38  Outcome Prediction in ICU within First 24 Hours
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Introduction: Beyond admission, prediction of outcome is the next and perhaps most important use of the measures of the severity of illness. There is a severity of disease classification system to estimate the pretreatment risk of death in critically ill patients. APACHE system showed strong and stable relationship between severity of illness and subsequent probability of death.

Aim: To predict the outcome and to compare in ICU within 1st 24 hours by application by APACHE II and APACHE III.

Methods: One hundred adults admitted in ICU for various disorders. Variables: major disease categories, acute physiology, age, comorbidities, origin and timing of patient selection.

Results: M:F::58:42. Cardiovascular-8, Respiratory-13, Metabolic-02, Gastrointestinal-07, Neurologic-18, Renal disease-09, Septicemia-09, MOF-05, Miscellaneous-40. Reason for ICU admission: Respiratory failure, ARDS, Coma, MOF, ARF, CVS causes. Status epilepticus, DIC, Miscellaneous. Mean duration of illness: 2.29 years. 40% had ESR between 50-100 mm/1st hr. Respiratory system analysis was done by skigram, spirometry and HRCT. Frequency of pulmonary abnormality in rheumatoid arthritis vary widely and depend on multiple factors-age, stage of the disease etc.

Summary and Conclusions: Application of APACHE III scoring system predict the outcome in ICU within 1st 24 hours. Comparison of APACHE II and APACHE III was done considering physiologic variables, chronic age, condition, co-morbid conditions, origin and reason for ICU admission-the prediction by APACHE III was 91.2% and by APACHE II was 85.2%. APACHE III was superior to APACHE II. The presence, severity of preexisting diseases, chronological age and acute physiological abnormalities account for the outcome. Comorbid conditions that influence the immunological status meet the statistical significance.

Many of the important questions concerning the quality and the appropriateness of advanced medical care cannot be fully addressed until patient risk is accurately assessed and reliably recorded. APACHE III prognostic system application is an attempt to provide objective probability estimates for critically ill hospitalized patients treated in ICU.

39  Prospective Study of Insecticide Poisoning
Patients Admitted to Intensive Medical Care Unit (IMCU), General Hospital, Pondicherry

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This is a prospective study of insecticide poisoning patients admitted to IMCU, General Hospital, Pondicherry during the period from July 2002 to December 2002. Out of 250 consecutive patients admitted to the medical ward, 50 required intensive medical care. Out of them, 35 (70%) had consumed organophosphorous (Non-carbamate), 9 (18%) organophosphorous (carbamate), 6 (12%) organochlorine insecticide. Diagnosis was based on history, clinical presentation and identification of the container. The compound was confirmed by chemical analysis of the stomach wash. As per protocol, all these patients were subjected to routine hemogram, urinalysis, blood biochemistry, Chest radiograph, ECG and arterial blood gas analysis. Continuous monitoring of vital parameters (SPO2, BP, respiratory rate, ECG) was done in all the patients. Stomach wash and body wash were given for all patients. IV atropine with or without PAM was given as per protocol. Patients whose SPO2 dropped to <90% were mechanically ventilated. Weaning was performed using T-tube trials/pressure support weaning/non-invasive ventilation.

The study included 37 males and 13 females. All of them used GI route for poisoning. Two patients (4%) also instilled the poison into their ears. Twenty-six (52%) required mechanical ventilation. The mean duration of mechanical ventilation was 3.9 days. The mortality was 8% (4), all of whom were mechanically ventilated. 8%(4) required mechanical ventilation for more than 10 days. The complications included respiratory failure (22), aspiration pneumonia (20), ARDS (6), convulsions (3), sepsis (1) and DVT (1). Other associated conditions included alcoholism (10), depression (4) and pregnancy (1). The mean duration of IMCU stay was 3.6 days.

The pathophysiology of insecticide poisoning, the rationale for the protocols used, the clinical presentation of the patients and lab findings will be discussed.

Respiratory failure is the major cause of mortality in insecticide poisoning. Continuous monitoring of vital parameters and early ventilatory assistance has reduced the mortality rate in our set-up.

40  Ventilator Associated Pneumonia
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Introduction: Pneumonia is the most common nosocomial infection reported among mechanically ventilated patients. The estimated prevalence of ventilator associated pneumonia (VAP) within ICU settings ranges from 10 to 65% with case fatality rates >20% in most reported studies. Despite improvement in diagnosis, treatment and prevention of VAP, it remains an important cause of hospital mortality.

Two groups of pts with VAP are studied. 1) Early onset VAP (<96 hrs), 2) Late onset VAP (>96hrs).

Early onset VAP- occurring within 96 hrs of intubation, most likely representing aspiration. Late onset VAP - occurring >96hrs after intubation, having different pathogenesis and microbiological spectrum.

Aim: To know, 1. The most common pathogen grown. 2) To evaluate the treatment modalities of VAP. 3) To determine the risk factors and 4) to compare early onset VAP and late onset VAP in determining mortality, in pts requiring ventilator support in casualty and MICU settings, as a prospective cohort study.

Material and Methods: Inclusion criteria: Pt on mechanical ventilation showing, (1) Fever (temp of 1 deg higher or >38.3deg C). (2) Leucocytosis (>10,000 mm³). (3) Purulent tracheal aspirate (>25 neut/hpf). (4) Radiographic appearance of new or progressive pulmonary infiltrate.

Exclusion criteria: Lung infiltrates prior to intubation on chest X-ray.

Results: Of the 23 patients studied majority were below 44 yrs of age. Commonest indication of mechanical ventilation was respiratory failure secondary to medical causes (15), post-operative (7), traumatic (2). Most were non-smokers. 2 patients had past history of diabetes hypertension each, 1 IHD, 1 bronchial asthma. APACHE II score was predominantly between 15-30. Prior to onset of pneumonia 90% were on H2 receptor blockers. Early onset ventilator associated pneumonia occurred in 11. Late onset ventilator associated pneumonia in 12 patients. Type of artificial airway was via ET in 16 and tracheostomy was done in 7. Most common organism cultured from ET aspirate is Pseudomonas (12), Klebsiella (9), Coag-ve staphylococci (6), Acinetobacter (3), others like enterococcus, E.coli and coag +ve Staphylococci (1 each). Most with late onset pneumonia grew Gram-ve resistant bacteria in culture and
required broader antimicrobial coverage. 60% recovered with treatment, 30% expired and 10% got discharged at request.

**Conclusion**: It was observed in this study that the commonest causative organism of ventilator associated pneumonia is Pseudomonas in concordance with other studies. The administration of H2 blockers were associated with an increased incidence of VAP. Prophylactic use of antibiotics had no role and instead led to emergence of resistant strains causing late onset pneumonia. Eventhough majority recovered with treatment mortality was more with late onset as compared to early onset VAP.

## 41 Microalbuminuria in Acute Myocardial Infarction, Ischaemic Stroke with Special Reference to its Prognostic Importance

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Microalbuminuria (MA) has been recognised as an established marker of severity of systemic Inflammatory response syndrome (SIRS) both infective and non-infective. There have been many studies covering both infective and non-infective SIRS showing a positive correlation between them as a prognostic marker.

Present study looked into the incidence and degree of MA in both myocardial infarction (MI) and ischaemic stroke and also looked into any relation between outcome of patient (both morbidity and mortality). MA was tested for each patient on day of admission and again on 4th and 7th day of their illness. Total 30 MI were studied under the purview, of them 27 (90%) showed MA. 25 (92%) of them as was follow up showed improvement in MA simultaneously along with improvement of their other prognostic markers like ejection fraction (EF), Killips class. It clearly shows an importance of MA as an additional prognostic marker. However in 2 (8%) patient there was no improvement of MA, though the patient clinically fared better. The significance of this observation was not clear. As to ischaemic stroke a total of 20 patient were studied - of them 16 (80%) showed significant MA; out of these 16 patients 13 (81%) survived and they also showed improvement of MA. Even some patient who had low Glasgow coma scale eventually improved corresponding with improvement of their MA suggesting a role for MA in these patient as a prognostic marker. Of 20 patient 3 (15%) died in whom MA showed no improvement - again suggesting a role of MA as a prognostic marker.

The Summary of the results are given in the able below:

<table>
<thead>
<tr>
<th>MI (5th day)</th>
<th>MA (7th day)</th>
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<tr>
<td>Pt. 30</td>
<td>MA 27 / No</td>
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<td>MA (7th day)</td>
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<th>Ischaemic Stroke (7th day)</th>
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<tr>
<td>Pt. 20</td>
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<td>No MA</td>
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<td>13</td>
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**Results**: The GCS scores at presentation ranged from 5-15 (mean 11.43 ± 3.13) with maximum number of patients having a score of 12 (33.3%). The GCS scores correlated well with the severity of the disease as per the Medical Research Council staging system. Raised intracranial pressure (ICP) - The mean GCS scores were significantly lower (10.05 ± 2.886) in those with raised ICP (p value = 0.000) as compared to those without clinical evidence of raised ICP (14.75 ± 0.707). Dysphagia - The mean GCS scores were significantly lower (9.53 ± 2.716) in patients with dysphagia by the water-swallowing test as compared to those without dysphagia (14.36 ± 1.120) (p value = 0.000). Esophageal sphincteric tone - Patients with a low UES (p value = 0.01) or LES tone (p value = 0.021) had significantly lower mean GCS scores as compared to those with a normal tone. Also, the GCS showed a direct positive correlation with the UES (Pearson’s correlation coefficient - 0.451) and the LES tone (Pearson’s correlation coefficient - 0.293). Aspiration and mortality - Of the 8 patients who died in our study, 5 (62.5%) had a GCS score of 8 or below and, of these 5, 4 (80%) died due to aspiration. This is indicative of the high risk of esophageal sphincteric dysfunction and the risk of aspiration and mortality in patients with a GCS of below 8.

**Conclusions**: GCS scoring is a simple and objective scoring system, which may be indicative of the esophageal sphincteric functions in correlation with the severity of brain injury and the final outcome of patients with TBM.

## 43 Acute Flaccid Paralysis (AFP) - 6 Year Prospective Study

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**Aims**: To evaluate the following: AFP etiology in period 1997-2002. Early nerve conduction velocity (NCV) / EMG changes in 1st week of Guillain Barre syndrome (GBS). Differentiate clinical presentation of GBS from others cause of AFP. Assess clinical and respiratory predictors of respiratory failure in GBS and to assess response to IVIgG / Plasmapheresis in GBS.

**Material and Methods**: Design: Prospective, serial recruitment at tertiary hospital. 82 cases of AFP - 46 GBS (Ambury criteria). 18 hypokalemic periodic paralysis (HPP). 6 Acute transverse myelitis. 4 cervical myelopathy in spinal shock. 2 dumb rashes. NCV 1st week, H reflex, F waves, CMAP amaps, SNAP, NCV, conduction block and temporal dispersion. Data in ventilated (29) vs nonventilated GBS (17) collected prior to maximum debility- age, sex, prior infection, bulbar, neck / bifacial / upper limb weakness, autonomic imbalance, CSF and EMG study.

**Results**: 1) Comparing GBS with HPP, preceding infection (24 / 46 GBS vs 1/18 HPP), bulbar weakness (17/46 vs 2/18), bifacial weakness (22/46 vs 2/18), autonomic features (16/40 vs 3/18), areflexia (44/46 vs 3/18), early recovery in 48 hours (0/46 vs 16/18), and requirement for ventilation (27/46 vs 16/18) were significantly different (p<0.05).

2) 23/46 GBS patients had NCV in 1st week. Common abnormalities were in “H” reflex (76% commonly early abnormality - 10/13 patients within 4 days) and F waves - (68%). Gross NCV slowing (44%), conductive block (23%), temporal dispersion (19%) were uncommon highlighting radioculopathy rather than neuropathy in early GBS.

3) Following features predicted ventilation requirement- bulbar weakness (p<0.05), autonomic instability (p<0.01) and early decline to maximum debility. (p,0.05).
A Study of Prevalence of Complications in Newly Detected Diabetic Patients

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Aim: To study prevalence of long term complications of diabetes mellitus at the time of detection of the disease. The influence of variables like WHR, obesity, BMI, severity of hyperglycaemia on these complications will also be evaluated.

Material and Method: One hundred and eighty six patients with type-2 diabetes detected within 6 months were recruited into this study. All subjects underwent detailed clinical evaluation, and laboratory investigations, which included screening for micro and macrovascular complication. Microalbuminuria was estimated by micral strips (Micral II BM strips). Plasma insulin was estimated by radioimmunoassay and beta cell function and insulin resistance was calculated using the homeostasis model assessment (HOMA). All statistical analysis was done by SPSS (version 10.0) statistical analysis system.

Results: The mean age of the study group was 55.98 ± 11.15 years (M : 50.68 ± 11.15 years; F: 48.42 ± 8.57 years). Of all the complications the highest prevalence was of neuropathy (47.3%). The prevalence of microalbuminuria was 34.4%, being higher in males than females (p<0.05). The overt proteinuria was present in 12.8% of the males and 14.5% females (the difference was statistically significant). Retinopathy was present in 28% of the patients being significantly higher in males (32.5%) than in females (20.3%). Coronary artery disease and peripheral vascular disease (PVD) were present in 14 % and 17 % of subjects respectively being -more common in males. Mostly subjects with micro and macrovascular complications were in high risk group (>45 years for males and ≥55 years for females). A positive family history was present in 36.21% of female and 47.86% of males. The prevalence of CAD, retinopathy and neuropathy was higher in subjects with higher WHR. The subjects with CAD and PVD had a higher BMI. Systolic pressure was more in subjects with CAD, retinopathy and neuropathy. The mean fasting blood sugar was found to have a significant positive influence on retinopathy and PVD only. The mean serum cholesterol was 175.20 ± 44.62 mg/dl but statistically higher in subjects with nephropathy. The prevalence of different complications were more in subjects with triglyceride levels above 150 mg/dl, although the significant difference was found only in subjects having nephropathy (p<0.05). The mean serum HDL was 37.00 ±6.18 mg/dl (range 12-63 mg/dl). The prevalence of CAD and PVD was significantly higher in group having serum HDL of less than 35 mg/dl (p<0.05). The mean HbA1c of the study group was 8.64 ± 1.19% (range 4.1-13.5%). Those who had HbA1c levels of more than 7.1% had higher complications. HOMA-R and HOMA-B did not show any statistical difference in male and female subjects with different micro and macrovascular complications, In subjects having neuropathy both insulin resistance and b cell dysfunction was found to be statistically significant as compared to subjects without neuropathy. The subjects with retinopathy had more of β cell dysfunction than subjects with normal fundus and this was statistically significant (p<0.05). The subjects having CAD had more of insulin resistance which was significant (p≤0.05).

Conclusion: In conclusion, this study shows that increasing age predisposes the person to develop diabetes and different micro and macrovascular complication are prevalent at the time of diagnosis itself, of which neuropathy was the commonest. These complications are influenced by many factors such as age, waist circumference, WHR, BMI, systolic blood pressure, fasting blood sugar, high serum triglycerides and low HDL and HbA1c. The subjects Slaving these complications had moderate insulin resistance, insulin secretory abnormality or both.

Prevalence of Coronary Artery Disease in Impaired Glucose Tolerance (IGT) and Impaired Fasting Glycaemic (IFG) Individuals

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In this cross sectional study we included 215 cases having one of the following risk factors for coronary artery disease namely hypertension, obesity BMI>25, hyperlipidemia or family history of diabetes, know diabetics were excluded from the study. They were subjected to detailed history physical examination and ECG to detect any recent or past evidence of coronary artery disease (CAD). Fasting and 2hr post 75gm glucose blood levels were obtained. On the basis of plasma glucose cases were categorized into IGT, IFG, or Diabetic, according to recent ADA/WHO-1998, criteria.

Results: There were 114 (53%) normoglycemic, Impaired glucose tolerance was present in 23 (10.7%), Impaired fasting glycaemia in 14 (6.5%) and 64 (29.8%) were diabetic. Coronary artery disease was present in 26.08% of IGT cases and 35.71% IFG cases. Comparison between IGT/CAD association with IFG/CAD association by two samples ‘t’ test was statistically significant (p<0.05).

Conclusion: (i) Impaired glucose tolerance was present in 10.7% and impaired fasting glycaemia in 6.5% of undiagnosed high risk individuals. (ii) prevalence of CAD in IFG is significantly higher than that in IGT, suggesting that IFG is an advanced state of hyperglycaemia in comparision with IGT. This can be explained by the sequence of pathophysiological derangement in which gradual development of insulin resistance in muscles is followed by insulin resistance in liver which is responsible for the presence of post prandial hyperglycaemia (IR in muscle) before the development of fasting hyperglycaemia (IR in liver) and therefore IFG is likely to be associated with higher prevalence of coronary artery disease.

To Evaluate the Intima-Media Thickness of Common Carotid Artery in Indian Subjects with Impaired Glucose Tolerance

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Aims and Objectives: As impaired glucose tolerance (IGT) is regarded a risk factor for increased mortality from CAD, the present study was undertaken to evaluate the intima-media thickness (IMT) of common carotid artery (a surrogate marker for atherosclerosis) in Indian subjects with IGT. In addition factors modifying IMT such as conventional risk factors for atherosclerosis including in particular two-hour post-glucose challenge (75gm) plasma glucose would be examined as there is paucity of data regarding these.

Material and Methods: The present study was prospective cross-sectional study, comprising 50 IGT cases (impaired glucose tolerance) based on ADA criteria selected from amongst first degree blood relatives of known type 2 diabetes mellitus and 30 normal healthy controls (NHC). All the subjects showing IGT state in first 75 gm glucose test were subjected to second challenge to confirm the IGT state. NHC were