AN INNOVATIVE STRATEGY TO RESTORE RENAL FUNCTION IN CHRONIC KIDNEY DISEASE. **Narisa Futrakul,** Prasit Futrakul. King Chulalongkorn Memorial Hospital, Bangkok,Thailand. **Purpose:**Present therapeutic strategy fails to prevent CKD patients from entering ESRD.This is due to(1)the insensitiveness of diagnostic markers such as measuring serum creatinine change, or microalbuminuria which can screen only late stage of CKD (stages 3,4,5) (2)the therapeutic resistance observed in late stage of CKD (stages 3,4,5) in which it simply slows the renal disease progression, but is unable to restore renal perfusion or function.**Method:**To solve the diagnostic marker, we have implemented fractional excretion of magnesium (FEMg) to screen early stage of CKD (stages 1,2), since FEMg correlates directly with the magnitude of tubulointerstitial fibrosis. To explain the failure in restoring the renal perfusion in late stage of CKD, we have studied the vascular homeostasis. **Results:**It reveals an impaired vascular repair such as deficiencies in angiogenic factors namely endothelial progenitor cell, VEGF, angiopoietin-1, and flt-1 (VEGFR1); whereas the antiangiogenic factors namely angiopoetin-2, KDR(VEGFR2), endostatin, are significantly elevated. Such multiple defects in vascular repair encompass in a default angiogenesis, and thus explains the therapeutic failure in late stage of CKD. In contrast, the mechanism of vascular repair appears to be adequately maintained in early stage of CKD. **Conclusions:**We as well as others have recently demonstrated that hemodynamic maladjustment in renal microcirculation characterized by preferential constriction of the efferent arteriole, is the crucial determinant inducing tubulointerstitial fibrosis. Therefore, a restoration of renal perfusion and function by (1)screening early CKD with FE Mg, (2)correcting the hemodyamic maladjustment with multidrug vasodilators in the early stage of CKD, has been accomplished in nephrosis with FSGS, and diabetic nephropathy.