correlated against LVEF (r = -0.34, p = 0.001). The values of hsCRP did not, however, significantly correlate with NYHA class even though the mean serum levels were higher in NYHA classes III and IV compared to that of NYHA classes I and II.

Conclusions: Serum hsCRP levels can act as effective severity markers in heart failure, with higher values indicating more severe forms of the disease, especially in the background of long standing hypertension. In scenarios where echocardiographic facilities are not available, like in rural centres of Nepal, assessing serum hsCRP levels could potentially help better manage cardiac failure.

LBPS 02-17 PREVALENCE, ASSOCIATIONS AND PROGNOSIS OF DIFFERENT PATTERNS OF CARDIOHEPATIC SYNDROME IN ACUTE DECOMPENSATED HEART FAILURE

Anzhela Soloveva, Svetlana Villevalde, Zhanna Kobalava. *Department of Internal Disease Propaedeutics, RUDN University, Russia*

Objective: Over the last several years different mechanisms of cardiohepatic syndrome(CHS) in acute decompensated heart failure(ADHF) have been discussed.The purpose of the study was to assess the prevalence and associations of different patterns of CHS in ADHF.

Design and Method: In 322 ADHF patients(190 male,69.5 ± 10.7 years (M ± SD),arterial hypertension 87%,myocardial infarction 57%, atrial fibrillation 66%, diabetes mellitus 42%, known chronic kidney disease 39%,chronic anaemia 29%, ejection fraction (EF)38 ± 13%, EF < 35% –39%) liver function tests (LFT)-alanine transaminase (ALT), aspartate transaminase (AST), direct and total bilirubin (DB and TB), alkaline phosphatase (AP), gamma-glutamyl transpeptidase(GGT) were measured on admission.LFTs were considered abnormal when levels exceeded local upper normal limit. Only ALTand/orAST increase was considered as hepatocellular CHS. Isolated increase of GGT, AP, DB and TB(with DB increase)–as cholestatic CHS.The simultaneous increase of markers of cytolysis and cholestasis was considered as mixed CHS.Mann-Whitney test, p < 0.05 was considered statistically significant.

Results: Abnormal LFT occurred in 274(85.1%) of patients. Hepatocellular, cholestatic and mixed pattern of CHS was detected in 0.4,32.8 and 66.8% of patients with ADHF. In patients with mixed CHS vs hepatocellular and cholestatic CHS mean values of LFTs were higher - AST(32(23;49) vs 21(18;27)U/l,), ALT (30(15;53) vs 17(12;25)U/l), DB(12(7;17) vs 6(4;9) mcmol/l,), TB(33(25;41) vs 19(15;22) mcmol/l), p < 0.001 for all comparisons.Patients with mixed CHS comparing with cholestatic pattern had higher NT-proBNP (9200 ± 7985 vs 7122 ± 6572pg/ml, p < 0.05), incidence of EF < 35% (47 vs 36%, p < 0.05), severe mitral regurgitation(51 vs 31%, p < 0.01), prevalence of vasopressor therapy (11 and 4%, p < 0,05), higher diameters of left(5.4 ± 1.1 vs 5.0 ± 0.9 sm,p < 0.01) and right atrial (6.7 ± 1.5 vs 6.1 ± 1.3 sm, p < 0.001), lower systolic blood pressure(132 ± 17 vs 144 ± 21 mmHg, p < 0.001) and pulse pressure(51 ± 14 vs 60 ± 15 mmHg, p < 0.001) on admission.Patients with mixed CHS comparing with cholestatic CHS had no significant differences in signs of congestion.Mixed CHS was associated with higher all-cause death in 6 months(30 vs 23%, p < 0,05).

Conclusions: Abnormal LFTs occurred in 85.1% of patients.The prevalence of hepatocellular, cholestatic and mixed pattern was 0.4,32.8 and 66.8%.Patients with mixed compared with cholestatic CHS had higher incidence of hypoperfusion and worse prognosis.

LBPS 02-18 SCREENING OF ARTERIAL STIFFNESS IN PATIENTS WITH MILD-TO-MODERATE RENAL IMPAIRMENT AMONG YOUNGER-AGE POPULATION USING PULSE WAVE VELOCITY

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Objective: We aimed to study arterial stiffness using pulse wave velocity (PWV) among patients with chronic kidney disease (CKD) stage 2 to 4 and normal renal function in younger-age population.

Design and Method: Patients with confirmed CKD stage 2 to 4 were recruited from various clinics from Universiti Teknologi MARA Medical Center, Sungai Buloh, Malaysia from 1st August 2015 until 31st January 2016. Sociodemographic and anthropometric indices were recorded on recruitment. Each patient underwent carotid-femoral (aortic) PWV measurement to determine arterial stiffness. PWV is determined using a one-probe device (SphygmoSore XCEL)

Results: 87 patients with CKD stage 2–4 and 87 control patients were recruited. The mean age was 47 + 5.4 years. CKD patients had a higher mean PWV (7.8 m/s + 1.7) than healthy controls (5.6 m/s + 1.0) (p < 0.001, 95% CI –2.59, –1.77). There was significant difference of mean PWV between control (5.6 m/s + 1.0) and CKD stage 2 (7.6 m/s + 1.5) (p < 0.001, 95% CI –2.40, –1.49). Our results showed a stepwise increase in PWV from control subjects, CKD stage 2 through stage 4 (p < 0.001). The mean difference of PWV between CKD stage 2 (7.6 m/s, + 1.5) and stage 4 (9.0 m/s, + 0.8) was 1.43 (p < 0.001, 95% CI –2.50, -0.35). There was significant difference of mean PWV between diabetes mellitus (DM) (8.2 m/s + 1.8) and non-DM (7.3 m/s + 1.3) patients with CKD stage 2–4 (p = 0.022, 95% CI –1.50, –0.12). Mutiple linear regression analysis showed only age (β = 0.078, p = 0.014), mean arterial pressure (MAP) (β = 0.031, p = 0.007) and diuretics usage as the combination antihypertensive medication (β = 0.839, p = 0.018) were independently associated with PWV (r^2 = 0.249, p < 0.001).

Conclusions: This study shows that arterial stiffness as assessed by PWV occurs early in CKD patient and increased arterial stiffness occurs in parallel with decline of glomerular filtration rate in patients with mild-to-moderate CKD of younger-age population.

LBPS 02-19 CORRELATION BETWEEN URINARY PROTEIN AND VASCULAR DYSFUNCTION IN PREECLAMPTIC WOMEN BEFORE AND AFTER DELIVERY.

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Objective: To asses the correlation between urine protein-creatinine ratio and flow mediated dilation (FMD) before and after delivery in preeclamptic women.

Design and Method: Women with a diagnosis of preeclampsia and planned for termination were enrolled for the study. History of hypertension before 20 weeks of gestation, diabetes mellitus, chronic kidney disease became exclusion criterias. The FMD was studied through the use of high resolution vascular ultrasound examination of brachial artery for 3 times; before delivery, 48–72 hours after delivery and 40–60 days after delivery. Urine protein-creatinine ratio (UPCR) was measured twice; prior to delivery and 40–60 days after delivery. Correlation between them was then evaluated.

Results: Thirty patients were enrolled in this study. The mean ages was 29.5 ± 6,4 years old. FMD was improved after delivery, 5.46 ± 0.27 % (before delivery) & 8.14 ± 2.48 % (p < 0.001) 40–60 days after delivery. Bivariates analysis showed that after delivery, there was an inverse correlation between UPCR with FMD (r = –0,735 p < 0,0001). UPCR prior to delivery also has inverse correlation with FMD after delivery (r = –0.55. p = 0.002) and with the change of FMD before and after delivery (r = –0.45 with p = 0.01). Multivariate analysis showed that correlation between UPCR after delivery with FMD after delivery was independent.

Conclusions: This study demonstrated there was a moderate-strong correlation between urinary protein prior and after delivery with flow mediated vasodilatation of brachial artery after delivery.

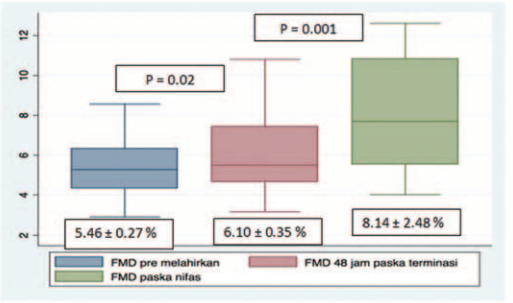

Figure 1. Boxplots of mean differences of FMD prior to delivery, 48 hours after delivery and 40-60 days after delivery (There were statistically significant differences of mean of FMD among all of time measurements from reapated ANNOVA and post hoc analysis, but different of means of FMD between prior delivery and 48 hours after delivery was clinically not significant)

[Correlation between urinary protein and FMD after delivery]

ratios of compliance evaluation form (24.8% VS 33.8%, P = 0.198), marital status (11.9% VS 20%, P = 0.148) and other five elements in both domestic and foreign CRFs are very low.

Conclusions: Compared with foreign CRF, the integrity of medical history and efficacy evaluation are overlooked in domestic CRF. Domestic and foreign CRF should improve the integrity of compliance evaluation form, marital status and other five elements.

LBPS 02-13 EFFECT OF BENDIPINE HYDROCHLORIDE, A LONG-ACTING T-TYPE CALCIUM CHANNEL BLOCKER, AS A MONO-THERAPY IN DIABETES WITH HYPERTENSION

Narsingh Verma. *Department of Physiology, physiologist, India*

Objective: The study was planned to find out the efficacy and safety of the drug in elderly as monotherapy

Design and Method: Forty hypertensive patients with diabetes and poor BP control were selected, and the changes in BP and urine protein (UP) scores were investigated retrospectively after initiating benidipine 8 mg for more than 3 months

Results: Both systolicand diastolic blood pressor was decreased significantly from 165.8 +/- 11.7 mmHg/86.5 +/- 10.3 mmHg to 140.9 +/- 13.0 mmHg/71.4 +/- 11.7 mmHg after bendipine treatment, and this effect was stably maintained for whole study period. Urinary Albumin also significantly decreased from 1.10 to 0.57 in the mean score. The decrease in Urinary albumin may be explained by a mechanism other than BP lowering effect.

Conclusions: These results demonstrate that bendipine has an potent antihypertensive effect and also a renoprotective effect, indicating the high usefulness of bendipine in hypertensive patients with diabetes. T-type calcium channel blockade was suggested to be possibly involved in the renoprotective effect of bendipine

LBPS 02-14 INTERRELATIONS OF RENAL AND LIVER DYSFUNCTION IN DECOMPENSATED HEART FAILURE.

Anzhela Soloveva, Svetlana Villevalde, Zhanna Kobalava. *Department of Internal Disease Propaedeutics, RUDN University, Russia*

Objective: Venous congestion and hypoperfusion are thought to underlie both heart failure(HF)-induced renal and liver dysfunction.The aim of this study was to assess the prevalence of cardiohepatic syndrome(CHS) and cardiorenal syndrome(CRS) and predictors of simultaneous CHS and CRS in acute decompensated heart failure (ADHF).

Design and Method: In 322 ADHF patients(190 male,69.5 ± 10.6years(M ± SD),arterial hypertension 87%,myocardial infarction 57%,atrial fibrillation 65%,diabetes mellitus 42%,known chronic kidney disease 39%,chronic anemia 29%, left ventricular(LV) ejection fraction(EF) 38 ± 13%, EF<35% 39.1%) alanine transaminase(ALT), aspartate transaminase(AST), direct and total bilirubin(DB and TB),alkaline phosphatase(AP),gamma-glutamyl transpeptidase(GGT) were measured on admission.CHS was considered when at least one liver function test(LFT) level exceeded upper normal limit.CRS was diagnosed as community-acquired acute kidney injury based on KDIGO2012Guidelines.Simultaneous CHS and CRS were considered as cardiorenohepatic syndrome (CRHS).Mann-Whitney test and multivariate logistic regression analysis were performed.P < 0.05 was considered statistically significant.

Results: CHS occurred in 274(85.1%) of patients. Increase of ALT and/or AST were detected in 68(21.1%) patients(alone ALT/alone AST/both TA–in 35.3,26.5,38.2% respectively), DB and/or TB in 264(82%) patients (alone DB/alone TB/DB and TB – in 28, 0.8, 71.2% respectively), AP in 90(27.9%) and GGT in 102 (31.7%) patients. CRS was diagnosed in 60 (18,6%) patients. Isolated CHS, isolated CRS and CRHS occurred in 78.4, 1.5 and 20.1% patients respectively. Patients with versus without CRHS had lower systolic blood pressure(SBP) (129 ± 18 vs 138 ± 19 mmHg, p < 0.01), EF(32 ± 10 vs 38 ± 13%, p < 0.01), pulse pressure(63 ± 91 vs 30 ± 28 mmHg, p < 0.01), higher LV mass index (200 ± 50 vs 178 ± 52 g/m^2, p < 0.01), LV end diastolic volume (62 ± 6 vs 56 ± 9 mm, p < 0.001), higher prevalence of severe mitral regurgitation (64.3 vs 39.6%, p < 0.001), signs of congestion–jugular venous distension (57.1 vs 39.6%, p < 0.05), hepatomegaly (85.7 vs 70.3%, p < 0.05), hydropericardium (46.4 vs 22.5%, p < 0.001). The independent predictors of CRHS were baseline GFR < 45 ml/min/1.73 m^2 (OR) 3.95, 95% CI 2.15–7.21, p < 0.01), SBP < 110 mm Hg on admission(OR 3.51,CI 1.55–7.94, p < 0.05), echo-hydropericardium (OR 2.98, CI 1.62–5.50, p < 0.01) and EF < 35% (OR 2.96, CI 1.61–5.44,p < 0.05).

Conclusions: Isolated CHS,isolated CRS and CRHS occurred in 78.4,1.5 and 20.1% patients.The independent predictors of CRHS were baseline GFR < 45ml/min/1.73 m^2, SBP < 110 mm Hg on admission, echo-hydropericardium and EF < 35%.

LBPS 02-15 HIGHER INCIDENCE OF CARDIOHEPATIC SYNDROME IN PATIENTS WITH DECOMPENSATED HEART FAILURE AND ACUTE KIDNEY INJURY

Anzhela Soloveva, Svetlana Villevalde, Zhanna Kobalava. *Department of Internal Disease Propaedeutics, RUDN University, Russia*

Objective: Liver and kidney dysfunction is frequently encountered in heart failure and related to worse prognosis.Over the last several years interdependent feedback mechanisms involving the heart, kidney and liver have been discussed.The aim of the study was to assess the prevalence of acute kidney injury(AKI) and abnormal liver function tests(LFT) and their interrelations in acute decompensated heart failure(ADHF).

Design and Method: In 322 ADHF patients(190 male, 69.5 ± 10.6years(M ± SD),arterial hypertension 87%, myocardial infarction 57%,atrial fibrillation 65%, diabetes mellitus 42%, known chronic kidney disease (CKD) 39%, chronic anemia 29%, ejection fraction (EF) 38 ± 13%, EF < 35% 39.1%) alanine transaminase (ALT), aspartate transaminase (AST), direct and total bilirubin (DB and TB), alkaline phosphatase (AP), gamma-glutamyl transpeptidase (GGT) and international normalized ratio (INR) were measured on admission. LFT were considered abnormal when levels exceeded local upper normal limit. Patients on warfarin were excluded from INR analysis. AKI was diagnosed based on KDIGO2012 Guidelines. Mann-Whitney test and multivariate logistic regression analysis were performed, p < 0.05 was considered statistically significant.

Results: Abnormal LFTs occurred in 274(85.1%) patients. Increase of transaminases were detected in 68 (21.1%) patients (alone ALT/alone AST/both TA in 35.3, 26.5, 38.2% respectively), DB and/or TB in 264 (82%) patients(alone DB/alone TB/DB and TB – in 28, 0.8, 71.2% respectively), AP in 90(27.9%) and GGT in 102(31.7%) patients. AKI was diagnosed in 60(18.6%) patients. Patients with versus without AKI had higher levels of ALT (60 ± 88 vs 29 ± 26 U/l, p < 0.05), AST(52 ± 45 vs 31 ± 16U/l, p < 0.001), TB(29 ± 13 vs 25 ± 15 μmol/l, p < 0.01), DB(12 ± 7 vs 9 ± 7 μmol/l, p < 0.001), GGT(157 ± 117 vs 102 ± 68U/l, p < 0.001), AP (124 ± 74 vs 112 ± 88 U/l, p < 0.05), INR(1.49 ± 0.42 vs 1.29 ± 0.23, p < 0.01).
Patients with vs without AKI had higher prevalence of increase of ALT(30 vs 12.3%,p < 0,001), AST(33.3 vs 9.2%,p < 0,001), TB(73.3 vs 56.2%,p < 0.05) and INR(60.8% vs 43.8%,p < 0,05).AKI was predictor for increase of ALT (OR 3.1,95%CI 1.6–5.9), AST(OR 4.9,CI 2.5–9.7), TB(OR2.1, CI1.2–4.0) and INR(OR 2.0, CI 1.0–3.9).

Conclusions: Abnormal LFTs occurred in 85.1%, AKI-in 18.6% of patients admitted with ADHF.Patients with versus without AKI had higher prevalence of abnormal LFTs.In patients with ADHF increase of transaminases, total bilirubin and INR can directly contribute to AKI and vice versa.

LBPS 02-16 SERUM LEVELS OF HSCRP IN PATIENTS WITH HEART FAILURE

Aseem Bhattarai[1], Binod Yadav[1], Arun Sayami[2], Kabita Khaniya Pokharel[3]. [1]*Department of Biochemistry, Tribhuvan University Teaching Hospital, Institute of Medicine, Nepal,* [2]*Department of Cardiology, Manmohan Cardiothoracic Vascular and Transplant Centre, Institute of Medicine, Nepal,* [3]*Department of Biochemistry, Kathmandu Medical College, Nepal*

Objective: This study was aimed to determine the serum levels of hsCRP in heart failure patients and their associations with the ejection fraction and severity of heart failure according to the NYHA classification of Cardiac Failure.

Design and Method: This was a cross sectional observational study involving a total of 80 heart failure patients admitted to the centre over a period of six months. The ejection fraction (from an echocardiogram at the time of admission) and serum levels of hsCRP were assessed in all patients.

Results: The mean age of the patients enrolled in the study was 59.7 ± 16 yrs with 43 male and 37 female. Majority of patients (50/80) had isolated systolic failure, 21 of them had both systolic and diastolic heart failure and 9 of them had isolated diastolic failure. The median value for hsCRP was 11000 ng/l (Range = 0–22000 ng/L) and the mean 10318.26 ± 6847.06 (95% CI for mean 8794.5 – 11842.0 and S.E of mean 763.4). The mean values of hsCRP in the serum were significantly higher in patients with systolic heart failure (long standing hypertension) as compared to patients with diastolic heart failure (10711.8 ± 6425.1 ng/L as compared to 3772.6 ± 6190.4 ng/L, p = 0.006) with values that weakly

ratios of compliance evaluation form (24.8% VS 33.8%, P = 0.198), marital status (11.9% VS 20%, P = 0.148) and other five elements in both domestic and foreign CRFs are very low.

Conclusions: Compared with foreign CRF, the integrity of medical history and efficacy evaluation are overlooked in domestic CRF. Domestic and foreign CRF should improve the integrity of compliance evaluation form, marital status and other five elements.

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Narsingh Verma. *Department of Physiology, physiologist, India*

Objective: The study was planned to find out the efficacy and safety of the drug in elderly as monotherapy

Design and Method: Forty hypertensive patients with diabetes and poor BP control were selected, and the changes in BP and urine protein (UP) scores were investigated retrospectively after initiating benidipine 8 mg for more than 3 months

Results: Both systolicand diastolic blood pressor was decreased significantly from 165.8 +/- 11.7 mmHg/86.5 +/- 10.3 mmHg to 140.9 +/- 13.0 mmHg/71.4 +/- 11.7 mmHg after bendipine treatment, and this effect was stably maintained for whole study period. Urinary Albumin also significantly decreased from 1.10 to 0.57 in the mean score. The decrease in Urinary albumin may be explained by a mechanism other than BP lowering effect.

Conclusions: These results demonstrate that bendipine has an potent antihypertensive effect and also a renoprotective effect, indicating the high usefulness of bendipine in hypertensive patients with diabetes. T-type calcium channel blockade was suggested to be possibly involved in the renoprotective effect of bendipine

LBPS 02-14 INTERRELATIONS OF RENAL AND LIVER DYSFUNCTION IN DECOMPENSATED HEART FAILURE.

Anzhela Soloveva, Svetlana Villevalde, Zhanna Kobalava. *Department of Internal Disease Propaedeutics, RUDN University, Russia*

Objective: Venous congestion and hypoperfusion are thought to underlie both heart failure(HF)-induced renal and liver dysfunction.The aim of this study was to assess the prevalence of cardiohepatic syndrome(CHS) and cardiorenal syndrome(CRS) and predictors of simultaneous CHS and CRS in acute decompensated heart failure (ADHF).

Design and Method: In 322 ADHF patients(190 male,69.5 ± 10.6years(M ± SD),arterial hypertension 87%,myocardial infarction 57%,atrial fibrillation 65%,diabetes mellitus 42%,known chronic kidney disease 39%,chronic anemia 29%, left ventricular(LV) ejection fraction(EF) 38 ± 13%, EF<35% 39.1%) alanine transaminase(ALT), aspartate transaminase(AST), direct and total bilirubin(DB and TB),alkaline phosphatase(AP),gamma-glutamyl transpeptidase(GGT) were measured on admission.CHS was considered when at least one liver function test(LFT) level exceeded upper normal limit.CRS was diagnosed as community-acquired acute kidney injury based on KDIGO2012Guidelines.Simultaneous CHS and CRS were considered as cardiorenohepatic syndrome (CRHS).Mann-Whitney test and multivariate logistic regression analysis were performed.P < 0.05 was considered statistically significant.

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LBPS 02-15 HIGHER INCIDENCE OF CARDIOHEPATIC SYNDROME IN PATIENTS WITH DECOMPENSATED HEART FAILURE AND ACUTE KIDNEY INJURY

Anzhela Soloveva, Svetlana Villevalde, Zhanna Kobalava. *Department of Internal Disease Propaedeutics, RUDN University, Russia*

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LBPS 02-16 SERUM LEVELS OF HSCRP IN PATIENTS WITH HEART FAILURE

Aseem Bhattarai[1], Binod Yadav[1], Arun Sayami[2], Kabita Khaniya Pokharel[3]. [1]*Department of Biochemistry, Tribhuvan University Teaching Hospital, Institute of Medicine, Nepal,* [2]*Department of Cardiology, Manmohan Cardiothoracic Vascular and Transplant Centre, Institute of Medicine, Nepal,* [3]*Department of Biochemistry, Kathmandu Medical College, Nepal*

Objective: This study was aimed to determine the serum levels of hsCRP in heart failure patients and their associations with the ejection fraction and severity of heart failure according to the NYHA classification of Cardiac Failure.

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