It has been widely accepted that the organ transplantation has become one of the choices for the therapy of end-stage diseases (kidney, heart, liver, lung, etc.). However, organ transplantation requires extremely high cost and heavy psychological burden for his/her family. Therefore, and moreover to reward the donor’s good will, it must be highly successful. Nuclear medicine tests can offer reproducible functional information with and without images. Repeat tests can be performed easily. These characteristics are suitable not only for preoperative evaluation of donors and recipients but also for monitoring the transplanted organs. Therefore, nuclear medicine can potentially play an important role in organ transplantation.

Competitive diagnostic modalities such as US, CT, MR are also progressing and very useful in some situation in organ transplantation. Nuclear medicine physicians and technologists should be aware of the merits and the role of nuclear medicine in organ transplantation and should try to prepare for good service to provide useful information. This article reviews the role of nuclear medicine in organ transplantation, demonstrating representative cases.

**Key words:** Transplantation, Nuclear medicine, Kidney, Liver, Review.