**Dermatology**

Dermatology is the branch of medicine dealing with the skin. It is a speciality with both medical and surgical aspects. A dermatologist is a specialist medical doctor who manages diseases related to skin, hair, nails, and some cosmetic problems. In 1708, the first great school of dermatology became a reality at the famous Hospital Saint-Louis in Paris, and the first textbooks (Willan's, 1798–1808) and atlases (Alibert's, 1806–1816) appeared in print around the same time.

**Gastroenterology**

Gastroenterology is the branch of medicine focused on the digestive system and its disorders. The digestive system consists of the gastrointestinal tract, sometimes referred to as the GI tract, which includes the esophagus, stomach, small intestine and large intestine as well as the accessory organs of digestion which include the pancreas, gallbladder, and liver. The digestive system functions to move material through the GI tract via peristalsis, break down that material via digestion, absorb nutrients for use throughout the body, and remove waste from the body via defecation. Physicians who specialize in the medical specialty of gastroenterology are called gastroenterologists or sometimes GI doctors. Some of the most common conditions managed by gastroenterologists include gastroesophageal reflux disease, gastrointestinal bleeding, irritable bowel syndrome, inflammatory bowel disease (IBD) which includes Crohn's disease and ulcerative colitis, peptic ulcer disease, gallbladder and biliary tract disease, hepatitis, pancreatitis, colitis, colon polyps and cancer, nutritional problems, and many more.

Citing from Egyptian papyri, John F. Nunn identified significant knowledge of gastrointestinal diseases among practicing physicians during the periods of the pharaohs. Irynakhty, of the tenth dynasty, c. 2125 B.C., was a court physician specializing in gastroenterology, sleeping, and proctology.

**Radiology**

Radiology is the medical discipline that uses medical imaging to diagnose diseases and guide their treatment, within the bodies of humans and other animals. It began with radiography (which is why its name has a root referring to radiation), but today it includes all imaging modalities, including those that use no electromagnetic radiation (such as ultrasonography and magnetic resonance imaging), as well as others that do, such as computed tomography (CT), fluoroscopy, and nuclear medicine including positron emission tomography (PET). Interventional radiology is the performance of usually minimally invasive medical procedures with the guidance of imaging technologies such as those mentioned above.

The modern practice of radiology involves several different healthcare professions working as a team. The radiologist is a medical doctor who has completed the appropriate post-graduate training and interprets medical images, communicates these findings to other physicians by means of a report or verbally, and uses imaging to perform minimally invasive medical procedures. The nurse is involved in the care of patients before and after imaging or procedures, including administration of medications, monitoring of vital signs and monitoring of sedated patients. The radiographer, also known as a "radiologic technologist" in some countries such as the United States and Canada, is a specially trained healthcare professional that uses sophisticated technology and positioning techniques to produce medical images for the radiologist to interpret. Depending on the individual's training and country of practice, the radiographer may specialize in one of the above-mentioned imaging modalities or have expanded roles in image reporting.

**Physician**

A physician (American English), medical practitioner (Commonwealth English), medical doctor, or simply doctor, is a health professional who practices medicine, which is concerned with promoting, maintaining or restoring health through the study, diagnosis, prognosis and treatment of disease, injury, and other physical and mental impairments. Physicians may focus their practice on certain disease categories, types of patients, and methods of treatment—known as specialities—or they may assume responsibility for the provision of continuing and comprehensive medical care to individuals, families, and communities—known as general practice. Medical practice properly requires both a detailed knowledge of the academic disciplines, such as anatomy and physiology, underlying diseases and their treatment—the science of medicine—and also a decent competence in its applied practice—the art or craft of medicine.

Both the role of the physician and the meaning of the word itself vary around the world. Degrees and other qualifications vary widely, but there are some common elements, such as medical ethics requiring that physicians show consideration, compassion, and benevolence for their patients.

**Anesthesia**

Anesthesia (American English) or anaesthesia (British English) is a state of controlled, temporary loss of sensation or awareness that is induced for medical or veterinary purposes. It may include some or all of analgesia (relief from or prevention of pain), paralysis (muscle relaxation), amnesia (loss of memory), and unconsciousness. An individual under the effects of anesthetic drugs is referred to as being anesthetized.

Anesthesia enables the painless performance of procedures that would otherwise require physical restraint in a non-anesthetized individual, or would otherwise be technically unfeasible. Three broad categories of anesthesia exist:

In preparing for a medical or veterinary procedure, the clinician chooses one or more drugs to achieve the types and degree of anesthesia characteristics appropriate for the type of procedure and the particular patient. The types of drugs used include general anesthetics, local anesthetics, hypnotics, dissociatives, sedatives, adjuncts, neuromuscular-blocking drugs, narcotics, and analgesics.

The risks of complications during or after anesthesia are often difficult to separate from those of the procedure for which anesthesia is being given, but in the main they are related to three factors: the health of the individual, the complexity and stress of the procedure itself, and the anaesthetic technique. Of these factors, the individual's health has the greatest impact. Major perioperative risks can include death, heart attack, and pulmonary embolism whereas minor risks can include postoperative nausea and vomiting and hospital readmission. Some conditions, like local anesthetic toxicity, airway trauma or malignant hyperthermia, can be more directly attributed to specific anesthetic drugs and techniques.

**Hypothermia**

Hypothermia is defined as a body core temperature below 35.0 °C (95.0 °F) in humans. Symptoms depend on the temperature. In mild hypothermia, there is shivering and mental confusion. In moderate hypothermia, shivering stops and confusion increases. In severe hypothermia, there may be hallucinations and paradoxical undressing, in which a person removes their clothing, as well as an increased risk of the heart stopping.

Hypothermia has two main types of causes. It classically occurs from exposure to cold weather and cold water immersion. It may also occur from any condition that decreases heat production or increases heat loss. Commonly, this includes alcohol intoxication but may also include low blood sugar, anorexia and advanced age. Body temperature is usually maintained near a constant level of 36.5–37.5 °C (97.7–99.5 °F) through thermoregulation. Efforts to increase body temperature involve shivering, increased voluntary activity, and putting on warmer clothing. Hypothermia may be diagnosed based on either a person's symptoms in the presence of risk factors or by measuring a person's core temperature.

The treatment of mild hypothermia involves warm drinks, warm clothing, and voluntary physical activity. In those with moderate hypothermia, heating blankets and warmed intravenous fluids are recommended. People with moderate or severe hypothermia should be moved gently. In severe hypothermia, extracorporeal membrane oxygenation (ECMO) or cardiopulmonary bypass may be useful. In those without a pulse, cardiopulmonary resuscitation (CPR) is indicated along with the above measures. Rewarming is typically continued until a person's temperature is greater than 32 °C (90 °F). If there is no improvement at this point or the blood potassium level is greater than 12 millimoles per litre at any time, resuscitation may be discontinued.

Hypothermia is the cause of at least 1,500 deaths a year in the United States. It is more common in older people and males. One of the lowest documented body temperatures from which someone with accidental hypothermia has survived is 12.7 °C (54.9 °F) in a 2-year-old boy from Poland named Adam. Survival after more than six hours of CPR has been described. In individuals for whom ECMO or bypass is used, survival is around 50%. Deaths due to hypothermia have played an important role in many wars.

**Hyperprolactinaemia**

Hyperprolactinaemia (also spelled hyperprolactinemia) is a condition characterized by abnormally high levels of prolactin in the blood. In women, normal prolactin levels average to about 13 ng/mL, while in men, they average 5 ng/mL. The upper normal limit of serum prolactin is typically between 15 to 25 ng/mL for both genders. Levels exceeding this range indicate hyperprolactinemia.

Prolactin (PRL) is a peptide hormone produced by lactotroph cells in the anterior pituitary gland. It plays a vital role in lactation and breast development. Hyperprolactinemia, characterized by abnormally high levels of prolactin, may cause galactorrhea (production and spontaneous flow of breast milk), infertility, and menstrual disruptions in women. In men, it can lead to hypogonadism, infertility and erectile dysfunction.

Prolactin is crucial for milk production during pregnancy and lactation. Together with estrogen, progesterone, insulin-like growth factor-1 (IGF-1), and hormones from the placenta, prolactin stimulates the proliferation of breast alveolar elements during pregnancy. However, lactation is inhibited during pregnancy due to elevated estrogen levels. After childbirth, the rapid decline in estrogen and progesterone levels allows lactation to begin.

Unlike most tropic hormones released by the anterior pituitary gland, prolactin secretion is primarily regulated by hypothalamic inhibition rather than by negative feedback from peripheral hormones. Prolactin also self-regulates through a counter-current flow in the hypophyseal pituitary portal system, which triggers the release of hypothalamic dopamine. This process also inhibits the pulsatile secretion of gonadotropin-releasing hormone (GnRH), thereby negatively influencing the secretion of pituitary hormones that regulate gonadal function.

Estrogen promotes the growth of pituitary lactotroph cells, particularly during pregnancy. However, lactation is hindered by the elevated levels of estrogen and progesterone during this period. The rapid decline in estrogen and progesterone after childbirth enables lactation to begin. While breastfeeding, prolactin suppresses gonadotropin secretion, potentially delaying ovulation. Ovulation may resume before the return of menstruation during this time. Although hyperprolactinemia can result from normal physiological changes during pregnancy and breastfeeding, it can also be caused by other etiologies. For example, high prolactin levels could result from diseases affecting the hypothalamus and pituitary gland. Other organs, such as the liver and kidneys, could affect prolactin clearance and consequently, prolactin levels in the serum. The disruption of prolactin regulation could also be attributed to external sources such as medications.

In the general population, the prevalence of hyperprolactinemia is 0.4%. The prevalence increases to as high as 17% in women with reproductive diseases, such as polycystic ovary syndrome. In cases of tumor-related hyperprolactinemia, prolactinoma is the most common culprit of consistently high levels of prolactin as well as the most common type of pituitary tumor. For non-tumor related hyperprolactinemia, the most common cause is medication-induced prolactin secretion. Particularly, antipsychotics have been linked to a majority of non-tumor related hyperprolactinemia cases due to their prolactin-rising and prolactin-sparing mechanisms. Typical antipsychotics have been shown to induce significant, dose-dependent increases in prolactin levels up to 10-fold the normal limit. Atypical antipsychotics vary in their ability to elevate prolactin levels, however, medications in this class such as risperidone and paliperidone carry the highest potential to induce hyperprolactinemia in a dose-dependent manner similar to typical antipsychotics.