

Mechanical Ventilation in Acute Respiratory Distress Syndrome

6

Farhad N. Kapadia and Umakant Bhutada

A 25-year-old female patient presented with fever with chills and vomiting. The following day, she noted increased difficulty in breathing. Extensive bilateral infiltrates were seen on the chest X-ray, and she needed supplemental oxygen to maintain oxygen saturation at more than 90%. Echocardiography showed normal cardiac function. She was getting progressively fatigued and increasingly drowsy and was intubated.

Acute respiratory distress syndrome (ARDS) is characterized by a brief precipitating event followed by rapidly developing dyspnea. In addition there is a markedly impaired respiratory system compliance and reduced aerated lung volume. The hypoxemia does not correct with low concentrations of supplemental oxygen and low positive end expiratory pressure (PEEP). The mortality from ARDS is around 35–40%. Current therapy for ARDS revolves around treatment of underlying cause, using a lung protective ventilatory strategy, standard intensive care practices and appropriate multi-organ monitoring and support.

Step 1: Initiate Resuscitation and Identify the Reason for Deterioration

- Initial resuscitation should be done, as described in Chap. 23, Vol. 2.
- Take history, perform quick physical examination, and initiate basic investigation such as arterial blood gas and the chest X-ray to arrive at a probable cause for deterioration in respiratory status.

F. N. Kapadia (✉) · U. Bhutada
Department of Medicine and Intensive Care, P.D. Hinduja National Hospital and Medical Research Centre, Mumbai, India

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ICU Protocols Rajesh Chawla, Subhash Todi, 2020-04-01 The second edition of this highly successful book includes up to date notes on the step wise management of clinical emergencies encountered in everyday intensive care units ICU Each thoroughly revised chapter provides concise information for point of care treatment making it a practical guide clinicians can refer to on a daily basis at work or while traveling or just to expand their knowledge Volume 2 of ICU Protocols covers topics in the endocrine and metabolic systems oncology trauma toxicology envenomation and thermoregulation obstetrics perioperative care pediatrics and ICU procedures Pulmonology cardiology neurology gastroenterology nephrology and infectious diseases are covered in the first volume of ICU Protocols This two volume book is a must read for intensivists critical care specialists junior trainees and residents working in ICUs It is also relevant as course material for workshops on critical care and essential for all hospital based libraries This book provides junior trainees with an introduction to the management of problems common to the critical care unit David J Dries Doody's Book Reviews March 2013 for the first edition of ICU Protocols

IAP Textbook of Pediatric ICU Protocols Praveen Khilnani, Santosh T Soans, Vinayak Patki, 2019-05-31 Section 1 Basic and Advanced Life Support 1 Approach to a Sick Child 2 Choking 3 Approach to a Child with Respiratory Insufficiency 4 Airway Management 5 Rapid Sequence Intubation 6 Tachyarrhythmias 7 Bradycardia 8 Cardiac Arrest 9 Cardiopulmonary Resuscitation 10 Cardioversion and Defibrillation 11 Postresuscitation Management Section 2 Shock 12 Assessment of Shock in Children 13 Approach to Management of Shock in Child 14 Management of Septic Shock 15 Anaphylactic Shock in Children Section 3 Basic Mechanical Ventilation 16 Noninvasive Ventilation 17 High flow Nasal Cannula 18 Disease specific Mechanical Ventilation 19 Troubleshooting in Mechanical Ventilation 20 Weaning from Ventilation 21 Extubation in Children 22 Prone Positioning 23 Recruitment Maneuvers 24 Tracheostomy in Children Section 4 Advanced Ventilation 25 High Frequency Ventilation 26 Inhaled Nitric Oxide 27 Extracorporeal Membrane Oxygenation in Pediatric Intensive Care Unit Section 5 Central Nervous System 28 Coma 29 Raised Intracranial Pressure 30 Pediatric Head Trauma 31 Status Epilepticus Section 6 Infections and Antimicrobials in Pediatric Intensive Care Unit 32 Tropical Fever in Pediatric Intensive Care Unit 33 Dengue 34 Malaria 35 Enteric Fever 36 Japanese Encephalitis 37 Leptospirosis 38 Antibiotics in Pediatric Intensive Care Unit 39 Antifungals in Pediatric Intensive Care Unit Section 7 Hospital acquired Infections in Pediatric Intensive Care Unit 40 New Fever in Intensive Care Unit 41 Ventilator associated Pneumonia 42 Catheter associated Urinary Tract Infections CAUTI 43 Central Line associated Bloodstream Infections CLABSI Section 8 Metabolic and Endocrine System 44 Diabetic Ketoacidosis 45 Hypoglycemia 46 Acute Adrenal Insufficiency in Critically Ill Child 47 Syndrome of Inappropriate Antidiuretic Hormone and Cerebral Salt Wasting Syndrome 48 Metabolic Encephalopathies and Inborn Error of Metabolism 49 Hyperammonemia Section 9 Arterial Blood Gas 50 Interpretation of Arterial Blood Gas 51 Acidosis 52 Alkalosis Section 10 Fluids 53 Fluid Therapy in Pediatric Intensive Care Unit Section 11

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Perioperative Critical Care Atul P Kulkarni, JV Divatia, J. V. Divatia, Sohan Lal Solanki, 2020-11-30 Perioperative care is the care that is given before and after surgery This textbook is a complete guide to the anaesthetic and critical care management of patients undergoing complex surgeries in all organ systems of the body Topics cover all age groups neonates children and adults Divided into 11 sections the book begins with a general overview of critical care in the perioperative period discussing airway management pain fluid and electrolyte therapy shock arterial blood gas analysis respiratory failure and mechanical ventilation and thromboembolism The following sections cover surgeries in different organ systems and patient groups cardiothoracic and vascular neurosciences paediatrics obstetrics and gynaecology gastrointestinal genitourinary orthopaedics head and neck and transplantation The final section explains selected miscellaneous topics including nutrition haemodynamic monitoring echocardiography renal replacement therapy and antibiotics Compiling 700 pages the comprehensive text is further enhanced by clinical photographs diagrams and tables Key points Comprehensive guide to perioperative critical care in neonates children and adults Covers complex surgeries in all organ systems Includes discussion on imaging airway management and ventilation Highly illustrated with clinical photographs diagrams and tables

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practice *ICU Protocols* Rajesh Chawla, Subhash Todi, 2019-12-31 The second edition of this highly successful book includes up to date notes on the step wise management of clinical emergencies encountered in everyday intensive care units ICU Each thoroughly revised chapter provides concise information for point of care treatment making it a practical guide clinicians can refer to on a daily basis at work or while traveling or just to expand their knowledge Volume 1 of ICU Protocols covers topics in pulmonology cardiology neurology gastroenterology nephrology and infectious diseases The endocrine and metabolic systems oncology trauma toxicology envenomation and thermoregulation obstetrics and perioperative care are covered in the second volume of ICU Protocols This two volume book is a must read for intensivists critical care specialists junior trainees and residents working in ICUs It is also relevant as course material for workshops on critical care and essential for all hospital based libraries This book provides junior trainees with an introduction to the management of problems common to the critical care unit David J Dries Doody's Book Reviews March 2013 for the first edition of ICU Protocols Critical Care Update 2022 Deepak Govil, Rajesh Chandra Mishra, Dhruva Chaudhry, Subhash Todi, 2022-06-30 SECTION 1 Applied Physiology SECTION 2 Infections Sepsis Infection Control SECTION 3 Pulmonology Ventilation SECTION 4 Nephrology Acid Base Fluid Electrolyte SECTION 5 Neurocritical Care SECTION 6 Gastroenterology and Nutrition SECTION 7 Cardiac Critical Care SECTION 8 Endocrine and Metabolism SECTION 9 Trauma Burns SECTION 10 Hemodynamic Monitoring SECTION 11 Peri op and Resuscitation SECTION 12 Toxicology SECTION 13 Hematology Oncology SECTION 14 Transplant Organ Donation SECTION 15 Autoimmune Diseases SECTION 16 Medicolegal and Ethics SECTION 17 Quality ICU organization SECTION 18 Radiology SECTION 19 Present and Future Challenges in ICU Organization and Management SECTION 20 Extracorporeal Membrane Oxygenation and Extracorporeal Cardiopulmonary Support SECTION 21 Data Science and Artificial Intelligence SECTION 22 Research Methodology SECTION 23 COVID 19 Related Issues Temporary Cardiac Pacing: Practical Insights Taha Othmane, 2025-07-26 Temporary Cardiac Pacing Practical Insights is a comprehensive and clinically oriented guide designed to empower healthcare professionals involved in the management of patients requiring temporary cardiac pacing This book bridges the gap between theoretical knowledge and hands on clinical practice offering a step by step exploration of temporary pacing in acute cardiac care settings Structured with clarity and depth the book walks the reader through all essential components from indications patient selection and vascular access techniques to troubleshooting pacing failures and transitioning to permanent solutions The content is rooted in contemporary evidence and shaped by real world clinical experience making it an essential reference for cardiologists internists intensivists electrophysiologists cardiac surgeons and trainees Key Features Comprehensive Stepwise Approach Covers all forms of temporary pacing transvenous transcutaneous and epicardial with clear clinical protocols and procedural tips Essential Decision Flowcharts Features decision making algorithms and clinical flowcharts for rapid bedside reference in acute scenarios such as bradyarrhythmia emergencies or pacing failure Expertly Designed Tables present

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Chakraborty,2021-07-20 This book examines the use of biomedical signal processing EEG EMG and ECG in analyzing and diagnosing various medical conditions particularly diseases related to the heart and brain In combination with machine learning tools and other optimization methods the analysis of biomedical signals greatly benefits the healthcare sector by improving patient outcomes through early reliable detection The discussion of these modalities promotes better understanding analysis and application of biomedical signal processing for specific diseases The major highlights of Biomedical Signal Processing for Healthcare Applications include biomedical signals acquisition of signals pre processing and analysis post processing and classification of the signals and application of analysis and classification for the diagnosis of brain and heart related diseases Emphasis is given to brain and heart signals because incomplete interpretations are made by physicians of these aspects in several situations and these partial interpretations lead to major complications FEATURES Examines modeling and acquisition of biomedical signals of different disorders Discusses CAD based analysis of diagnosis useful for healthcare Includes all important modalities of biomedical signals such as EEG EMG MEG ECG and PCG Includes case studies and research directions including novel approaches used in advanced healthcare systems This book can be used by a wide range of users including students research scholars faculty and practitioners in the field of biomedical engineering and medical image analysis and diagnosis ANESTESIOLOGI DAN TERAPI INTENSIF: BUKU TEKS KATI-PERDATIN N.

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Textbook of Pleural Diseases Ashish Kumar Prakash, Anand Jaiswal, Randeep Guleria, Bornali Datta, 2023-11-23 **Issues in Clinical, Critical, and Intensive**

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