Tibb position statement –

Infection, healing and Tibb

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A Science of Medicine
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Abstract

For many centuries the infections resulting from conflict, injury or accident were treated by a wide range of traditional methods. These were based on herbal remedies intuitively selected for their healing properties, scrupulous hygiene, and various physical techniques characteristic of the local community. The arrival of the anti-microbial drugs in the middle of last century completely transformed infection control, and heralded the arrival of the 'Antibiotic Era'. However, worrying resistance to antibiotics, anti-viral and anti-fungal drugs has emerged. This major drawback, plus other issues of tolerance and efficacy, has prompted the search for more reliable ways of overcoming infections. This article reviews, from the Tibb perspective the alternatives now available. It includes herbal therapy and other ways of strengthening Physis, our innate power of inner healing and disease prevention. It precedes this with an insight into the nature of infection and the therapeutic agents used to oppose it. It concludes with a summary of the role that Tibb can play.

Overview on Infection

The dawn of modern medicine was heralded by Hippocrates more than two thousand years ago. However, since that time, and until the late 19th Century, the treatment of serious infections left much to be desired. The discovery of microbes, especially bacteria, followed closely by the Germ Theory of disease, marked a major shift in the approach to infection. To a large extent this was made possible by the application of new technology and the rise of the synthetic chemical industry. The development of anti-microbial drugs in the 1930's, followed soon after by the antibiotics in the 1940's, lead to the virtual abandonment of previous forms of infection control and management. Much of the second half of the 20th Century featured the arrival of a multitude of these "wonder drugs". Previous treatment protocols, often based on stimulating the immune response, were summarily jettisoned, as the end of bacterial infection was proclaimed.

Alas, this perceived triumph of modern medicine over infection was rather premature and short-lived. The alarming spectre of microbial resistance to antibiotics had arrived. It was encouraged partly by overuse (and abuse) in treating most infections that presented in the surgery irrespective of whether it was bacterial in origin or not. It was also the outcome of frequently irresponsible use in animal agriculture for marketing advantage and financial gain. Serious, life-threatening infections, and even routine everyday ones, are now more challenging to eradicate. Bacterial infection is becoming much harder to stop. A future of fatal infections now ominously beckons. It now stands at 700,000 fatalities globally (2014 C.E.), but this figure is expected to reach 10 million patients in 40 years time. Even antibiotics of 'last-resort', like vancomycin, are becoming ineffective in face of the 'superbugs'. .

Dealing with the threat posed by antibiotic resistance has occupied many clinical scientists for decades, but with very limited success to show for it. The financial incentive to do so is apparently unappealing to Big Pharma. Others researchers are examining ways of boosting the immune system and working on better diagnostic techniques. Interestingly, many researchers are re-visiting the techniques which were applied in the 'Pre-antibiotic Era', to see if infection can be prevented and treated naturally by using approaches involving lifestyle and dietary changes. The focus is presently on those which boost the immune system. They contend that relying solely on antibiotics to destroy pathogenic bacteria ignores the role that the patient's natural immune response can play. Bacteria develop resistance faster than new chemical antibiotics can be brought to market.

The Tibb view:

Tibb's role in infection is:

- ***To reduce the microbe load to a level at which the person's Physis can cope***
- ***To help prevent infection by offering lifestyle changes which boost the person's Physis***
- ***To offer alternative treatment options for encouraging healing and preventing re-infection***
- ***To encourage traditional scrupulous hygiene methods to prevent infection***
- ***To combine with conventional clinical techniques in an Integrative Medical approach to infection***

Traditional treatment of infection

Before the arrival of anti-microbials in the 1930's, and the antibiotics a decade or so later, the treatment of infection was based mainly on:

- **Poultices** and **compresses** made from herbs, vinegar and inorganic materials;
- **Herbal therapy** (elixirs made from ginger, cinnamon, garlic, thyme or local equivalents);
- **Boosting the patient's Physis**, by natural means with honey, live yoghurt, bread mould, wine vinegar and onions;
- **Blood-letting** (*phlebotomy*), typically in ancient Egyptian times, but used up to the 18th Century;
- **Purging** with plant-derived and caustic laxatives;
- **Palliative care**, especially keeping the infection site clean, dry and warm.

- **Homeopathic medications** (from the 19th Century onwards);
- **Colloidal silver**, a relatively recent discovery. Now used for sores, wounds, and 'superbug' infections.

The Germ Theory

The Germ Theory asserts that many, but not all, diseases are caused by micro-organisms, or *microbes*. The main features of the theory are (a) microbes (whether prions, viruses, bacteria or fungi) cause infectious disease; (b) microbes spread disease from one person to another; (c) there is a specific microbe for each particular infection; and (d) the same microbe will produce the same disease in each person affected. The microbes invade the human body (and other living animals) via the skin, lungs, stomach and open sores and wounds. They cause disease when they reproduce and grow within the host. Not all microbes cause disease, and may live in synergy or commensally with the host. Only pathogenic microbes cause disease.

The Tibb view:

- ***Tibb accepts microbes as environmental factors, some of which bring on infections***
- ***Tibb holds a multiple (or multifactorial) aetiology explanation of infection and other diseases***
- ***Tibb feels that boosting the person's Physis is an attractive way of avoiding infections of all types***

The infective process

Most microbes in or on the body are innocuous. Ninety per-cent of cells in and on the human body are not human, but microbial – mostly bacterial or fungal. Our digestive tract alone contains around 40,000 bacterial species containing millions of genes, compared to the human body's mere 20,000.

Infection is the pathological process in which microbes first evade or overcome the body's natural first-line defence mechanisms and enter the body. Once inside the body they travel in the bloodstream or lymph and attach themselves to the surfaces of specific cells, using a particular type of adhesion protein. Once they are securely attached, they proceed to multiply. The body's immune system responds to the intruding microbe at each and every stage, by mounting defensive reactions.

Microbes, especially bacteria and viruses, are spread by:

- Coughing and sneezing;
- Contact with infected people, especially through kissing and shaking hands;
- Touching contaminated surfaces like door handles, and through eating and drinking;
- Contact with infected pets, livestock, and insects like fleas and ticks.

There are a number of natural defenses, or Physis responses, to infection, which operate alone or combined to rid the person of the offending pathogen:

- **The skin and mucous membranes.** These physically block the microbe's access to the inner body. However, if the skin is broken, then access is much easier.
- **Coughing and sneezing.** This natural reflex expels breathed-in bacteria rapidly. However, if coughing is suppressed with medications, then it is ineffective. It is less useful in the sick, elderly and in infants.
- **Diarrhoea and vomiting.** These rapidly and effectively expel offending toxins, including microbes.
- **Inflammatory responses.** This is initiated by the immune system, which boosts synthesis of white blood cells. These detect, surround and destroy alien bacteria and other microbes. Typically the symptoms of redness, swelling and fever follow.
- **Antibody information.** These proteins are part of the immune response. Some target specific microbes, others are active against all microbes.
- **Resident bacteria.** These beneficial bacteria live in the gut, lungs and other parts of the body. They counteract alien microbes in different ways, so ensuring their dominance. Certain medications can weaken or destroy them, so allowing the pathogenic microbes to thrive and bring on an infection.
- **Fatigue.** This occurs as a way of immobilising the infected person as a way of allowing Physis to work more efficiently.

An infection will only develop if the person's immune system fails to deal adequately with the invading microbe. This was noted long ago by Ibn Sina, who listed the conditions necessary for infection ('putrefaction') to occur:

- The microbes must be *too numerous*. This means that a heavy load of a hostile microbe results in the immune response mechanisms simply being overwhelmed.
- The microbes must be *too virulent*. The occurrence of epidemics in people who have rarely or never been exposed to the microbe is explained by this. They have not had the opportunity to build up resistance to the pathogen.
- The microbes must be in *physical contact* long enough for them to overcome the person's defences.
- The person's Physis must be *able and prepared* to deal with the alien microbes. If the person's Physis is crippled by age, ailments and a dysfunctional immune system, and if the person consumes a poor diet or pursues a reckless lifestyle, then he or she is more likely to succumb to infection.

Microbes cause three types of infection:

- *Acute infections* – these are short lived. They can be trivial like the common cold, or serious, like pneumonia.
- *Chronic infections* – these can last for weeks, months or even longer. They include chronic bronchitis and ear infection.
- *Latent infections* – these will lie low for months or longer, then suddenly appear. Hepatitis and malaria are good examples.

Bacterial and viral infections often bring about similar symptoms, such as fever, inflammation, coughing, diarrhoea and vomiting, and fatigue. This is only to be expected, as these are Physis responses using the cytokines and other messenger substances of the immune system to rid the infected person of the microbes responsible for disturbing inner harmony.

The Tibb view:

- ***Tibb recognises the powerful protective responses, directed by Physis, which oppose microbial infection and its consequences***
- ***Tibb accepts that the symptoms of an infection are mainly due to the cytokines and other chemical mediators released by the body's tissues to counteract the invading microbe.***
- ***Tibb considers that they are the result of signaling substances released by the body as part of their Physis response to microbial invasion***

Anti-microbial agents

- ***Antibiotics***

  Bacteria are single-celled creatures. They are made up of a rigid wall enclosing a flexible membrane which in turn encloses cellular fluid. Bacteria survive in different environments, including extreme heat and cold, and reproduce on their own. Most bacteria are harmless, with less than 1% of the various strains being actually *pathogenic*, or causing disease in humans. Gut bacteria help us immensely by digesting food, providing essential nutrients, destroying disease-causing microbes, and eliminating cancerous cells.

Antibiotics like penicillin are derived from substances secreted by other types of microbes to protect themselves or destroy other microbes.

- ***Anti-virals***

  Viruses are minute particles, much smaller than even the smallest bacteria. They are made up of a protein coat surrounding a core of genetic material, either of RNA or DNA. Unlike bacteria, viruses need a host organism to survive. They reproduce by attaching themselves to, then entering, cells, and hi-jack the genetic mechanism to make more viruses, which are released from the ruptured host cell. Sometimes the host cell becomes malignant.

Anti-virals drugs like the protease inhibitors decrease the metabolism of normal cells, preventing their action, and using their genetic apparatus to replicate.

- ***Anti-fungals***

  In humans, fungi are single cell plant-like microbes like the yeasts formed from a rigid outer coat and membrane. They are parasitic, or live on dead tissue, where they form colonies. Only a few species are capable of bringing about disease. However, the resistant fungus Candida auris has arrived in South Africa from the Far East. It affects the urinary and genital tracts, is spread by skin contact, is very difficult to eradicate, and has a mortality of 60%.

Anti-fungal drugs like nystatin and terbinafine kills or prevents growth of the fungal cell wall by interfering with the biochemical processes involved in cell wall construction or blocking their genetic processes.

The Tibb view:

- ***Microbes live in harmony with us in many parts of the body – gut, skin, lungs***
- ***For Tibb, the presence of microbes in the body does not signify infection***
- ***It is only when symptoms of disharmony or destruction are evident, then infection is present***
- ***Tibb accepts that Physis works in co-operation with antimicrobial drugs***
- ***Tibb notes that some antimicrobial drugs are known to repress the immune system***

Tibb's view of infection

Tibb recognises Hippocrates' general guideline for medical treatment, which applies particularly well in infection:

'*Do not lose sight of the basic principle – never to work against nature, but to direct all efforts towards supporting the body's natural defence mechanisms'*. [Hippocrates, 450 – 375 B.C.E.]

These are all carried out bearing in mind the unique temperament of the person affected.

Once the person's temperamental imbalance has been restored to normal, the disease will be well on its way to being cured. If any toxins are responsible, directly or indirectly, for the person's symptoms, they will be neutralised, and washed out of the body.

Tibb is not opposed to antibiotics. It accepts that they have been invaluable when dealing with serious bacterial infections, but they must be used with discretion as part of an holistic approach to the infection. In addition, combining them with dietary measures, and applying the Tibb Lifestyle Factors and other supportive measures, such as better hygiene should be considered. This gives the person's Physis the ability to work properly in dealing with the pathogenic microbes.

An interesting aspect of the Tibb approach to infection is that in addition to the body's array of built-in defences against invading pathogens embedded in the person's Physis, there is another dimension – the person's brain power and problem-solving ability. By adopting personal hygiene measures brought about

by health education, it is possible to consciously change behaviour to minimise the risk of acquiring an infective disorder. For example, by purifying water before use to avoid gastric infections; by sleeping under mosquito nets, avoiding malaria; and cooking foods properly to kill any pathogens lurking in them

The Tibb view:

- ***Tibb measures support Physis in overcoming the threat of infection***
- ***Tibb's dietotherapy is an excellent, flexible way of supporting Physis in all people***
- ***Tibb's Lifestyle Factors collectively help maintain Physis***
- ***Tibb's positive support for strict hygiene measure help prevent and resolve infection***
- ***Tibb recommends the regular use of herbs as a way of warding off infection***

Drivers of infection

What decides whether or not a person succumbs to an infectious disease? Tibb considers that there are five major influences:

1. ***The agent***

The infecting agent (microbe) has to be strong enough to overcome the power of the person's Physis. This means that the body must be exposed to a large number of these microbes, whether they viruses, bacteria, fungi, protozoa or parasites. If the person has not been previously exposed to these agents, then the chances of infection are that much greater. This is because Physis has no memory or experience of this, and is incapable of mounting a successful response. However, someone with strong natural defences will succumb to a disease if the pathogen load is too high for him or her to handle.

2. ***The body's defences***

The extent of infection depends on the 'responsiveness' of the person's Physis to the microbe. We have developed protective mechanisms so intricate and complex that even now we can barely understand them. For Tibb this means that people with varying temperaments catch an infectious disease compared to others. In addition they usually react differently by showing symptoms of another type and severity. Also, some people with a certain temperament are less prone to a particular disease, or develop only a mild form of the disease. The body defences also include the 'integrity' of the tissue or organ affected by the infecting microbe, and the person's immune competence.

3. ***Lifestyle Factors***

These refer to the person's way of life, or Tibb's Lifestyle Factors. The seasons of the year, the quality of the air we breathe, the food composition and amount, sleep status, the emotional issues, the physical exercise we undertake, and the efficiency of toxin elimination from the body determine to a major extent the degree to which a person succumbs to an infectious disease.

4. The infective contact

This is the duration of contact between the person and the infectious agent. The longer the person is exposed to a pathogenic microbe determines the relative degree of disorder, as a process of attrition wears down the body's natural resistance. This factor determines the severity of the disorder, and whether it appears as a chronic or an acute infection.

5. Temperament

A person's temperament is virtually ignored by conventional medical doctors when treating infections. It is seen as an irrelevant concept surviving from 'ancient medicine'. Now attitudes are changing; the idea of 'one size fits all' is being increasingly challenged, and the need to tailor therapy to match the person is now acknowledged.

The Tibb view:

- ***Tibb accepts Ibn Sina's contention that a deciding factor for infection is his or her susceptibility to the invading microbe – that is, the power of the person's Physis***
- ***This explains why not everyone goes down in an epidemic, or having a particular pathogenic microbe in the body does not always lead to the disease***
- ***This is based on the person's humoral imbalance at the time of contact with the microbe***
- ***Tibb's approach to infection is patient orientated – not disease, as it is in conventional medicine***
- ***Tibb seeks the reason for the infection – weak Physis, poor lifestyle (re diet, sleep, etc.)***
- ***Tibb accepts the use of antibiotics, but only as a part of an integrative approach***
- ***Tibb advises the use of herbal therapy to deal with both the cause and symptoms of infection***

There are a number of issues which arise from anti-microbials and infection which concern us all:

- Bacterial resistance and other limitations
- Germophobia and halitophobia
- Infections arising from wounds
- Septic shock / septicaemia

Limitations of antibiotics

Viral infections do not respond to antibiotics. Most infections do not require an antibiotic, as viruses (not bacteria) are usually responsible. They are totally ineffective for any virus infection, which are most common in children. Likewise they do not work for most upper respiratory tract infections of the nasal passages, sinuses, throat, and for ear infections. Patients with lung infections like croup, asthma (wheezy bronchitis) and recurrent or chronic bronchitis also fail to respond satisfactorily to antibiotics. They are of no value in digestive disorders such as gastroenteritis.

Side effects from antibiotic use are often problematic. They may be relatively trivial, like stomach upsets and nausea. They can be more serious, like deafness, which may follow long-term treatment with certain

antibiotics. This is evident in children, who may receive many courses of antibiotics by his or her teens, often for viral infections, or as a precaution against later bacterial infection.

Yet another drawback to antibiotics is that they often lead to *super-infection*. Bacteria, fungi and other microbes are naturally controlled by competition from the body's normal flora, or *microbiome*. Resistant bacteria and yeast can rapidly displace the resident bacteria, especially in the gut, lungs and reproductive tract, leading to colitis, pneumonia and thrush.

The main limitations of antibiotics can be summarised:

- *Drug resistance* – Historically, the speed at which resistance develops is greater than the development of new antibiotics (*see below*).
- *Depressed immune system* – the person's white blood cell activity is inhibited, and antibody formation reduced, leading to infections recurring,
- *Allergic reactions* – these are becoming increasingly common. Although usually mild, they can severe and even life-threatening.
- *Intestinal problems* – our good intestinal flora resident in the gut and lungs is decimated, leading to diarrhoea, flatulence and bloating. Yeast overgrowth in the bowel occurs, maybe leading to ulcerative colitis and even cancer.

The Tibb view:

- ***Tibb holds a negative view of antibiotics as they depress the immune system, one of the main agents of Physis.***
- ***If antibiotics are to be used, they should be part of an integrative approach, involving the Lifestyle Factors and other means of boosting Physis.***
- ***Antibiotics should be used responsibly, as resistance develops rapidly.***
- ***People under long term treatment with antibiotics should take measures to protect the liver and kidneys.***
- ***Tibb recommends lifestyle and habit changes to avoid recurrence of the infection.***

Antibiotic resistance

Anti-microbial resistance is the power of microbes, particularly bacteria, not to avoid succumbing to antibiotics, even when they were previously effective, given at high doses and administered frequently. Resistant microbes, mainly bacteria, but which increasingly include viruses, fungi and even parasites, withstand attack by anti-microbial drugs, so that conventional treatment becomes ineffective. The infection persists, and there is an increased risk of sepsis. The spread to other tissues, organs and other people becomes a serious concern.

The emergence of resistant strains is a natural phenomenon. It occurs as a self-defence mechanism or when resistant traits are exchanged between them via *plastids.* These are pieces of double-strand DNA

found in bacteria and yeast which are involved in gene transfer between microbes. It also occurs when microbes replicate themselves erroneously. The regular use (and misuse) of anti-microbial drugs accelerates the emergence of drug-resistant strains. Widespread usage in animal livestock leads to them surreptitiously entering the human food chain, so exposing people to long-term, low level antibiotics. Poor infection control practices, inadequate sanitary conditions and inappropriate food-handling encourage the further spread of anti-microbial resistance.

This phenomenon is now accepted as a major and permanent threat to healthcare worldwide, demanding immediate intervention. It has developed so far against drugs used to treat tuberculosis, HIV & Aids, urinary tract infections, malaria, pneumonia and STDs. Apart from a devastating failure of treatment, it means therapy becomes more expensive, as more costly drugs are needed, often at higher doses, more frequently, and they consume more healthcare resources.

It's been estimated that 700,000 people each year are already dying from antibiotic resistant infections, while no new class of antibiotic has been developed in the past thirty years.

Simply put, developing new antibiotics is very difficult, both scientifically and financially. Bacteria have evolved over millions of years to avoid attacks by chemicals. They rapidly adapt to hostile environments, can double every 20 minutes and have mastered the art of evasion and resistance.

The Tibb view:

- ***Tibb views infection as being multifactorial in aetiology***
- ***Tibb feels that boosting Physis as a way of dealing with most infections will be recognised***
- ***Tibb feels that most people underestimate the power of our Physis to overcome infections***

Germophobia

Since the emergence of the Germ Theory of infection, responsibility for its occurrence has been placed squarely on a particular microbe. However, not all microbes bring on an infection. In spite of that, the fear of microbes, often irrational and excessive, has brought about the phenomenon of 'germophobia'. This has lead many people to adopt extreme, sometimes bizarre, behaviour in an attempt to avoid or eliminate microbes from their environment.

Many devices and products have been successfully marketed in support of this obsession with microbes: aerosol air purifiers, hand wipes, toy sprays, disinfectant dispensers, devices for door opening and using public keyboards. Chemical products are now available for sanitising towels and sheets, dishwashers, other kitchen and domestic equipment, children's toys and chairs, mattresses … The list is endless.

Identifying someone with tendencies to germophobia is based on these signs:

- Washing hands over and over without good reason.
- Becoming alarmed or anxious if someone sneezes nearby.
- Possessing a wide range of hand sanitisers, special soaps and mouth sprays.

- Avoiding physical contact, especially shaking hands or kissing.
- Minimizing contact with family, sick people or animals.
- Scrupulously avoiding family pets, especially if they lick the face.
- Avoiding crowded places like public transport, public pools and aircraft.
- Dodging sharing food with others.

Anti-microbial soaps are intensively promoted for elimination of skin microbes, as a way of preventing skin infections. The same applies to hand sanitisers, and wipes for use on trolleys in supermarkets. However, many doctors are not convinced of either the efficacy of or necessity for these products. Ordinary soap and hot water achieves the desired outcome. One study showed that people using anti-microbial soaps have the same amount of bacteria on their hands after washing them with them. What is more relevant is that they are affected by the same numbers of common colds, diarrhoea and fever.

What is perhaps more important is that the active ingredient in many of these anti-microbial products (*triclosan*) is under a cloud of suspicion regarding the appearance of resistant bacteria, and liver and endocrine toxicity.

The Tibb view:

- ***Tibb sees that the power of inner healing, or Physis, is not at all recognised by people with germophobia.***
- ***Tibb recommends reasonable hygiene to limit major exposure to pathogenic microbes, but not to the extent of creating unjustified fear, anxiety or disruption of the person's lifestyle.***

Halitophobia is a disorder linked predominantly to infection of the mouth. It is severe concern and obsession with having bad breath, or *halitosis*. Most of us worry at some time about bad breath, especially after eating spicy foods or drinking to excess. However, when it becomes an all-consuming fear it is labelled *halitophobia*. This can lead to depression, social fears and withdrawal from the community.

Hundreds of bacterial species populate the mouth, particularly the tongue. These produce a number of offensive volatile substances, many from the metabolism of protein in the diet, which are the source of the mal-odour. These substances often contain sulfur, and arise mainly from the onions, garlic and other herbs and spices that are added to food.

People with halitophobia often self-medicate with medicated gargles, rinses and mouthwashes to overcome the severe microbial infection they think underlie the condition. They also consult dentists frequently. These however usually provide but temporary relief.

The Tibb view:

- ***Tibb treatment is based on dietotherapy, namely to avoid sulfur-containing components in food (onions, garlic, etc.)***

- ***People troubled with this disorder often respond to increased water intake***
- ***Tibb combines these measures with upgrading dental hygiene***
- ***These include herbal and saline mouth rinses, a healthier diet of fruit and veges, and more water to drink***
- ***Tibb suggests that extreme measures are often counter-productive, and consulting a healthcare professional is advised***

Wound healing

Bacterial infection often follows injury, wounds or surgery. It is aggravated by poor hygiene aftercare, as in bed sores, or if the patient has diabetes, is elderly, chronically ill, or is alcoholic. It also occurs more often in a patient who smokes, fails to rest, does not consume a balanced diet, or is taking medications which inhibit blood clotting (*aspirin; heparin*).

Other factors which encourage infection are if the wound:

- Is in a highly contaminated area (e.g., hand, foot, armpit or groin);
- Was caused by an animal or human bite;
- Is from glass, nail or other agent;
- Is in an area troubled by varicose veins.

The infection may spread internally, leading to a systemic illness. This is evident as continuous inflammation, with typical signs of pain, fever, redness and heat at the wound site. There will probably be seepage of fluid from the wound.

Effective management of a wound infection requires a multidisciplinary approach. However, treatment should never disrupt the healing process. For instance, hydrogen peroxide solution should not be used as it interferes with healing as it damages the surrounding healthy tissue and actually prolongs healing time.

The Tibb view:

- ***With infected wounds, Tibb notes that the patient's energy is directed at fighting the infection, not healing the wound***
- ***The effectiveness of antibiotics is likely to diminish as bacterial resistance becomes endemic***
- ***The emphasis on Lifestyle Factors and better hygiene is therefore likely to increase***
- ***Tibb helps in healing wounds by boosting the patients' Physis responses***
- ***Wound healing should follow an integrative medical route – antibiotic usage should be combined with appropriate diet and hydration, and by encouraging resting and sleep***
- ***Tibb advocates the use of herbal medication to deal with excessive inflammation and pain***

Sepsis

Sepsis is a common life-threatening complication of infection usually by one of the so-called 'superbugs'. It occurs when a body organ such as the lungs, abdomen or kidney becomes infected. If not treated rapidly, the bacteria releases toxins into the bloodstream, bringing about a total body inflammatory response. Antibiotics are nor effective against these toxins. The response results in blood and its nutrients and oxygen being prevented from reaching the vital internal organs. In severe sepsis, or *septic shock*, a massive fall in blood pressure, total organ failure, and tissue death (*gangrene*) of the extremities. Most patients recover slowly from mild sepsis, but there is a high mortality rate for septic shock itself.

Septic shock tends to occur mostly in patients who have a weakened immune system. Typically, these patients are very young or elderly, or receiving cancer treatment, or are diabetic, or living with HIV & Aids. They may be very ill or with extensive burns, injuries or wounds, and infected by one or other species of superbug.

Conventional treatment is based on high doses of antibiotics, hydration, and oxygen.

The Tibb view:

- ***Sepsis is a major, acute disorder, so Tibb can offer little in the way of direct therapy***
- ***Tibb can offer support in the way of boosting Physis - hydration, dietotherapy,* SLEEP *hygiene***

Hygiene and infection

Hygiene, both in the clinic and healthcare practice, is now established as being very important in controlling microbial infection. In the wake of multi-drug resistant bacteria, healthcare workers are going back to the basics of infection prevention by simple measures like better hand hygiene and scrupulous cleansing of the equipment and clinical premises. There is much scientific evidence supporting hand hygiene as a way of significantly reducing the risk of cross-transmission of infection in healthcare facilities, if properly implemented.

Two types of microbes colonise the hands: the *resident flora*, which consists of microbes living permanently under the surface layer of the skin; and the *transient flora*, which live temporarily on top of the surface layers. The latter type of microbe is more amenable to removal by routine hand hygiene. They survive hand washing, but do not usually multiply as normal. These microbes, like MRSA (m*ethicillin-resistant Staph. aureus)*, are the ones transmitted in the clinic, and are linked to hospital-acquired (*nosocomial*) infections.

The Tibb view:

- ***Tibb advocates rigid personal hygiene as a routine health supporting measure***
- ***Tibb notes that the earliest hospitals during the 'Golden Era' of Islam were situated in the most hygienic parts of the city***

Herbal treatment of infection

Herbal therapy is the original and most tried and tested route for infection treatment. Although regarded by many practitioners of modern medicine as verging on quackery, it is still used by most people worldwide as the very first line of treatment.

Herbs and spices offer three distinct benefits when treating infections:

- They possess varying degrees of anti-microbial activity; some acting against bacteria, others against viruses, yet more against all microbes;
- They generally boost Physis, so enhancing the body's innate ability to eliminate invading, hostile microbes;
- They often possess anti-inflammatory activity, opposing bacteria's effects if they escape control.

Here are a number of anti-bacterial drugs which are used to deal with various infections:

- **Garlic** (*Allium sativum*) is often more effective than penicillin against several types of bacteria. It is also friendlier to the body than antibiotics, as it eliminates the offending bacteria without wiping out the body's normal flora or interfering with Physis.
- **Turmeric** (*Curcuma longa*). This herb possesses both anti-bacterial and anti-inflammatory properties, and can be used both internally and applied to the skin for treating a wide range of infections. It has been used in traditional medicine for millennia.
- **Blackseed** (*Nigella sativa*). This popular herb boosts the immune system. It is used for treating digestive tract and respiratory disorders. It also lowers excessively high blood pressure, and is beneficial as a palliative therapy in cancer care.
- **Cinnamon** (*Cinnamomum zeylanicum*) energises the body, aids in digestion and is used for its antibacterial properties. Cinnamon can be taken as a tea, added to food or used as a supplement.
- **Calendula** (*Calendula officinalis*) can be used in first-aid to heal wounds, prevent infection and treat pink eye. Calendula can be prepared a few different ways, including infusions, tinctures, lotions and ointments. No known precautions.
- **Echinacea** (*Echinacea angustifolia*) Taken at the onset of an infection, echinacea can speed the healing process. Echinacea is most effective when taken as a tincture over a long period of time.
- **Marshmallow** (*Althaea officinalis)* In addition to pain-easing properties, marshmallow soothes, lubricates, softens and heals. Marshmallow root also contains tannins found effective against bacteria found in urinary tract infections. Marshmallow root can be taken as a tea.

Several of the above (ginger, turmeric and calendula) also possess antiviral potential. Others are:

- **Astragalus** (*Astragalus membranaceus*) works to neutralise viruses by boosting the immune system. It is often used as a way of preventing virus infection, especially in winter, or when mixing with large groups of people.
- **Licorice** (*Glycyrrhiza glabra*) is both anti-bacterial and anti-viral, and is used in stomach infections and ulcers.
- **Cranberry** (*Vaccinium macrocarpon*) is anti-oxidant rich, and effective against viruses. It also prevents bacterial bladder infection by inhibiting adhesion of the microbes to the organ walls.
- **Olive Leaf** (*Olea europaea*) and **Lemon Leaf** are used to treat the flu, common cold and herpes base on its anti-viral properties.

The Tibb view:

- ***Herbal therapy is a major form of Tibb healing methods***
- ***Herbal therapy is a tried a trusted form of healthcare, used successfully for many centuries***
- ***Modern herbal therapy is more reliable than in the past, as its quality control is much better***
- ***Tibb sees herbal therapy being more accepted in modern medicine as evidence mounts in support***
- ***Tibb considers herbal therapy as a justifiable component of Integrative Medicine***

Alternatives to anti-microbial drugs

In the light of the alarming emergence of resistance building up to microbial infection, particularly bacterial, but viral and fungal as well, the search for alternatives has increased in urgency. There are several independent routes being pursued:

To kill or inhibit the offending microbe:

- **New chemical antibiotics.** The search for new chemical entities that inhibit of kill microbes is constrained by cost, which is prohibitive, and time, which is very limited. Big Pharma balks at the cost of antibiotic Research & Development, which runs into many millions, in spite of attractive tax rebates.
- **Re-introduction of older antibiotics.** Older anti-microbial drugs such as *nystatin* are being re-examined to see if resistance exists in these. If not, they could be brought in, and used again – until resistance develops.
- **Vaccination.** This involves the administration of antigens derived from the pathogen, either as a structural protein or its genetic material, often suspended in various adjuvants. Their widespread use in a variety of disorders has raised concern about their long term impact and health, and this has yet to be resolved.
- **Phage therapy.** *Bacteriophages* are viruses which attack bacteria specifically. They can be used therapeutically to treat infections by destroying pathogenic bacteria. They are most extensively used

in the previous USSR. They have no effect on the human host, or to microbes, present in the gut and elsewhere.

To support and boost Physis:

- **Introduction of dietary supplements**. Zinc is receiving support as a dietary additive which stops infection developing. Zinc activates the immune response to help fight infections from both viruses and bacteria
- **Upgrading of household remedies.** Common items of the kitchen or medicine chest are becoming more popular for treating microbial infections. They include: ginger, garlic, turmeric, cinnamon, honey, lemon, apple cider vinegar and live yoghurt. The benefits of these natural agents are being increasingly confirmed by more and more clinical investigations.
- **Others.** *Colloidal silver* has natural antimicrobial properties, and is much used to treat burns. It seems to be lethal to 'bad' bacteria, without affecting the 'good' ones. *Light therapy* can also contribute to resolving infections. *Immunotherapy* is now being developed. This supports the immune system, but remains in the experimental stage. *Cytokines, interferons* and various *growth factors* are also being examined.

To both support Physis and oppose microbes:

- **Re-examination of traditional remedies.** Herbal remedies are at the forefront of the search for acceptable anti-infective measures. More exotic herbs are being tested for anti-microbial effects. If any suitable candidates emerge, then either the active ingredient is isolated and developed (usually by Big Pharma or Academia) or the plant is prepared for use in various formulas.

The Tibb view:

- ***Tibb is convinced that an holistic approach is best for most infections.***
- ***It recommends adoption of lifestyle measures – fresh air, good food, plenty of rest, refreshing sleep, regular bowel movements, and stress alleviation.***
- ***Tibb also suggests the colour red as a background factor – fruits, vegetables especially.***
- ***Avoiding environmental microbes is not a good way of infection control.***

Integrative approach to infections

Tibb is not opposed to the use of antibiotics. It acknowledges that they have been invaluable when dealing with serious or acute bacterial infections. However, they must be used with discretion and responsibility. They should be part of an holistic approach to the disorder, and in combination with dietary measures, application of the Tibb Lifestyle Factors and acceptable hygiene practice. This gives the person's Physis the ability to work properly in dealing with the pathogenic microbes, and can be helped out by antibiotics when the situation demands it.

Integrative medicine is a partnership between complementary or traditional healing (such as Tibb) and conventional medicine for the treatment of clinical disorders. It is especially effective for those which are

chronic or recurrent in nature, but also in acute disorders like infection. It selects the best, scientifically proven therapies, based upon the patient's needs and means. Treatment deals initially with the presenting symptoms, largely by use of conventional drug therapy. It then addresses the causes of the underlying disorder by applying selected forms of complementary medicine. These forms may include dietotherapy, herbal medication (*phytotherapy)*, or physical measures such as cupping, aromatherapy, massage and acupressure.

Tibb is ideally suited as a partner for conventional medicine in Integrative Medicine for a number of reasons:

- It focuses on supporting inner self-healing processes;
- It advocates realistic lifestyle-linked changes in behaviour;
- It involves the patient in both diagnosis and treatment;
- It can provide a number of therapeutic options of proven efficacy.

Furthermore, Tibb is consistent with conventional therapy, as both share a common ancestry, beginning with Hippocrates. Integrative Medicine is especially effective in dealing with chronic, refractory or recurring disorders brought on by infection. As it focuses on supporting Physis rather than just alleviating symptoms of the disorder, its chances of success are enhanced. It achieves this by combining realistic lifestyle changes, individualised therapies and selected herbal therapy. Active involvement and motivation of the patient is a key factor in accurate diagnosis and successful therapy, and in achieving and maintaining optimum health.

The Tibb view:

- ***Tibb is a strong advocate of, and contender for, Integrative Medicine.***
- ***Tibb should be considered for any chronic or recurring disorder***
- ***Tibb requires the person with an infection to be aware of the measures being taken, and to co-operate in full.***

Summary

Treating infections depends on our understanding of how microbes such as bacteria, viruses and fungi affect our health. For centuries infections have been managed holistically with herbal, hygienic and physical measures. The arrival of the anti-microbial drugs, especially the antibiotics, heralded the departure from traditional, natural methods into treatment with largely synthetic chemicals, and brought in a new era of infection control, especially the serious, life-threatening ones. Recently, however, the insidious and progressive arrival of strong resistance to microbes, especially pathogenic bacteria, has provoked deep anxiety about the future of infection therapy. Some predictions are verging on the apocalyptic, foreseeing a veritable disaster of infections running amok and completely out of control. Fortunately, others accept that infections do respond to a wide range of holistic measures, including herbal therapy and lifestyle improvement. This approach focuses more on supporting and protecting our

inner healing mechanisms, known in Tibb as Physis, but also brings in natural plant-based anti-microbial agents. Helping the person to resist future infections also features. The role of the person's temperament in succumbing to, and recovering from, the infection is also a concept that is being revived. .

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