SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Chronic renal failure may lead to common global health problem with end stage renal impairment. The only solution will be either dialysis or renal transplantation. However, the marked improvement of graft survival made transplantation, the treatment of choice for end stage renal disease **(Tublin and Dodd, 1995).**

However, kidney transplantation may be followed by number of complications of parenchymal, urological and vascular nature. Early diagnosis of these complications may determine the survival of the graft. As graft recipients are fragile patients and they need decisive studies for fear of allograft failure, therefore the diagnostic tool used to assess allograft dysfunction should be non-invasive as possible **(Bair et al., 1994).**

The aim of this study is to evaluate the value of various radiological modalities (mainly color Duplex and radionuclide studies) in the early diagnosis and follow up of post-transplant complications and to assess the different techniques used in evaluation of graft function.

One hundred and twenty cases subjected to renal transplantation in Materyia Teaching Hospital and National Institute of Urology and Nephrology had been retrospectively reviewed concerning their clinical laboratory investigations and radiological investigations to assess their condition and early detection of any complications.

Results of the present study had revealed the followings:

(1) B-mode ultrasonography in addition to color coded Duplex sonography:

In cases of acute transplant failure color duplex ultrasonography can detect accurately renal vascular occlusions, acute complete obstructive uropathy. However, it can not differentiate between acute rejection (AR) and ATN except with serial follow up.

In case of chronic renal dysfunction, color duplex ultrasonography can suggest the presence of chronic rejection and accurately diagnose chronic obstructive uropathy, large perinephric collections and renal artery stenosis.

(2) Radionuclide Study is very helpful with high accuracy in detection of cause of graft dysfunction as in:

- ATN with its typical pattern of normal perfusion associated with poor or no uptake and excretion. It can be also used in follow up to predict recovery.
- Acute rejection with poor perfusion and reducedc function
- Obstruction lesion with typical retained activity and continuous rising pattern of renogram curve even after lasix.
- Renal artery stenosis using capoten test.
- Renal artery occlusion which appears as photopenic renoform shape area.
- Peri-graft collection which can be used to differentiate:
  i. lymphocele or hematoma that appears as photon-deficient area, from
  ii. Urinoma that appears as hot area and increased activity

(3) Arteriography can be used only in cases which could not be diagnosed clearly by either ultrasonography or radionuclide, or diagnosed clearly by

these non-invasive tests such as renal artery stenosis where patients would be treated by PTCA and showed improvement of renal function.

(4) Renal Biopsy still is the golden standard to diagnose cases difficult to be diagnosed by other tests.

CONCLUSIONS AND RECOMMENDATIONS:

1) Immediate post-transplantation, baseline Doppler and radionuclide are very helpful to diagnose early any complications.
2) Doppler study using resistive index alone is not sufficient to diagnose renal dysfunction. However, when used with morphological changes RI specificity increases to detect the cause. RI also could differentiate between the rejection and renal artery stenosis in cases with similar findings of isotopes.
3) Radionuclide angiography is very helpful in the diagnosis of acute causes such as ATN and AR. In addition, it is useful in obstruction cases to assess graft function.
4) Radionuclide study proved to be more sensitive than Doppler since it provides function information.
5) Radiological intervention is necessary in vascular lesion.
6) Renal biopsy is needed only in difficult unclue cases.