# Summary

This work has been carried out to highlight the epidemiology, clinical characteristics, and outcome of ICU acquired AKI.

In our study we found that:

Our study was included 3530 patients, 529 patients in IMICU, 988 patients in CCU and 2013 patients in the general ICU.

AKI was developed in 749 patients (21.2%), 189 patients in IMICU (37.7%), 138 patients in CCU (14%), 422 patients in the general ICU (21%). In AKI patients, the range of age was 17-86 years and included537 male (71.7%) and 212female (28.3%).

ICU acquired-AKI were divided into 6 groups according to the aetiology**,** group 1 ischemic ATN (iATN) 264 patients (35.3%), group 2, prerenal AKI 198 patients (26.4%) ,g*roup 3* toxic ATN (T.ATN) 64 patients (8.5%), group 4, sepsis induced AKI 104 patients (13.9%), group 5, Hepatorenal syndrome (HRS): 81 patients (10.8%), group 6 AKI due to other causes 38 patients (5.1%) including Microangiopathies (HUS, TTP, HELLP, DIC) 18 patients 47.4%, Pigment nephropathy e.g. Rhabdomyolysis 9 patients 37.7%,Obstructive uropathy 3 patients 7.9%, Unknown cause 8 patients 21%.

In IMICU 189 (35.7%) from total 529 patients acquired AKI 81 patients (42.8%) due to HRS, 55 patients (29.1%) due to i ATN, (34) patients (18%) due to prerenal causes,19 patients (10.1%) due to sepsis induced AKI.

The range of age was 22 years to 73 years old, including 149 male patients (78.8%), and forty (40) female patients (21.2%). One hundred

sixty four 164 patients (86.8%) with oliguric AKI, and 25 patients (13.2%) with non-oliguric AKI.Serum creatinine concentration: ranged from 1.9 mg/dL-to-11.7 mg/dl. According to RIFLE staging system: 44 patients (23.3%) were classified as risk group, 55 patients (29.1%) as injury group, and 90 patients (47.6%) as failure group.

According to AKIN staging system: 51 patients (27%) as stage 1, 46 patients (24.3%) as stage 2, and 92 patients (48.7%) as stage 3. one hundred eighteen (118) patients (62.4%) were treated with conservative measures, 67 patients (35.4%) with HD and 4 patients (0.5%) with PD.sixty seven (67) patients (35.4%) survived, 57 patients regained normal kidney function (30.2%), 8 patients developed chronic kidney disease (4.2%), 2 patients required regular haemodialysis (1.1%), and 122 patients (64.6%) died.

In the CCU 138 patients had ICU acquired AKI, from (988) patients with a prevalence rate of (14%), 58patients (42%) due to Prerenal causes, 40 patients (29%) due to iATN, 18 patients (13.1%) due to toxic AKI, 17 patients (12.3%) due to Sepsis induced AKI: 5 patients (3.6%) due to other causes: 2 patients due to obstructive uropathy and 3patients due to unknown cause. The range of age was 37 years to75 years. Ninety five (95) patients were males (68.8%), and (43) patients were females (31.2%). One hundred eleven (111) oliguric (80.4%), 18 patients were non-oliguric (13.1%) and 9 patients (6.5%) were anuric. Serum creatinine concentration: ranged from 1.6 mg/dl to 8.7 mg/dl.

According to RIFLE staging system: one hundred thirty three (133) patients fulfilled criteria of RIFLE staging system: 29 patients (21.8%) were classified as risk group, 36 patients (27.1%) as injury group, and 68 patients (51.1%) as failure group. According to AKIN staging system:

138 patients fulfilled criteria of AKIN staging system: 37 patients (26.8%) were classified as stage 1, 30 patients (21.7%) were classified as stage 2, and 71 patients (51.4%) were classified as stage 3. Ninety four (94) patients (68.1%) received Conservative measures, 39 patients received HD (28.3%) and 5patients received PD (3.6%). one hundred three (103) patients (74.6%) survived, 99 patients regained normal kidney function, 4 patients developed chronic kidney disease and no one required regular haemodilaysis, and 35 patients (25.4%) died.

In general intensive care unit 422 patients (21%.) had ICU acquired AKI from total 2013 patients. One hundred sixty nine (169) patients (40%) due to iATN, 106 patients (25.1%) due to prerenal causes.68 patients (16.1%) due to sepsis induced AKI, 46 patients (10.9%) due to Toxic AKI, 33 patients (7.8) due to other causes: 16 patients due to microangiopathy and 1 patient due to obstructive uropathy, 9 patients due to pigment nephropathy and 5 patients due to unknown cause. The range of age was from 17 years-to-86 years.

Two hinderers sixty nine (269) patients were males (63.7%), and 153 patients were females (36.3%). Three hinderers thirty nine (339) patients (80.3%) were oliguric, 55 patients (13.1%) were non-oliguric and 28 patients (6.6%) were anuric. Serum creatinine concentration: ranged from 1.5 mg/dL-to-11.7 mg/dl.

According to RIFLE staging system: 420 patients fulfilled criteria of RIFLE staging system: 104 patients (24.8%) were classified as risk group, 118 patients (28.1%) as injury group, and 178 patients (42.4%) as failure group. According to AKIN staging system: 422 patients fulfilled criteria of AKIN staging system: 109 patients (25.8%) were classified as stage 1, 75 patients (17.8%) as stage 2, two hundred thirty eight (238) patients (56.4%) as stage 3.

Two hundred eighty three (283) patients (67%) were treated with conservative measures, 126 patients (29.9%) with HD & 13 patients (3.1%) with PD. One hundred ninety two 192 patients (45.5%) survived, 183 patients regained normal kidney function, six patients developed chronic kidney disease, 3 patients required regular haemodialysis and 230 patients (54.5%) died.

We showed that septic AKI is associated with a high burden of illness, greater abnormalities in acute physiology and laboratory findings, and need for support when compared with nonseptic AKI.

In Our study 749 patients (21.2%) were met AKIN criteria, 26.3% classified as stage 1, 20.2% classified as stage 2, 53.5% classified as stage 3. There was an increase in hospital mortality with increasing AKIN class with patients who were stage 1having mortality rate of 30.5%, patients who were stage 2 having mortality rate of 50.3%, patients who were stage 3 having mortality rate of 52 %.In Our study 742 patients (21%) were met RIFLE criteria, 24% classified as Risk, 28.2% classified as Injury, 47.8% classified as failure.

There was an increase in hospital mortality with increasing RIFLE class with patients who were class R having mortality rate of 30.9%, patients who were class I having mortality rate of 49.3%, patients who were class F having mortality rate of 62 %, thus The RIFLE classification provides a uniform definition for the whole range of AKI and can be utilized as a prognostic tool.

In Our study when comparing corresponding degrees of AKI according to AKIN and RIFLE (stage 1 versus ‘risk’; stage 2 versus ‘injury’; stage 3 versus ‘failure’) no statistical difference in mortality.