



NEWSLETTER

PAKISTAN SOCIETY OF ANAESTHESIOLOGISTS KARACHI - CHAPTER

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**Pakistan Society of Anaesthesiologists
Karachi - 2012 -2013**

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STOP SEPSIS SAVE LIVES!

EDITOR'S NOTE

Pakistan Society of Anaesthesiologists and Pakistan Society of Critical Care Medicine joined the International Coalition of more than 100 organizations and over 1000 hospitals to support the targets set out in the World Sepsis Declaration and became official supporters of the World Sepsis Day which took place on September 13th 2012.

Knowledge of this life threatening disease is important for all health care professionals in order to slow and ultimately reverse the recently witnessed worldwide growth in the number of deaths from sepsis. Anaesthesiologists deal with critically ill patients in sepsis undergoing source control procedures and can play a role in preventing sepsis in patients with comorbidities like diabetes, chronic liver or kidney diseases and immunosuppression, undergoing extensive surgical procedures.

It is my honour to dedicate this issue of the PSA newsletter to "Sepsis Awareness" and contribute in advancing sepsis understanding and recognizing sepsis as a medical emergency.

Dr Madiha Hashmi

Editor, PSA News Letter

FIRST WORLD SEPSIS DAY- SEPTEMBER 13TH 2012

Sepsis causes more deaths worldwide per year than prostate cancer, breast cancer and HIV/AIDS combined. Hospitalization rates for sepsis have overtaken those for myocardial infarction in the US where sepsis was increasing by an annual rate of between 8-13 % over the last decade. Reasons are diverse, and include the aging population, increasing use of high-risk interventions in all age groups, and the development of drug-resistant and more virulent varieties of infections. In the developing world malnutrition, poverty, lack of access to vaccines and timely treatment all contribute to death.

Sepsis mortality can be reduced considerably through the adoption of strategies to prevent sepsis, early recognition systems and standardized emergency treatment.



Vaccination



Hand hygiene



Clean Delivery



Sanitation

Following targets are set out in the World Sepsis Declaration to reduce the incidence of sepsis globally.

1. **Prevention:** By 2020 the incidence of sepsis will have decreased by at least 20% by promoting practices of good general hygiene and hand washing, clean deliveries, improvements in sanitation, nutrition and delivery of clean water and through vaccination programs for at risk patient populations in resource poor areas.



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UPCOMING CONFERENCES / MEETINGS / SYMPOSIUMS

Annual National Conference of Anaesthesia, Intensive Care, Pain & PACTA

December 7-8, 2012
Multan, Pakistan

11th Annual Pain Medicine Meeting

November 15-19, 2012
Miami, FL

6th Middle East Anaesthesia Conference

January 28-31, 2013
Dubai

10th Congress of SAARC Association of Anaesthesiologist

February 22-24, 2013
Dhaka, Bangladesh

3rd World Congress of Regional Anaesthesia & Pain Therapy

February 3-7, 2013
Sydney

31st Conference for Pain Management and Palliative Care in Developing Countries

February 7-9, 2013, Cairo, Egypt

NORTHWEST ANESTHESIA SEMINARS

Continuing Education for Medical
professional
<http://www.nwas.com/full-schedule.html>

Reviews in Anesthesia Practice

Port Maria, Jamaica
November 25-30, 2012

Anesthesia Update

Miami, Florida
December 6-9, 2012

Topics in Anesthesia

7-Day Eastern Caribbean Cruise
Round-trip Ft. Lauderdale, Florida
December 15-22, 2012

Current Anesthesia Practice

New Orleans, Louisiana
March 9-16, 2013

Ultrasound Guided Regional for Pain Management Workshop

Charlotte, north carolina
APRIL 20-21, 2013

Clinical Concerns in Anaesthesia

Alaskan
June 16-23, 2013

2. **Survival:** By 2020 sustainable delivery systems will be in place to ensure that effective sepsis control programs are available in all countries.
3. **Awareness:** By 2020, sepsis will have become a household word and synonymous with the need for emergent intervention. Recognition of sepsis by health professionals as a common complication of high risk medical interventions will have significantly improved and the training on sepsis as a medical emergency will have been included in all relevant undergraduate and postgraduate curricula.
4. **Rehabilitation:** By 2020, all member countries will have set standards and established resources for the provision of follow up care following discharge from hospitals of patients who have suffered sepsis.
5. **Sepsis registries:** By 2020 the measurement of the global burden of sepsis and the impact of sepsis control and management interventions will have improved significantly and all member countries will have established voluntary or mandated sepsis registries which are consistent with and complementary to the data requirements of the international community, helping to establish sepsis as a common health problem.

Prof. Dr. Konrad Reinhart

Chairman Global Sepsis Alliance, Germany

SEPSIS OVERVIEW

Since the discovery of antimicrobial medicines more than six decades ago, there has been great optimism about conquering infectious diseases. Despite many notable successes like syphilis, tuberculosis and vaccine preventable diseases, sepsis remains one of the leading causes of death, accounting for 23% and 36% of deaths according to one study (1). In many circumstances, patients with other underlying diseases (eg diabetes, cancer, heart and lung disease) will also succumb to sepsis. Sepsis is often the result of bacterial infection, though other infections (fungi, viruses and others) may contribute to this process.

Amongst treatment strategies, appropriate and timely intervention is crucial. A number of studies have shown the positive impact of appropriate timing and choice of antibiotics used. To reach this goal, it is crucial to have an in depth knowledge of typical disease pathogens and their sensitivity profiles in the community; this is especially true in today's world where resistance to bacteria is an ever evolving phenomenon. Knowledge, situation-appropriate usage and suitable combinations of available antimicrobial agents can have an impact on survival.

A number of adjunctive measures have been tried and have not been shown to be of value, including anti-tumour necrosis factor, platelet activation factor, gram negative anti-endotoxin and most recently, activated protein C. On the other hand, judicious and timely use of fluid resuscitation and steroids (where steroid deficiency is suspected) may play an important role, especially when used in the early course of sepsis. Other strategies like vaccination, awareness and appropriate use of antibiotics in the community can also contribute to reducing mortality from this condition.

Reference:

1. Emergency Med Australasia, 2007; 19:213-217

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PERIOPERATIVE SEPSIS

Sepsis after major surgery is common in patients admitted to intensive care units. It is fast becoming the most common cause of mortality in surgical ICU. The suppression of the immune system after surgery predisposes the patients to develop sepsis. The post-surgical immunosuppression may be related to the direct effects of anaesthetic drugs, hormonal changes related to stress, effects of haemorrhage and transfusion, occurrence of ischaemia-reperfusion, and extent of surgical trauma. The underlying illness, comorbidity, and factors like age or gender also play a pivotal role in modulating the immune system.

Making the diagnosis of sepsis is critically important for both timely and appropriate therapy. The diagnosis must be based on suspicion of the source and type of infection. Cultures should be taken from every suspected source, and diagnostic studies i.e. x-rays, CT scan, lumbar puncture etc. should be performed to identify the source and causative organism.

Empiric antibiotic therapy based on the suspected source of infection and on local organism resistance patterns should be started as early as possible, and always within the first hour of recognizing severe sepsis and septic shock along with source control measures (i.e. abscess drainage, tissue debridement). Exception is infected pancreatic necrosis, where surgical intervention is best delayed.

Management of sepsis involves immediate fluid resuscitation of patients presenting with hypotension or elevated serum Lactate with approximately 20 ml/kg of isotonic crystalloid, followed by boluses of up to 1000 ml of crystalloid or 500 ml of Colloid given over 30 minutes. The resuscitation goals to be achieved in the first 6 hours are, a CVP of 8-12 mm Hg, MAP of 65mmHg, urine output 0.5 ml/kg/hour, central venous (superior vena cava) oxygen saturation 70%, or mixed venous oxygen saturation 65%. If venous O₂ saturation target is not achieved, more fluid, transfusion of packed red blood cells to keep a haematocrit of 30% and/or dobutamine infusion (max 20 µg/kg/min) should be considered.

Norepinephrine is the first choice of vasopressor and epinephrine is added or substituted, when an additional drug is needed to maintain adequate blood pressure. Vasopressin may be added or substituted for norepinephrine while dopamine is suggested as an alternative vasopressor, but only in highly selected patients at very low risk of arrhythmias. Dobutamine infusion may be added to a vasopressor in myocardial dysfunction or on-going signs of hypoperfusion. Low-dose dopamine is not recommended for renal protection. Intravenous hydrocortisone 200mg/day should be considered when hypotension responds poorly to adequate fluid resuscitation and vasopressors.

For patients with ARDS due to severe sepsis, protective lung ventilation should be practiced. Non-invasive ventilation may be considered for mild to moderate hypoxemic respiratory failure provided the patient is haemodynamically stable, comfortable, arousable, can protect and clear airway and is expected to recover rapidly.

In the intensive care unit, sedation protocols are recommended along with daily interruption of sedation and re-titration if necessary. Use of neuromuscular blocking drugs should be avoided and the depth of blockade monitored with train-of-four if their use is unavoidable. Glucose levels should be maintained between 150-200 mg/dl range by using protocols for intravenous insulin infusion. Enteral nutrition is preferred over parenteral nutrition, unless contraindicated. Benefits of prevention of upper GI bleed must be weighed against the potential for development of ventilator-acquired pneumonia. Low-dose unfractionated heparin (UFH) or LMWH is used for DVT prophylaxis and compression stockings or intermittent compression device are used when heparin is contraindicated.

For patients with multiple organ failure, and a poor prognosis consideration should be given to limit support, after discussion with the patients and their families.

To conclude, the goal of anaesthetist in the perioperative management of patients with sepsis has always been to facilitate surgery for patient from hospital wards and to provide supportive care in ICU. Awareness of patient's pre-anaesthetic hemodynamic status and anticipation of drug side effects, monitoring physiological variables and measures to stabilize patients prior to anaesthesia will help to reduce the risk of perioperative complications.

Dr Sadqa Aftab

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SEVERE SEPSIS BUNDLES

The "Severe Sepsis Bundles" are a series of therapies that, when implemented together, achieve better outcomes than when implemented individually.

SEPSIS RESUSCITATION BUNDLE

The resuscitation bundle must be completed within 6 hours for patients with severe sepsis, septic shock and/or lactate >4 mmol/L (36 mg/dL).

Bundle Element 1 : Measure serum lactate

Bundle Element 2 : Obtain blood cultures prior to antibiotic administration provided this does not significantly delay antimicrobial administration.

Bundle Element 3: Broad-spectrum antibiotic within the first hour of recognizing severe sepsis and septic shock

Bundle Element 4: Treat hypotension and/or elevated lactate with fluids:

1. Deliver an initial minimum of 20 mL kg of crystalloid or an equivalent of colloid
2. Administer vasopressors for hypotension not responding to initial fluid resuscitation to maintain mean arterial pressure (MAP) >65 mm Hg.

Bundle Element 5 : In the event of persistent hypotension despite fluid resuscitation (septic shock) and/or lactate >4 mmol/L maintain adequate central venous pressure and central venous oxygen saturation:

1. Achieve a central venous pressure (CVP) of >8 mm Hg or $=12$ mmHg if mechanically ventilated).
2. Achieve a central venous oxygen saturation (ScvO₂) $>70\%$ or mixed venous oxygen saturation (SvO₂) $>65\%$

SEPSIS MANAGEMENT BUNDLE

Evidence-based goals that must be completed within 24 hours for patients with severe sepsis, septic shock and/or lactate >4 mmol/L (36 mg/dl).

Bundle Element 1: Administer low-dose steroids for septic shock in accordance with a standardized ICU policy. If not administered, document why the patient did not qualify for low-dose steroids based upon the standardized protocol.

Bundle Element 2: Maintain adequate glycemic control.

Bundle Element 3: Prevent excessive inspiratory plateau pressures on mechanically ventilated patients.

“SEPSIS SYMPOSIUM” THE FIRST WORLD SEPSIS DAY

