

Updates of pulmonary renal syndrome in ICU

Essay

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Intensive Care Medicine*

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List of Abbreviations

- **ABMA-GS:** Anti-basement membrane antibody associated Goodpasture's syndrome.
- **ACEI :** Angiotensin converting enzyme inhibitor.
- **ADH :** Antidiuretic hormone.
- **ANCA:** Antineutrophilic cytoplasm antibody.
- **ANP :** Atrial naturetic peptide.
- **Anti – GBM:** Anti – glomerular basement membrane.
- **APS :** Antiphospholipid syndrome.
- **ARDS:** Adult respiratory distress syndrome.
- **ARF :** Acute renal failure.
- **ATP :** Adenosine triphosphate.
- **BOOP :** Bronchiolitis obliterans organizing pneumonia.
- **BUN :** Blood urea nitrogen.
- **C₃ :** Complement 3.
- **C-ANCA :** Cytoplasmic- antineutrophilic cytoplasm antibody.
- **CD :** Cluster differentiation.

- **CG** : Cryoglobulinemia.
- **CIHD** : Conventional intermittent hemodialysis.
- **CO₂** : Carbon dioxide.
- **CPE** : Cytopathic effect.
- **Cr. Cl.:** Creatinine Clearance.
- **CRRT:** Continuous renal replacement therapy.
- **CT** : Computerized tomography.
- **CXR** : Chest X- ray.
- **d** : Days.
- **DAH** : Diffuse alveolar hemorrhage.
- **DCT** : Distal convoluted tubule.
- **DO₂** : Oxygen delivery.
- **DPPC:** Dipalmitoyl phosphatidyl choline.
- **EDTA:** Ethylenediamine tetraacetic acid.
- **ELISA** : Enzyme linked immunosorbent assay.
- **ESR** : Erythrocyte sedimentation rate.
- **FE_{Na}** : Fractional excretion of sodium.
- **g** : Grams.
- **GFR** : Glomerular filtration rate.
- **H⁺** : Hydrogen ion.

- **Hb** : Hemoglobin.
- **HCO₃**: Bicarbonate ion.
- **H₂CO₃**: Carbonic acid.
- **H&E** : Haematoxylin and Eosin.
- **H₂O** : Water.
- **HFR** : Hemorrhagic fever with renal syndrome.
- **HGF** : Hepatocyte growth factor.
- **HLA** : Human leukocytic antigen.
- **HPS** : Hantavirus pulmonary syndrome.
- **HSP** : Henoch- Schonlein purpura.
- **I - Cells**: Intercalated cells.
- **ICU** : Intensive care unit.
- **IF** : Immunofluorescence.
- **Ig** : Immunoglobulin.
- **IgA N**: IgA nephropathy.
- **INF** : Interferon.
- **JGA** : Juxtaglomerular apparatus.
- **K⁺** : Potassium ion.
- **LH** : Loop of Henle.
- **MMF**: Mycophenolate mofetil.

- **MPO** : Myeloperoxidase.
- **MSC** : Mesenchymal stem cells.
- **Na⁺** : Sodium ion.
- **NH₃** : Ammonia.
- **NH₄** : Ammonium.
- **NP** : Nucleoproteins.
- **NSAIDs** : Non steroidal anti-inflammatory drugs.
- **O₂** : Oxygen.
- **P-ANCA** : Perinuclear- antineutrophilic cytoplasm antibody.
- **P- Cells**: Principal cells.
- **PAMs** : Pulmonary alveolar macrophages.
- **PCO₂** : Partial carbon dioxide pressure.
- **PCT** : Proximal convoluted tubule.
- **PD** : Peritoneal dialysis.
- **PH** : Negative logarithm of H⁺.
- **PO₂** : Partial oxygen pressure.
- **Pr3** : Proteinase 3 .
- **RBCs** : Red blood cells.
- **RRT** : Renal replacement therapy.

- **\$** : Syndrome.
- **SDF-1:** Stromal cell-derived factor-1.
- **SP** : Surfactant protein.
- **Sr. Cr.:** Serum creatinine.
- **Th** : T-helper lymphocyte.
- **TNF** : Tumour necrosis factor.
- **UO** : Urine output.
- **VO₂** : Oxygen uptake.
- **V/Q** : Ventilation-perfusion ratio.

Introduction

Introduction

Pulmonary–renal syndrome is defined as the combination of diffuse alveolar haemorrhage (DAH) and glomerulonephritis (*Jayne, 2002*). Several types of immunologic injury as well as other non immunologic mechanisms are involved in the syndrome's pathogenesis (*Balow, 2003*), such as:

- Antiglomerular basement membrane (anti-GBM) antibodies as in Goodpasture's syndrome (*Pusey, 2008*).
- Antineutrophil cytoplasm antibodies (ANCA) as in Wegener's granulomatosis, microscopic polyangiitis, Behcet's disease, Churg-Strauss syndrome, Henoch-Schönlein purpura (*Nachman, 2005*).
- Immunocomplexes as in systemic lupus erythematosus (SLE), systemic sclerosis and rarely in rheumatoid arthritis (*Schwarz, 2004*).
- Thrombotic microangiopathy as in antiphospholipid syndrome (APS), thrombotic thrombocytopenic purpura, malignancies and infections.

A significant number of patients will present with rapid clinical deterioration and require admission to the intensive care unit (*Anaya, 2005*). This is attributed either to exacerbation of the disease activity itself, or to infectious complications secondary to severe immunosuppressive treatment (*Guntupalli, 2008*).

Pulmonary–renal syndromes represent a major challenge in the ICU since the outcome is based on early and accurate diagnosis and aggressive treatment (*Venn, 2005*). Nevertheless, mortality can reach 25–50% (*Brett, 2008*).

Aim of the Work

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To focus Updates of pulmonary renal syndrome in critically ill patients.