

Good essay about nuclear medicine

[Environment](#), [Disaster](#)



Nuclear medicine is a technique used in diagnosing and treating diseases using small amounts of radioactive materials. The technique utilizes the radioactive decay process and relies on radionuclides which are described as radioactive isotopes that can be traced by a gamma camera connected to a computerized system. The amounts of radionuclides introduced into the body is carefully selected to ensure that it only offers the accurate diagnosis and treatment results without exposing the patient to levels of radioactive material that would be harmful to them (Nuclear Medicine). These radionuclides are introduced in the body through several methods. It can be done through inhalation, swallowing or injection and the idea is ensure that the radionuclides localize to areas cellular receptors and specific organs upon which the computer systems can be used to assess the state of the desired organ or tissue using the images relayed by the gamma camera (Stanford University School of Medicine. " What is Nuclear Medicine? -Patient Care).

Administering nuclear medicine procedure does not involve any conventional preparation but depending on the tissue or organ being examined, some preparation is necessary prior to the actual procedure. Cardiac and gastrointestinal treatments require that the patient fasts for a minimum of four hours prior to the examination. Thyroid treatment could require special medication before the patient is subjected to the treatment. On the other hand some treatments such as those performed on brain, pulmonary systems, bones, and inflammatory systems require no unique preparations before the actual treatment (Nuclear Medicine).

These preparations are then followed by administering of the radionuclide

after which the treatment which involves scanning can be done. This can be put into effect immediately or after several hours or days depending on the organ or tissue. The imaging on the other hand does not necessarily take long as it can be done within the normal range of about 20 to 45 minutes. It is also quite important to understand that the infiltration of various radionuclides into different tissues varies and this explains why the periods between administration of the radionuclide and imaging vary (Stanford University School of Medicine " What is Nuclear Medicine? -Patient Care).

Nuclear medicine has several merits as compared to other forms of diagnosis and treatment. Firstly, it offers a better alternative to diagnostic procedures that pose more mortality and morbidity risks. Secondly, it helps show which part of body tissue or organ is alive and those that are dead. Similarly, examination of the brain could provide an insight into which parts of the brain are metabolically active (Stanford University School of Medicine " What is Nuclear Medicine? -Patient Care). Nuclear medicine has also revolutionized the prevention of diseases that can be transmitted using unsterilized objects. Irradiation has become an effective sterilization technique nowadays. Using nuclear medicine, it has become possible to determine the chances of contracting some ailments like cancer in the future as their growth can be monitored very early on tissues and organs(Nuclear Medicine).

Despite this, nuclear medicine has been a major issue of concern for people especially the patients. Exposure to radioactive material on a frequent basis causes the death of sensitive tissues in the body. Similarly when patients are exposed to high levels of radioactive material causes death of tissues that were previously functioning well and the biggest concern is that the whole

thing is irreversible (Tracking Radiation Exposure from Medical Diagnostic Procedures, Workshop Report, 2012).

Positron Emission tomography (PET) is a technique in nuclear medicine that involves the study of metabolic activity and detection of cancers, epilepsy and nervous system problems. It provides an effective method of not only detecting abnormalities in tissues but also the abnormalities in a metabolic process (Nuclear Medicine). It provides the exact point where there is a problem with effective images that offer important information concerning that particular problem.

In general, nuclear medicine has been a revolution. Since its inception, it has done more good than harm and there is no need for panic concerning the side effects of nuclear medicine as advances in technology have reduced the chance of severe side effects. In future, nuclear medicine will be the only way to effective diagnosis and treatment especially for ailments that have been a challenge to medical practitioners in the past.

Works Cited

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