About OMICS Group

OMICS Group is an amalgamation of Open Access publications and worldwide international science conferences and events. Established in the year 2007 with the sole aim of making the information on Sciences and technology 'Open Access', OMICS Group publishes 500 online open access scholarly journals in all aspects of Science, Engineering, Management and Technology journals. OMICS Group has been instrumental in taking the knowledge on Science & technology to the doorsteps of ordinary men and women. Research Scholars, Students, Libraries, Educational Institutions, Research centers and the industry are main stakeholders that benefitted greatly from this knowledge dissemination. OMICS Group also organizes 500 International conferences annually across the globe, where knowledge transfer takes place through debates, round table discussions, poster presentations, workshops, symposia and exhibitions.

About OMICS International Conferences

OMICS International is a pioneer and leading science event organizer, which publishes around 500 open access journals and conducts over 500 Medical, Clinical, Engineering, Life Sciences, Pharma scientific conferences all over the globe annually with the support of more than 1000 scientific associations and 30,000 editorial board members and 3.5 million followers to its credit.

OMICS Group has organized 500 conferences, workshops and national symposiums across the major cities including San Francisco, Las Vegas, San Antonio, Omaha, Orlando, Raleigh, Santa Clara, Chicago, Philadelphia, Baltimore, United Kingdom, Valencia, Dubai, Beijing, Hyderabad, Bengaluru and Mumbai.

Experience with IgM-enriched immunoglobulins as adjuvant therapy in septic patient after redo cardiac surgery

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Dedinje Cardiovascular Institute, Belgrade University School of Medicine, Serbia

Background

- Severe sepsis and septic shock in cardiac surgery are associated with substantial mortality, particularly in elderly and critically ill patients[1]
- Eradication of infection with appropriate antibiotics and source control, aggressive supportive care and adequate central venous oxygen saturation are early goal-directed therapy[2]

[1] Manship L, McMillin RD, Brown JJ. The influence of sepsis and multisystem organ failure on mortality in the surgical intensive care unit. *Am Surg* 1984; 50:94-101.
[2] Sharma VK, Dellinger RP. Treatment options for severe sepsis and septic shock. *Expert Rev Anti Infect Ther* 2006; 4(3):395-403.

Background *(cont')*

- Attempts to modulate the inflammatory response in sepsis is often required,[3] but it is generally unsuccessful and under the broad debate at the current time[4-5]
- Therapies that improve host immunity showed promising findings in sepsis[5] but in past 20 years it is still on the level of preclinical investigations and clinical trials[4]



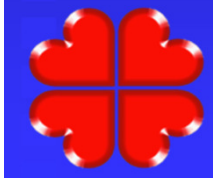
[3] Bone RC, Balk RA, Cerra FB, et al. Definitions for sepsis and organ failure and guidelines for the use of innovative therapies in sepsis. The ACCP/SCCM Consensus Conference Committee. *Chest* 1992; 101:1644-1655.
[4] van der Poll T. Immunotherapy in sepsis. *Lancet Infect Dis* 2001; 1(3):165-174.
[5] Hotchkins RS, Monneret G, Payen D. Immunosuppression in sepsis: a novel understanding of the disorder and new therapeutic approach. *Lancet Infect Dis* 2013; 13(3):260-268.

Aim

The purpose of this paper was to describe the efficacy of:

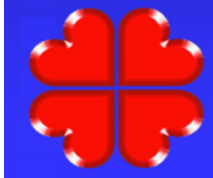
- early-goal directed therapy along with
- immunoadjuvant therapy, IgM-enriched immunoglobulin (Pentaglobin)

  in Gram-negative bacterial sepsis



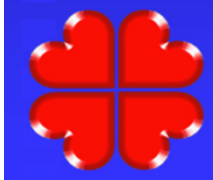
Case history

- Patient: A 63-year-old male was admitted to the tertiary care institution for
  - elective by-pass (CABG) and
  - Mitral valve plastic (MVP) procedure
- Preoperative assessment and transoesophageal echocardiography (TEE) showed mitral valve insufficiency (MVI) grade III with low left ventricular ejection fraction (LVEF<15%)



Patient and primo-operation

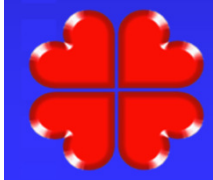
- MVP and coronary artery triple bypass grafting was performed without any complication in high risk patient
- After ten days patient was readmitted to the intensive care unit (ICU) due to
  - cardiorespiratory failure and
  - *de novo* MVI grade III
  - suspected vegetations on mitral valve ring





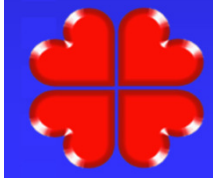
Patient and redo-operation

- The redo MVR procedure has been performed on the 14th postoperative day (POD)
- Infective endocarditis was confirmed by isolated *Pseudomonas aeruginosa* from the mitral valve ring
- Bacterial severe sepsis was diagnosed by blood culture taken later on



Sepsis diagnosis

- The severity of sepsis was evaluated by clinical conditions,[1,3] laboratory features and hemodynamic data
- The daily Sequential Organ Failure Assessment (SOFA) score and Acute Physiology and Chronic Health Evaluation (APACHE) II score were calculated for estimation of illness severity during patient's stay in the ICU[4-5]



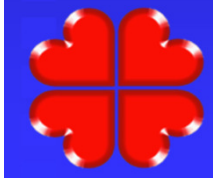
Blood samples

- Blood samples were collected at 5AM every day for biochemical measurements
- Hematological parameters
  - Basic parameters (WBC, RBC, etc.)
- Inflammatory biomarkers:
  - Interleukin (IL)-6
  - high sensitivity C-reactive protein (hsCRP)
  - Procalcitonin (PCT)
  - Mid-region proadrenomedullin (MRproADM)



Pentaglobin - indications

- One day after the reoperation, based on the grave clinical status and hemodynamic data, on findings of proinflammatory cytokines, and other biomarkers, severe sepsis was identified and Pentaglobin was administered



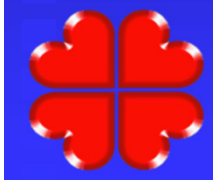


Pentaglobin (Biotest, Germany) was introduced into clinical use during 1990s with relative composition of 76% IgG, 12% IgA and 12% IgM[6]

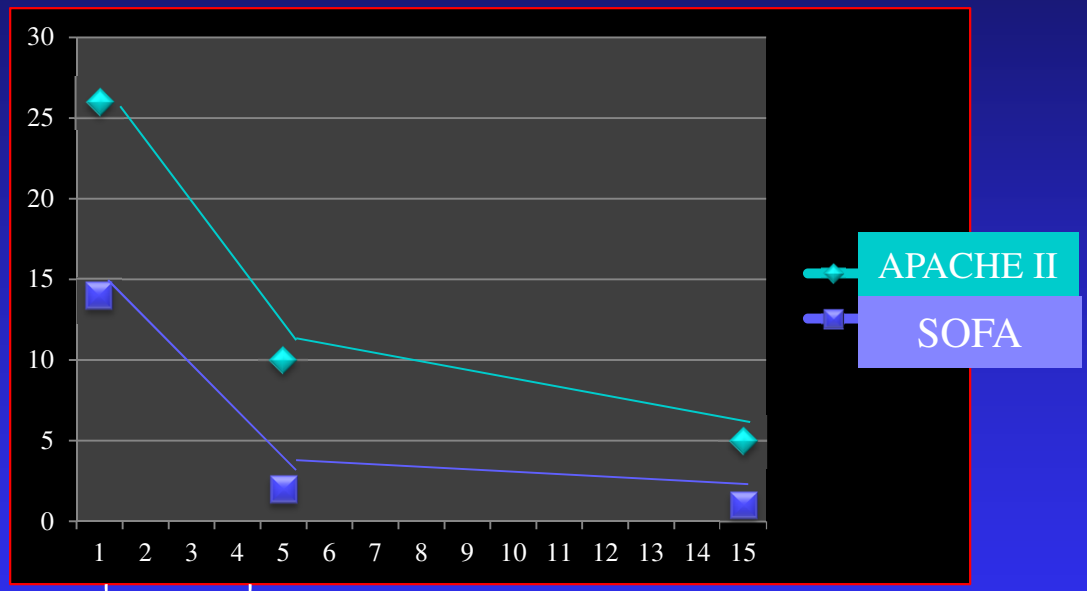
[6]Molnar Z, Nirhaus A. Esen F. Immunoglobulins in Sepsis: Which patients will benefit the most? http://link.springer.com/chapter/10.1007/978-3-642-35109-9-12

Anaestesiological score systems

- Clinical assessment was based on the APACHE II and SOFA score.
- APACHE II was 26 and SOFA score was 14 on the 0-POD and three days later the APACHE II was 10 and SOFA was 2.
- Finally on the last day of the patient's stay in the ICU (14-POD), the APACHE II was 5 and SOFA was 1 owing to adequate antibiotic and adjunctive therapy.

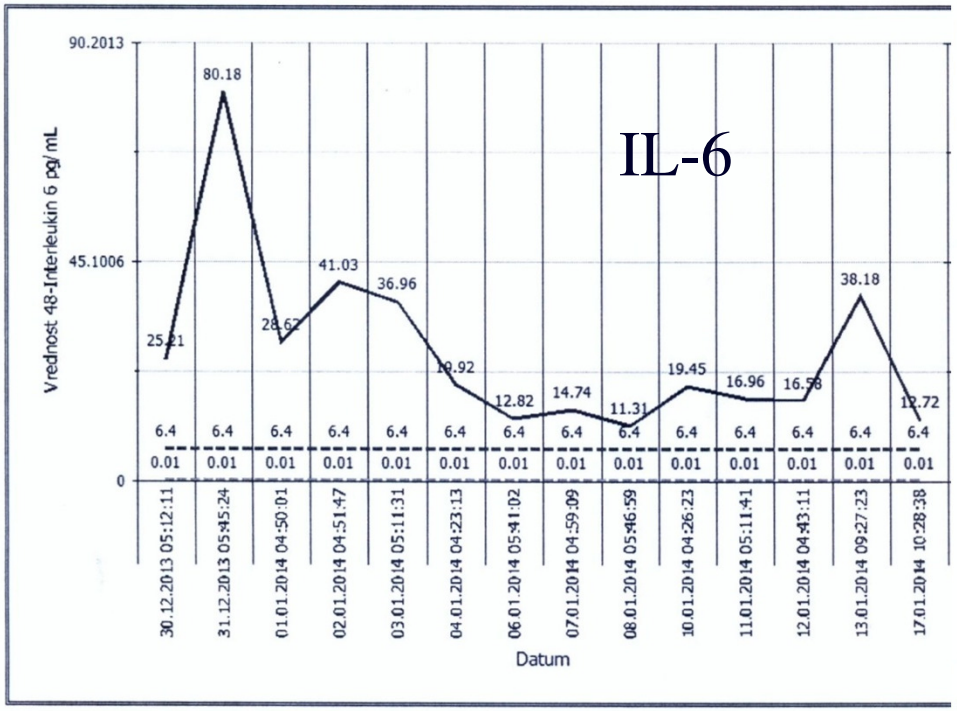


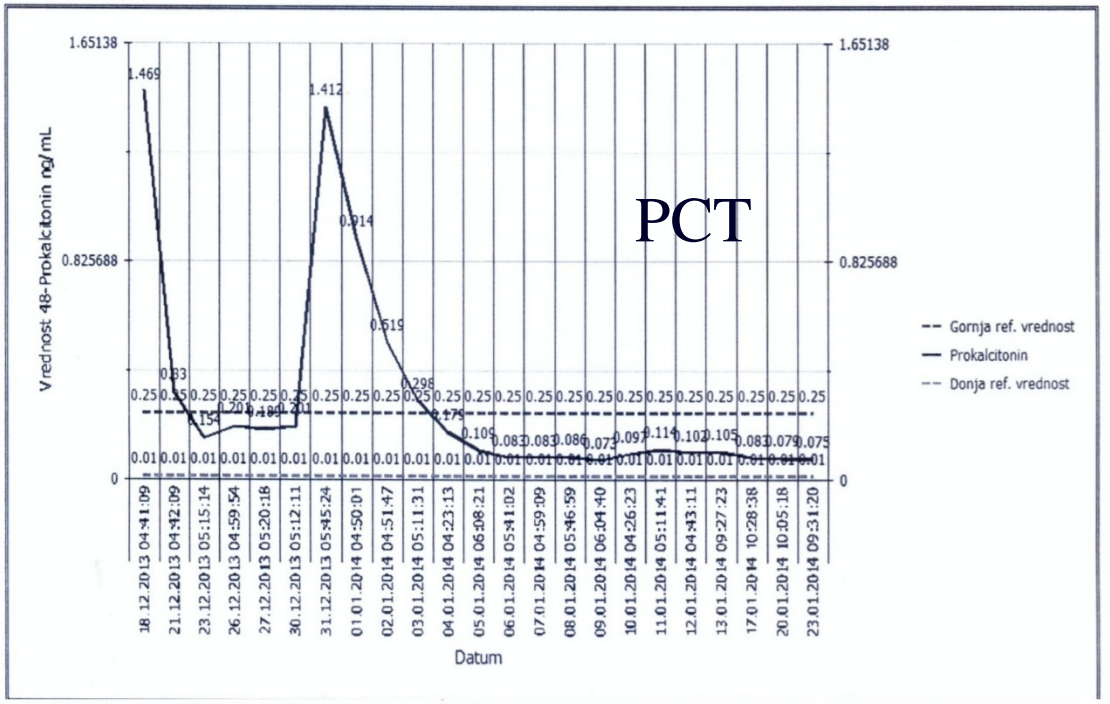
APACHE II and SOFAscore

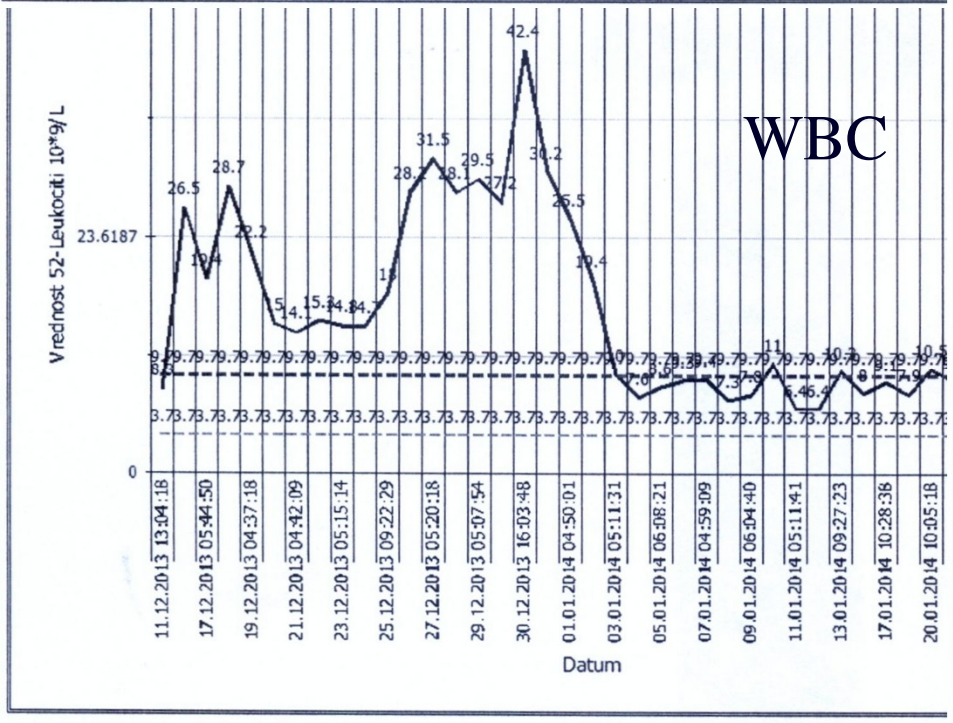


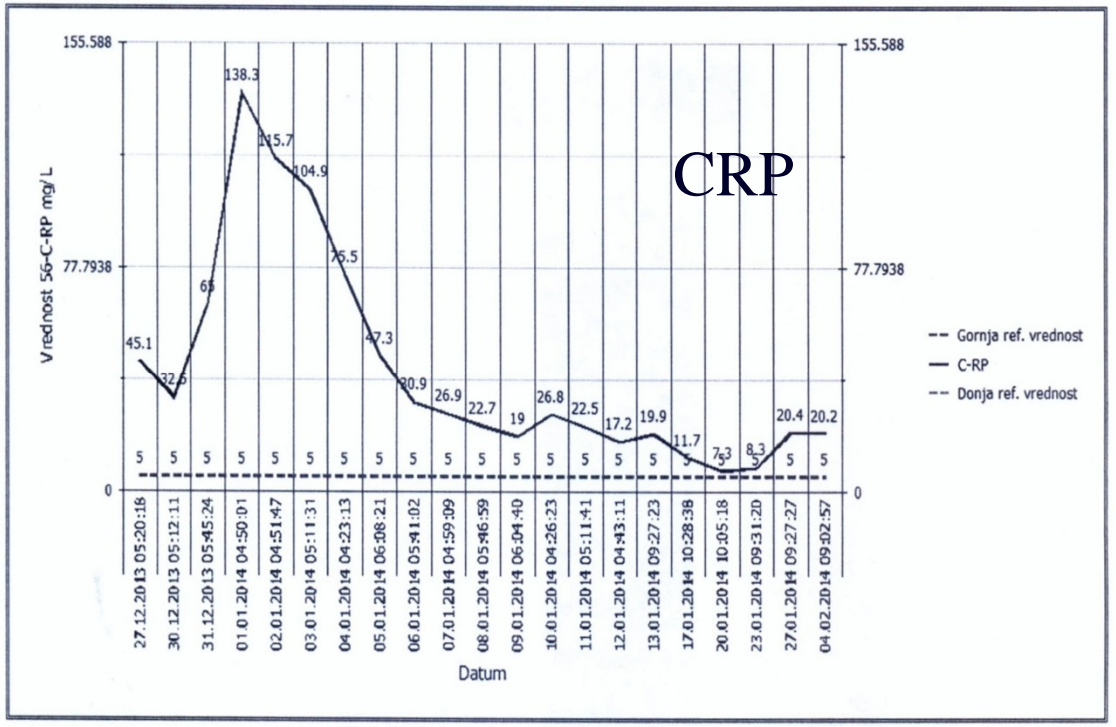
Pentaglobin

Redo MVR


IL-6
Vrednost 48-Interleukin 6 pg/mL
90.2013
45.1006
0
Datum


PCT
Vrednost 48-Prokalcitonin ng/mL
1.65138
0.825688
0
Datum
Gornja ref. vrednost
Prokalcitonin
Donja ref. vrednost


WBC
Vrednost 52-Leukociti 10*9/L
23.6187
0
Datum


CRP
Vrednost 56-C-RP mg/L
155.588
77.7938
0
Datum
Gornja ref. vrednost
C-RP
Donja ref. vrednost

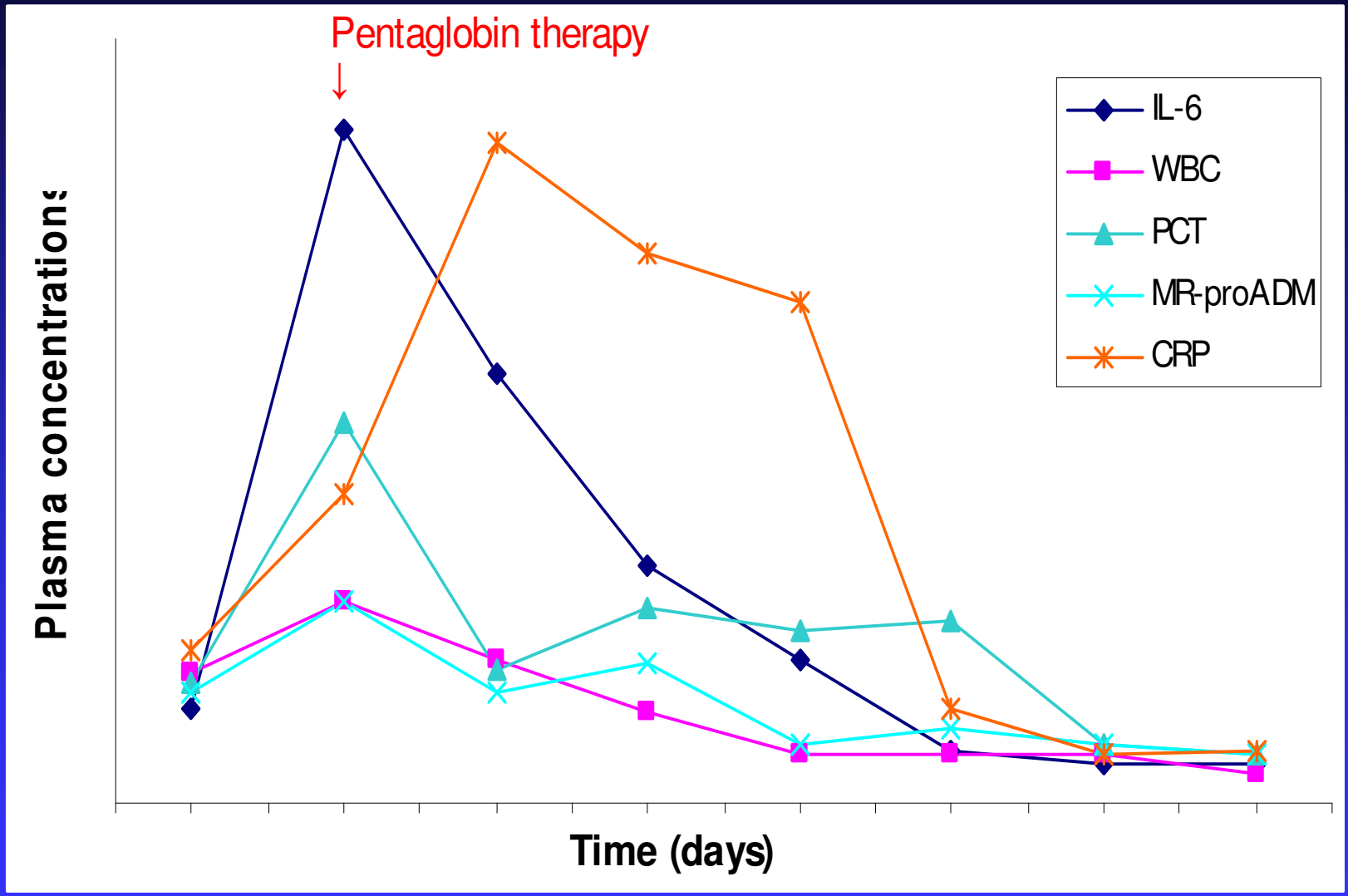
Pentaglobin - dosing

- The first two and a half hours continuous infusion of 40 ml (0.4 ml/kg body weight/hour)
- followed by 20 ml (0.2 ml/kg body weight/hour)
- until total doses of the 1500 ml (15 ml/kg body weight) in 72 hours has been infused[6]

Results: Table 1-hemodinamics

Hemodynamic Values	0-POD		1-POD	2-POD	3-POD	4-POD
	Before redo surgery	After redo surgery	Th start	Th administration		Th stop
CI (L/min/m^2)	1.9	3.6	3.7	3.6	3	3.1
MAP (mmHg)	58	81	62	72	75	82
PCWP (mmHg)	17	12	14	12	16	20
CVP (mmHg)	8	10	9	10	10	12
SVR (dyn·s/cm^5)	887	684	570	680	704	844
PVR (dyn·s/cm^5)	85	102	65	102	69	89
SvO2 (%)	59.3	72	77	74.8	71.5	70
Epinephrine * (µg/kg/min)	na	6.4	4.0	1.6	0.8	na
Norepinephrine ** (µg/kg/min)	na	12.8	8.0	3.2	na	na
Hemodynamic Drugs	* 1 mg in 20 ml solution 0,9% NaCl			** 2 mg in 20 ml solution 0,9% NaCl		

Response to Pentaglobin therapy upon bacterial infection/sepsis with *Pseudomonas aeruginosa* over time



Legend: IL-6, interleukin-6 (pg/mL); CRP, C-reactive protein (mg/L); MR-proADM, midregion pro-adrenomedullin (nmol/L); PCT, procalcitonin (ng/mL);WBC, white blood cells (mcL^{-1}).

Discussion



CABGx3+MVP

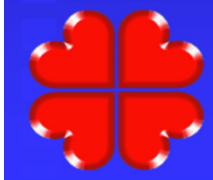
Redo MVR



Sepsis 8 ooo $

Conclusion

- The clinical* improvement evaluated through disease severity scores, hemodynamic features and laboratory data are the evidence of successfully administered adjuvant therapy
- The obtained results give contribution to further research in treatment of sepsis with Pentaglobin therapy despite limitations in its administration due to high costs



Severe Sepsis

A Significant, But Manageable Healthcare Challenge

How big of a problem is sepsis?

- Sepsis is the leading cause of death in non-coronary ICU (US)[1]
- Sepsis is the 10th leading cause of death overall (US)[2]
- More than 750,000 cases of severe sepsis are reported in the US annually[3]

How does severe sepsis compare with our current care priorities?

Quality Projects	US Incidence	Number of Deaths	Mortality Rate	US Annual Spend
AMI[4-5]	920,000	156,816	17%	$16.6B
Stroke[4]	780,000	150,074	19%	$51B
Pneumonia[6-7]	1,400,000	58,564	4%	$10B
Severe Sepsis[3]	751,000	215,000	29%-38%	$16.7B

[7] Rivers *et al*. Curr Opin Anesthesiol 2008;21:128-140

Did you know?

Cost of life

TIME

The Value of a Human Life: $129,000

By Kathleen Kingsbury Tuesday, May 20, 2008



In theory, a year of human life is priceless. In reality, it's worth $50,000.
That's the international standard most private and government-run health insurance plans worldwide use to determine whether to cover a new medical procedure. More simply, insurance companies calculate that to make a treatment worth its cost, it must guarantee one year of "quality life" for $50,000 or less.
New research, however, would argue that that figure is far too low.

Follow @TIME

Important notes

- 30.12.2013 redoMVR
- 31.12.2013 Pentaglobin start
- 03.01.2014 Pentaglobin stop
- 11.12.2013-04.02.2014 hospital stay (66 days)
- 17.12.2013 primoOP
- 10 days in ICU
- 21 days in ICU (31 days)

Putting A Price On Human Life

How much is a human life worth? It's a question very few of us have had to answer.



Dr. Devi Shetty, an India-based cardiac surgeon and humanitarian, offers world-leading heart surgeries at a fraction of what it costs in America. Can the U.S. health care system learn a thing or two from Dr. Shetty?

But for Dr. Devi Shetty, a cardiovascular surgeon and founder of 14 heart hospitals in India, this question is part of his daily job.

I recently had the privilege of spending three days with Dr. Shetty and accompanying him to the Stanford Graduate School of Business where he gave an inspiring talk called "Putting a Price on Human Life."

Attendees listened to one of the world's most brilliant strategic thinkers describe his approach to making the world a better place.

It all starts inside his 14 hospitals, where physicians are so skilled and efficient, they can perform complex life-saving heart surgeries at $1,800 a case. And they can do so with results equal to the best hospitals in the United States.

But he isn't satisfied. He is driven to lower the cost of heart surgery to $800 a case by 2020. Why?

For him, it's never about earning more money. It's about raising the value of human life.

Thanks' for your kind attention!!!!!!



Let Us Meet Again

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