of 752 children visiting 72 GPs, found that IgE testing was helpful for GPs in determining those young children with persistent cough who will and will not develop asthma at age of 6 years.

The aim of the study was to investigate the diagnostic added value of allergen-specific IgE measurements to predict development of asthma at the age of 6 in young children with persistent cough. A structured questionnaire and a blood sample at inclusion were used to construct a simple scoring formula including age at inclusion (3-4 years), wheezing, and family history of pollen allergy. A follow-up examination with lung function tests and questionnaires was performed at the age of 6 years.

Serum total IgE and specific IgE for cat, dog, and house-dust mites were determined. The children with an IgE-positive status were matched to those with a negative status defined by age, sex, region (rural versus urban) and IgE antibody testing, and using the baseline criteria the researchers could categorise the children into 16 groups. The range of predictive values for asthma development in these groups increased from 6- 75% to 1-95% when IgE antibody testing was included. Almost 13% of the group (all less than 4 years of age) had an IgE-positive status for cat, dog, and/or house-dust mites. In 3-year-old wheezing children without family history of pollen allergy the probability of developing asthma at the age of 6 was 48.1%. After testing for allergen-specific IgE the children could be categorised into an IgE-positive group with high risk (88.1%) and an IgE-negative group with low risk (28.3%). The predictive values were below 5% in non-wheezing children with negative test results but increased to 20-50%> if the tests were positive.

The study concluded that the assessment of specific IgE to inhalants may be helpful in determining those children with persistent cough (≥ 5 days) who will and who will not develop asthma at the age of 6 years. In particular, IgE testing was able to categorise children who wheeze into low- and high-risk groups.

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