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Thirteenth Annual Conference on Shock: A Review

Sherwood M. Reichard

Medical College of Georgia  
Shock Society  
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Grant No:  
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The Shock Society presented the Thirteenth Annual Conference on Shock during June 8-11, 1990, in Durango, Colorado. The meeting was attended by about 400 clinical and basic scientists representing numerous biomedical disciplines and clinical specialty areas: a common denominator was a shared major interest in some aspect(s) of shock and trauma research. The scientific program comprised over 200 presentations constituting three major symposia, three minisymposia, a young investigator's competition, three workshops, and eleven thematic poster sessions. Emphasis was placed on currently emerging concepts concerning the pathogenesis and management of circulatory shock, sepsis, trauma, ischemia, inflammation, and their multifaceted interactions. The majestic southern Rocky Mountains were nearby for viewing and excursion. These observations indicate that the scientific presentations, attendance, audience discussions-debates, and venue for the Thirteenth Annual Conference on Shock were of exceptional quality, and successfully continued the long-standing tradition of scientific excellence promulgated by the Shock Society.

Shock Society; Biomedical disciplines; Clinical Specialty; Shock;  
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# Thirteenth Annual Conference on Shock: A Review

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The Shock Society presented the Thirteenth Annual Conference on Shock during June 8-11, 1990, in Durango, Colorado. The meeting was attended by about 400 clinical and basic scientists representing numerous biomedical disciplines and clinical specialty areas; a common denominator was a shared major interest in some aspect(s) of shock and trauma research. The scientific program comprised over 200 presentations constituting three major symposia, three minisymposia, a young investigators' competition, three workshops, and eleven thematic poster sessions. Emphasis was placed on currently emerging concepts concerning the pathogenesis and management of circulatory shock, sepsis, trauma, ischemia, inflammation, and their multifaceted interactions. The majestic southern Rocky Mountains were nearby for viewing and excursion. These observations indicate that the scientific presentations, attendance, audience discussions-debates, and venue for the Thirteenth Annual Conference on Shock were of exceptional quality, and successfully continued the long-standing tradition of scientific excellence promulgated by the Shock Society.

**Key words:** Shock Society, biomedical disciplines, clinical specialty, shock, trauma research.

## INTRODUCTION

Beginning in 1978, the Shock Society has presented annual meetings focused on circulatory shock and interrelated aspects of trauma and ischemia. The Thirteenth Annual Conference on Shock was held during June 8-11, 1990 in Durango, Colorado. This geographic region of southwestern Colorado contains portions of the majestic southern Rocky Mountains with their steep gorges and roaring rivers. A major anthropologic feature of this region is the presence of numerous "cliff dwellings," the remaining domicile ruins from the ancient culture of the Anasazi peoples. These elements ensured that the venue for this meeting complied with a comfortable environment promotive of vigorous and critical interchange throughout the meeting's scientific program.

The members of the Scientific Program Committee were Drs. Donald E. Fry, John W. Holaday, and H. Richard Adams (Chair). "ex-officio" members included Drs. Irshad H. Chaudry, James P. Filkins, Ronald V. Maier, James A. Cook, Sherwood Reichard, and John J. Spitzer. The committee wishes to gratefully acknowledge input to the scientific program from the membership, the Scientific Council, and the officers of the Shock Society.

A record number of abstracts was submitted by members and non-members, and 191 abstracts were selected either for oral presentation in the minisymposium format or for one of the eleven poster sessions. In addition, the meetings' program also contained three major symposia, three workshops, and a young investigators' competition.

The meetings were attended by about 400 investigators with diverse areas of experience and scientific interests in different aspects of shock and trauma. These included basic scientists representing expertise in physiology, pharmacology, immunology, biochemistry, molecular biology, and pathology; along with clinical scientists from the specialties of anesthesiology, surgery, emergency and critical care medicine, internal medicine, and various other disciplines. The background diversity and leading expertise of these individuals provided a critical audience for the scientific presentations.

## SCIENTIFIC PROGRAM

### Symposia

The lead-off symposium for this conference was entitled "Molecular Mechanisms in Sepsis and Shock Pathogenesis"; the speakers were Drs. James P. Filkins, Kevin Tracy, Anders Waage, Richard Ulevitch, and Bruce Beutler. This symposium focused on the emerging role of molecular biology in discovering the pathogenic mechanisms of mediators involved in sepsis and endotoxemia. Special emphasis was placed on the rapidly expanding information about the mediator and putative mediator roles of cytokines such as tumor necrosis factor, interleukins, and other immunomodulatory peptides. The hypothesis was advanced that pathophysiologic cascades in sepsis and endotoxemia could be likened to an uncontrolled "explosion" of the immune system, with the "falling domino" overproduction of immunopetitive agents leading to host cell injury. The importance of a blood-borne lipopolysaccharide binding protein to host cell recognition of endotoxin was included in this session. Dr. Filkins set-the-stage for this symposium in his introductory presentation which provided an interesting historical perspective on the discovery of the interfaces between endotoxin and cytokines. This symposium was co-chaired by Drs. Bruce Beutler and James P. Filkins.

The second symposium was "Host Defense Abnormalities After Hemorrhage, Trauma, and Burns," and it was chaired by Dr. Edward Abraham; speakers were Drs. Christopher Baker, Joseph S. Solomkin, John Hansbrough, Douglas R. Green, and Edward Abraham. These speakers provided a comprehensive series of papers emphasizing cellular level immunomodulatory events during shock and trauma; special emphasis was placed on T cell and B cell functions, T cell-B cell communications, and polymorphonuclear leukocyte reactions. Experimental aspects and clinical management problems were considered relative to sepsis, hemorrhage, thermal trauma, and multiorgan failure syndrome. This symposium continued the theme of immune system involvement in acute injury pathogenesis.

"Endocrine and Cytokine Correlates of Endotoxemia and Circulatory Shock" was the title of the third symposium. This session was co-chaired by Drs. John Holaday and Judy Spitzer and it was sponsored individually by the Roertg Division of Pfizer Pharmaceuticals. Bi-directional communication or "cross-talk" between the endocrine and immune systems represents an important developing concept in shock

research. Macrophage-hepatocyte interactions during endotoxemia and sepsis were addressed, along with the role of leukocyte-derived POMC peptides in such syndromes. In addition, clinical manifestations of endocrine disorders and their associated mechanisms in septicemic patients were modeled. Speakers in this symposium were Drs. John Holaday, Deborah Harbour, Frank Cerra, Judy Spitzer, and Greg Stanford.

### **Young Investigators' Awards**

Continuing a well-respected tradition of the Society, a Young Investigators' Award program was held with four oral presentations. The four finalists were selected from an extremely competitive group of applicant abstracts, and the finalists were Drs. Wolfgang Ertel, Jose M. Fulco, J. Geisel, and Gregory C. Zenni. The winner of this award was Dr. Ertel who presented an excellent talk on "Interferon-Administration in vivo Following Hemorrhagic Shock Restores Macrophage Antigen Presentation and the Processes Associated With It." Co-authors of this award were Drs. M. H. Morrison, A. Ayala, M. M. Perrin, and I. H. Chaudry.

The difficult job of selecting the four Young Investigator finalists and overseeing their presentations is the responsibility of the Awards and Honors Committee. This committee was chaired by Dr. James A. Cook and additional members were Drs. Tracy K. McIntosh, Steven A. Gould, J. Raymond Fletcher, and John J. Spitzer. Appreciation goes to the members of this committee for the time and effort they placed in this important responsibility.

### **Minisymposia and Poster Sessions**

Three different minisymposia were constructed from submitted abstracts that best fit selected themes and topics; these were all oral presentations.

The first minisymposium focused on the "Cell Biology of Shock/Trauma" and was presided over by Drs. Benjamin Trump and James A. Cook. This session comprised a very comprehensive series of presentations on cellular and molecular mechanisms of shock, ischemia, and trauma pathogenesis. Topics and speakers were transmembrane signalling mechanisms and  $Ca^{2+}$  (Trump), gene expression after sepsis (Schumer) and cardiogenic shock (Buchman), ischemia-reperfusion (Lemasters), hemorrhage and transfusion (Mayer), hypothermic injury (Das), cytokines in plasma (Ayala), skeletal muscle proteases (Bhattacharyya), and lipid A stimulated macrophage GTPase (Coffee).

The second minisymposium addressed "Vascular Endothelium and Endothelial-Derived Factors In and Out of Shock", co-chaired by Drs. John T. Flynn and Michael Sturek. This series of abstracts addressed numerous components of endothelial biology including endothelial-derived vasoactive agents, endothelial interactions with blood cell elements in sepsis and trauma, ischemia-reperfusion in the heart, and basic  $Ca^{2+}$  regulatory processes in vascular endothelium. Speakers were Drs. John T. Flynn, Paula M. Renzi, Robert G. Holman, Phyllis Kutsky, Philip S. Tsao, Heinz Redl, Toshiaki Iba, Jon C. Walsh, and Michael Sturek.

"Platelet Activating Factor and Lipid-Derived Modulators in Cardiovascular Disorders" was the title of the third minisymposium; this program was co-chaired by Drs. J. Raymond Fletcher and Gerald Bottoms. These presentations focused on different aspects of eicosanoids and other lipid-derived mediators in shock and trauma, and included the following topics and speakers: PAF (Fletcher), PAF antagonist molecules (Karasawa, Haglund), PAF and TNF (Feuerstein), linolenic acid

and TNF production (Morris), thromboxane mimetics (Tempel), and leukotrienes (Pfeifer). This session added new dimensions to the rapidly growing theme of important interactions between different organ systems and different lipid-derived mediators in trauma and circulatory shock.

Each day of the conference was opened at 7:00 AM by the poster sessions, which reflected a myriad of current topics important to circulatory shock and its affiliated fields. These sessions included 165 abstracts grouped into eleven categories according to relatedness of topics, and encompassed: animal models, cardiodynamics, metabolic changes, cytokines, reactive oxygen species, endotoxin and sepsis pathogenesis, hemorrhage, vascular reactivity, therapy, resuscitation, and clinical studies. The poster sessions were extremely well attended and portrayed much of what is new in shock research.

### **Workshops**

Two of the workshops focused on experimental issues in research, while the third addressed the critically important role of "Extramural Funding of Shock/Trauma Research." The latter was chaired and introduced by Shock Society Past-President Dr. John J. Spitzer, who deserves accolades for organizing a cadre of the nation's key science advisors and administrators of funding institutes. Excellent presentations were made by Drs. Jerry B. Critz of the National Heart, Lung, and Blood Institute, Lyn Yaffe of the Office of Naval Research, Jeannine A. Majde of the Office of Naval Research, and John C. Slaughter of the U.S. Army Medical Corps. The Scientific Program Committee and the Shock Society wish to express their sincere appreciation to Drs. Critz, Yaffe, Majde, Slaughter, and Spitzer for their superb presentations and exceptionally beneficial program.

Another workshop—"Critical Issues in Shock Research: Application of Laboratory Findings to Clinical Medicine?"—was chaired and introduced by Dr. Ronald M. Maier. This session continued the "Critical Issues in Shock Research" series from previous conferences. This series was developed to provide an "agonist-antagonist" format for speakers to give pro and con arguments about specific controversial issues in shock research. The two issues covered in this addition involved non-steroidal antiinflammatory drugs and oxygen free radical scavengers. Presentations were made by Drs. Curtis Wise, J. Raymond Fletcher, Gerd O. Till, and Robert Demling. This program considered laboratory versus clinical observations, and it generated exceptional debate and audience participation.

The final workshop addressed "Basic Pharmacologic Principles Applied to Shock Research," and it was co-chaired by Drs. Alan Barker and Stephen B. Jones. This was a highly attended session that provided a wealth of relevant information about how pharmacodynamic and pharmacokinetic principles should (or should not) be applied to data acquisition/interpretation techniques involving drug studies in shock research. Presentations were made by Drs. Alan Barker, Robert R. Ruffolo Jr., Stephen B. Jones, and Edmund Neugebauer.

### **Special Events**

The Thirteenth Annual Conference on Shock was officially opened by the Keynote Address presented by President-Elect Dr. Irshad H. Chaudry of Michigan State University. Dr. Chaudry gave an insightful perspective on the past and present leadership and membership characteristics of the Society entitled "What Makes the

Shock Society Unique?" In this talk, Dr. Chaudry set the standard of excellence that was to characterize subsequent presentations at this meeting.

Dr. Benjamin F. Rush of the New Jersey Medical School gave a special Presidential Address entitled "Bacterial Translocation as an Etiologic Factor in Shock" on the evening of June 9, 1990. This was an excellent talk that provided a clear synthesis of past and current concepts relating to opportunistic invasions of bacteria after trauma and hemorrhage.

The traditional "Presidential Run" organized by Dr. Allan Lefler was held early in the morning on June 10, 1990 and, as usual, was well attended by dyed-in-the-wool joggers as well as by some real athletes. As an editorial comment, mention should be made that Drs. Abel, Adams, and Bond brought up the rear only so they could be available if needed to help resuscitate stragglers such as Dr. Janet L. Parker, the final finisher.

The last sanctioned event of the 1990 Conference on Shock was a presentation entitled "Anasazi Lifestyles and Problems in Mesa Verde" given by Art Hutcheson of the nearby Mesa Verde National Park. This talk provided an extremely interesting window into the medical problems and anthropological remains from an ancient culture of native Americans, truly a fascinating subject. This talk was an appropriate and satisfactory conclusion to a successful Thirteenth Annual Conference on Shock.

#### ACKNOWLEDGMENTS

The great success of this conference reflects the input and contributions from a large number of individuals including the membership, Scientific Council, and officers of the Shock Society, as well as all participants and speakers. Representing the Scientific Program Committee, I wish to sincerely thank all of these individuals for making this conference such a successful endeavor. I also wish to express appreciation to the Society for the opportunity to help organize the scientific program for this conference. Special appreciation also goes to Dr. Sherwood Reichard and his staff for the outstanding job they do annually in handling abstracts, logistical plans for the meetings, and other behind-the-scenes responsibilities that are essential for successful scientific conferences.

Finally, it is important to express our appreciation and acknowledge the following groups for financial assistance: Baxter Health Care, Centocor, Cutter Biological of Miles, Inc., Office of Naval Research, the Roerig Division of Pfizer Pharmaceuticals, SmithKline Beecham, the Upjohn Company, and the U.S. Army Medical Research Acquisition Activity.

For the dates and full titles of each presentation, please consult the conference program published in the Abstract and Conference issue of *Circulatory Shock*, volume 31, no. 1, pp. 1-8, 1990.