Registration is still available through April 4, 2005 at www.soap.org.
### Scientific Program

#### Wednesday, May 4, 2005
- **1:00 - 5:00 pm**  
  Workshop on Neonatal Resuscitation Program (By Ticket Only - Limited Registration)  
  Gurinder M. S. Vasdev, MD; Edwin H. Rho, MD; et al.
- **6:00 - 8:00 pm**  
  SOAP Opening Reception

#### Thursday, May 5, 2005
- **7:00 - 7:45 am**  
  Breakfast with Exhibitors; Posters
- **7:45 - 8:00 am**  
  Opening Remarks and Welcome  
  M. Joanne Douglas, MD, FRCP; William R. Camann, MD; Mark I. Zakowski, MD
- **8:00 - 9:30 am**  
  Gertie Marx Symposium (6)  
  Moderator: G. M. Bassell, MD  
  Judges: Yaakov Beilin, MD; M. Joanne Douglas, MD, FRCP; Alan C. Santos, MD, MPH; Richard N. Wissler, MD, PhD
- **9:30 - 9:45 am**  
  Distinguished Service Award  
  Awarded to Frederick P. Zuspan, MD  
  Presenter: M. Joanne Douglas, MD, FRCP
- **9:45 - 10:15 am**  
  Coffee with Exhibitors; Posters
- **10:15 - 11:30 am**  
  Oral Presentations (4)  
  Moderator: Pamela Flood, MD
- **11:30 - 12:30 pm**  
  Fred Hehre Lecture: Pain and Delivery – Why, What, and When  
  Introduction: M. Joanne Douglas, MD, FRCP; James C. Eisenach, MD
- **12:30 - 1:30 pm**  
  Lunch with Exhibitors; Posters
- **1:30 - 2:30 pm**  
  What's New in Obstetrics?  
  Introduction: William R. Camann, MD; Errol R. Norwitz, MD, PhD
- **2:30 - 3:30 pm**  
  Zuspan Award Symposium (4)  
  Moderator: John Thomas, MD  
  Judges: Joy L. Hawkins, MD; Ruth Landau, MD; Raymond Powrie, MD, FRCP(C), FACP; Gurinder M. S. Vasdev, MD
- **3:30 - 4:00 pm**  
  Coffee Break with Exhibitors; Posters
- **4:00 - 6:00 pm**  
  SOAP Business Meeting – Awards Presentations  
  Moderator: M. Joanne Douglas, MD, FRCP

#### Friday, May 6, 2005 (continued)
- **10:00 - 10:30 am**  
  Coffee with Exhibitors; Posters
- **10:30 - 11:30 am**  
  Poster Review #1  
  Moderator: Alison J. MacArthur, MD, MSc, FRCP
- **11:30 - 1:00 pm**  
  Panel Discussion: International Aspects of Obstetric Anesthesia  
  Moderator: William R. Camann, MD  
  Panelists: Yasodananda Kumar Areti, MD; Jose Carvalho, MD, PhD, FRCP; Medge D. Owen, MD; Giridhara Rao, MD
- **1:00 pm**  
  SOAP Opening Reception

#### Saturday, May 7, 2005
- **7:00 - 8:00 am**  
  Breakfast with the Experts  
  Moderator: Donald H. Penning, MD, MSc, FRCPC  
  Experts: Jose Carvalho, MD, PhD, FRCP; Roshan Fernando, FRCA; Miriam Harnett, MB, FFARCSI; David L. Hepner, MD; Ruth Landau, MD; Kenneth E. Nelson, MD; Moeen K. Panni, MD, PhD; May Pian-Smith, MD, MS; John Sullivan, MD; Lawrence C. Tsen, MD; Bernard Wittels, MD; David J. Wlody, MD
- **8:15 - 9:15 am**  
  Gerard W. Ostheimer Lecture: What's New in OB Anesthesia?  
  Introduction: Lawrence C. Tsen, MD; Brenda A. Bucklin, MD
- **9:15 - 9:45 am**  
  Coffee Break; Posters
- **9:45 - 10:45 am**  
  Poster Review #2  
  Moderator: Linda S. Polley, MD
- **10:45 - 11:45 am**  
  PRO/CON Debate: Is Cell Salvage a Safe Technique for the Obstetric Patient?  
  Moderator: Bhavani S. Kodali, MD  
  Pro: Jonathan H. Waters, MD  
  Con: Paula J. Santrach, MD
- **11:45 - 1:00 pm**  
  Lunch (On Your Own)
- **1:00 - 2:00 pm**  
  Poster Case Reports: You did What? The Best Case Reports of the Year!  
  Moderator: Scott Segal, MD
- **2:00 - 3:30 pm**  
  Best Paper Presentations (6)  
  Moderator: Geraldine O’Sullivan, MD, FRCA  
  Judges: David C. Campbell, MD, MSc, FRCP; Robert S. McKay, MD; Peter H. Pan, MD; Cynthia A. Wong, MD; Mark I. Zakowski, MD
- **3:30 - 3:45 pm**  
  Break
- **3:45 - 5:00 pm**  
  Research Hour  
  Robert D’Angelo, MD; Steven Shafer, MD; Richard M. Smiley, MD, PhD
- **5:00 pm**  
  Meeting Adjourned
- **6:00 - 11:00 pm**  
  SOAP Banquet
I trust with the bizarre winter weather all of us have been having [lots of snow and cold in the East (love the way they say it comes down from "Canada") and torrential rains in the Northwest ("the pineapple express" from Hawaii)] all of you are dreaming about the SOAP Annual Meeting in Palm Desert where snow and rain are uncommon, if not rare events. Mark Zakowski and Bill Camann have put together a terrific program in a terrific place so we are counting on all of you to attend.

In this, my last Newsletter article as President, I would like to challenge you to consider ways in which you can help SOAP grow. The Membership Committee (now chaired by Second Vice-President, Gary Vasdev) has several new ideas but you may want to speak to those in your department who are not yet members and encourage them to join. In particular, growth is best achieved when the seeds are sown early, so encourage your younger members (and especially fellows!) to consider joining SOAP. For me, SOAP is a special organization where I can learn about the advances in our subspecialty and can engage in debate about the best management of a specific problem. This type of dialogue and interaction is invaluable in the practice of obstetric anesthesia. Also, consider how you can become involved in SOAP. The Board of Directors represents you - at least that is our intent. Speak to one of us at the Annual Meeting or e-mail us with your suggestions for changes to SOAP that may include suggestions for speakers for the annual meeting and/or content for the annual meeting. For example, special competitions (Gertie Marx, Fred Zuspan, Best Paper of the meeting) and the special talks (e.g. What's New) are important aspects of the meeting and with the present three day meeting it is impossible to incorporate more panel discussions or debates. Do you have a suggestion as to the format? Is it working for you? Now is the time to consider this before the planning committee for the 2006 meeting meets in Palm Desert. Be involved! This is your Society!

Lastly, I want to thank all of you for your support during my term as President. I want to thank the Board of Directors who willingly undertook any task presented to them and have straightened this Canadian out, when necessary. Bill Camann, in particular, has been a superb sounding board for me and will make an excellent president. I know that you will support him as you have me as he assumes the reins of power in Palm Desert.

Visit www.soap.org to view the new website design.
Welcome to Palm Desert, CA

The upcoming SOAP 2005 annual meeting will be the best ever!

Beautifully situated among the hills and desert of Palm Desert (adjacent to Palm Springs), California, the wondrous Marriott Hotel offers pools, a lake, golf courses, running courses, multiple restaurants and shops as well as a world-class spa. Nearby attractions include the Aerial Tramway to the top of the mountain with hiking in the national forest, a local Indian Casino, hiking in Indian Canyons, the Living Desert Zoo and Gardens (great for kids), outlet malls, and upscale shopping galore! For those of you who are interested in some special entertainment on Thursday night you can sign up for the world famous Palm Springs Follies.

The program starts at 1:00 Wednesday, May 4th with our early-bird Neonatal resuscitation Program (limited registration). Our SOAP opening reception will be held at The Pointe, a fabulous outdoor peninsula with the best view. We have an outstanding faculty thereby bringing the best to the West. Dr. Frederick Zuspan will receive the Distinguished Service Award. Dr. James Eisenach will present the Fred Hehre Lecture, "Pain and Delivery - Why, What, and When." Dr. Errol Norwitz will inform us with "What's New in Obstetrics?"

Friday, May 6th starts off with the Fun Run. Our colleague from NASOM (North American Society of Obstetric Medicine), Dr. Raymond Powrie, presents "What's New in Obstetric Medicine?" A new topic for SOAP, Dr. Bill Camann is moderating a panel discussion, "International Aspects of Obstetric Anesthesia." The SOAP Golf and Tennis Activities are scheduled right after lunch. The afternoon and evening are free to do as you please and take advantage of what the desert has to offer.

Saturday, May 7th begins with Breakfast With The Experts. Dr. Brenda Bucklin is presenting the Ostheimer Lecture, "What's New in OB Anesthesia?" We have a Pro/Con debate, "Is Cell Salvage a Safe Technique for the Obstetric Patient?" with Dr. Jonathan Waters PRO and Dr. Paula Santrach CON. The SOAP banquet is in the evening - another wonderful affair, not to be missed! We have a special magician/comedian entertainer from the Magic Castle in Los Angeles and a band. Sign up today - space is limited!!!

I would like to thank Drs. Bill Camann and Joanne Douglas as well as the IARS team (Pam Happ, Carol Wisniewski, and Jackie Dzurilla) and of course my assistant, Susie Sussman, for their help in making SOAP 2005 a big success!!!

Mark Zakowski, MD
Meeting Host, SOAP 2005

Treasurer’s Report

Treasurer’s Report on the Financial Impact
Created by a Change in Management Firms

As I promised in the Fall Newsletter, I would like to report briefly on the impact that the change in management, from Ruggles to IARS, has had on our bottom line. By now, most of you are aware that the changeover occurred, with very few glitches, in November 2003. Many of you attended the very successful 2004 annual meeting with IARS in charge. The staff came in six months before the meeting and made the transition seem almost seamless. However, as the treasurer I watched for an expected positive impact on our bottom line, and I have not been disappointed.

When the requests for proposals were sent out to the competing management firms, two line item accounts most concerned the Board at the time. Those two items were the overall management fee and the cost of the website. Under the previous contract the management fee was a monthly base plus a percentage of the revenue from the annual meeting. As a result, the total paid for financial year (FY) 2003 was $81,073. Our current contract with IARS pays a base fee which includes the management of the annual meeting. That base is currently set at $48,000 per annum, a savings of $33,073 over the previous contract.

As for the website charges, those evolved over time to a base monthly fee to cover so many hours of work. If more hours were spent than predetermined, the Society was charged an extra "per hour" rate. Alarming, the baseline hours were always being exceeded resulting in our website charges increasing dramatically. For FY 2003, we were charged $13,743, and that followed multiple renegotiations to decrease the fee. Under our current contract with IARS, we were charged $3,503 for FY 2004 and most of the website expenses are now included in the management fee. Extra is charged for redesign and other major projects but, even so, contractual fees will never allow the expense of the website to grow like that again.

Less obviously, but with no less of an impact, were the charges levied for many items that are now fully or partially covered in the IARS base fee, such as phone use, postage, and site inspection. Additionally, the Society was forced to absorb a business expense incurred due to a lack of oversight by Ruggles. Even with that factored in, the Society spent $21,390 less for this fiscal year as compared to the previous year. The bottom line in all this is that SOAP's transition to IARS management has saved $54,463 in operating expenses!

Not included in the above is the impact that changing to IARS has had on the annual meeting budget. Not everything with the transition had a positive effect on our bottom line but in taxes and hotel room credits alone we saved over $10,000, and our total expenses were more than $73,000 under the budget set by the previous management.

This newsletter should reach you just before the May annual meeting. There, I will present a full report during the business meeting and will then submit it for publication in the Fall Newsletter. Of course, given what I have just written and added to it the generosity of Dr. Marx to SOAP, this is one report I will very much enjoy giving!

McCallum R. Hoyt, MD, MBA
Treasurer, SOAP
Pro/Con

Should anesthesiologists bill for epidural blood patch performed after accidental dural puncture?

PRO

To bill or not to bill: that is the question: Whether 'tis nobler in the mind to suffer the financial losses for one's misfortune, or to send charges for cures to patients' troubles, and by such action validate all?1

Conversations with SOAP members have led me to believe that in many anesthesiology departments in the US there is an unwritten policy that epidural blood patches (EBP) performed as a result of our having punctured the dura shall not result in a charge to the patient. I can only ask "Why not?" Certainly with the significant incidence of epidural "wet taps" and resulting symptoms, all who administer such blocks warn their patients of the potential for this complication. Regardless of our precautionary information, we perform neuraxial blockade because our patients accept the risks. Then why don't we want to charge for our time and resources when they ask us to perform an EBP to reverse the effects of the complication? Certainly our time and skills have value to the patient since she is asking for our assistance despite our informing her that the symptoms caused by a wet tap are time-limited. The response to that point is generally, "Well, the patient is certainly not going to let the one who did the wet tap perform her patch!", and that is generally a true statement. She may well consent only on the proviso that another anesthesiologist perform the procedure under the false sense that her risk is now reduced. We all know that our performance of an EBP puts her once again at risk for another wet tap, of which I can only assume she was informed, yet she once again accepts the risk if she requests our help. So why aren't you charging?2

Even before the report on medical mistakes from the National Academy of Sciences' Institute of Medicine was released, it was easy to find articles in the medical literature reporting on adverse events, patient outcomes and costs. Our heightened awareness that these events result in untold millions in health-care costs led many institutions to develop a quality improvement process to examine causation. Over time it became apparent that many of the errors were the result of an internal systems failure. This prompted changes in policy and the development of algorithms to direct patient management.2,4 However, even in the most systems-savvy programs, there is now evidence that complication rates reach a threshold that stays constant over time and which is probably due to a human factor.5 In other words, once all systematic and technical issues are addressed what is left are the training and expertise of the physician. Certainly epidural punctures fall under this category. Although there is a wide range of puncture rates reported in the literature and despite technological re-designs, as long as there is a needle being pushed up against a dura, punctures will happen.

We have all seen or been involved in the management of patients who suffered a complication and are now on our surgery schedule. A recent example of mine was that of an elderly man who came to the OR for a cystoscopy and fulguration. He had suffered a traumatic foley insertion at the hands of an aggressive resident and had been bleeding for the past couple days. To be sure, I charged the patient for my skill and time and the hospital did the same for the resources I used to provide anesthetic services to this patient. His course was unfortunate but he had consented to the foley insertion. Never was it suggested that the use of services and resources to address the consequences of that complication should obligate any professional or the hospital to provide free care for the remainder of his stay.

A variation on this theme is that of the patient who finds his/her way to your institution to correct a complication suffered at another site. Under this scenario, and the thinking of "We weren't responsible," there is no hesitancy to charge for resources and services used. This thought process also holds when we are asked to perform an EBP on a patient who suffers from a post-procedural headache following a myelogram or diagnostic spinal tap. "And that's the point. I didn't cause the problem!" is the usual rebuttal statement made along with various hand signals as I am reminded that in this case the dural tap occurred during that anesthesiologist's placement and so it follows that he/she should not charge for the patch. Let's look at that in another light. There is inherent risk involved in any procedure. The fact that the risk assumed becomes a reality does not mean that something was performed incorrectly or that there was an error in judgment. We all know that even in the best of hands dural taps occur, and when they do, the occurrence does not imply incompetence on anyone's part. Yet to not charge for the procedure requested may suggest just the opposite to the patient. People expect to be charged for services rendered, so to not charge might suggest that something was done incorrectly.

The next question asked usually falls along the lines of "But aren't I more at risk for a lawsuit if I charge?" The ASA closed claims database does indeed show that lawsuits for headaches in the obstetric population comprise 18% of the total. Besides the headaches, pain during anesthesia, back pain and emotional distress total a full 33% of all obstetric claims; items that total only 6% in the non-obstetric database. What all this means is that the obstetric population is more prone to sue for what are categorized as "minor" injuries.6 But closer examination of the statements accompanying these files shows that patients with these types of claims felt ignored, mistreated, or believed they were not getting their needs met, and that suggests the real motivation for the suit.7 Nowhere is the suggestion made that charging for appropriate management to address a complication precipitated the lawsuit.

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Anesthesiologists should perform epidural blood patches free of charge to parturients who have postdural puncture headaches.

The clinical presentation of postdural puncture headache (PDPH) in the puerperium is usually one of profound and incapacitating symptoms that an epidural blood patch can relieve instantly and usually permanently. The procedure is performed by an anesthesiologist, typically more than 24 hours after the dural puncture. Because some anesthesiologists perform the procedure at a separate time from labor and delivery, they feel obliged to submit a bill for this additional service. I disagree and discuss my reasoning below.

First and foremost, patient safety is the primary concern. Initial and recurrent PDPH left untreated over many weeks, can lead to subdural hematoma, altered levels of consciousness, coma, and death. Good patient rapport and proper communication can help ensure that patients seek treatment expeditiously, whereas additional costs and fees may dissuade some patients from seeking further care, predisposing them to develop more serious complications.

Second, unhappy, dissatisfied, and litigious patients have won settlements against anesthesiologists for developing PDPH. What can be done to reduce the risk of litigation? Fully informed consent for the initial epidural anesthesia for labor and delivery should include discussing the risks of PDPH, its treatment, and related costs, if any. The same intrinsic patient characteristics (morbid obesity, non-palpable posterior spinous processes, and poor patient cooperation) that may have contributed to the initial dural puncture may still be present at the time of epidural blood patch, so the risk of performing a second accidental dural puncture also exists. To the disgruntled parturient who undergoes these procedures, even the simplest misstep (including receiving a bill for an epidural blood patch that is unexpected, unwanted, and unpayable) can trigger a quick phone call to an attorney, and a chronic headache for the anesthesiologist.

Third, federal government regulations currently utilize CPT codes that tend to bundle under one code all related obstetric anesthesia care during labor and delivery; unplanned cesarean delivery and cesarean hysterectomy can be billed using second codes. Although one may unearth a distinct CPT code for an epidural injection, federal agencies may view the addition as double-billing for a procedure that should be included in the initial, total OB anesthesia care CPT code. The federal government considers double-billing fraudulent, a felony punishable by both fines and imprisonment. Is that potential additional reimbursement from an epidural blood patch bill really worth the risk? I think not.

Fourth, consider competing business models in two hospitals: hospital A performs epidural blood patches at no cost to those parturients who require them; hospital B charges an additional fee for all epidural blood patches. In the long term, hospital A will attract more parturients, fill more beds, and be more financially sound, while hospital B will accrue more lawsuits, pay more legal settlements and attorney fees, and suffer a declining patient census. One can only imagine what might happen if an administrator in hospital B makes demands of the labor and delivery unit to generate more fees.

Finally, the ethical practice of medicine demands that care be provided without regard for the patient's ability to pay. In this way, every patient receives fair, unbiased medical attention with the highest regard for the safest and most effective medical, surgical and nursing treatments. It is the responsibility of society (in the form of government agencies) to provide the financial support to patients in lower socioeconomic strata, and (in the form of hospital organizations) to provide financial support to the doctors and nurses who care for these patients.

References:
Ancillary Charges Associated With Epidural Blood Patch

When a post-partum patient requires an epidural blood patch for post-dural puncture headache, some anesthesiologists choose not to bill the patient for the blood patch. However, the patient may still receive a bill for a series of other charges from the facility where the procedure is performed. For inpatients, these may include:

-- A charge for readmission from the post-partum floor to the labor and delivery recovery room, which is where this procedure is often performed. Readmission allows the patient to have a nursing assessment, including a set of vital signs, upon arrival. It also allows the patient to have continued nursing care while waiting for, or recovering from, the blood patch. Nursing care may be required for anything from monitoring of vital signs (if the patient was sedated for the blood patch) to assistance with pumping breast milk (which sometimes just can't wait!).

-- An IV charge, if one is restarted.

For outpatients, an additional charge may include:

-- Registration for an outpatient admission to the labor and delivery area, so that documentation of the patient's evaluation and treatment can be generated and added to the patient's medical record. This is important for medicolegal reasons and quality assurance purposes. Moreover, in hospitals with electronic patient record systems, it is typically not possible to write notes and orders unless the patient is officially admitted.

The sum of these ancillary charges will vary among facilities. In addition, coverage will vary from one third-party payer to the next. The bottom line is that most providers caring for a post-partum patient receiving an epidural blood patch simply do not know what the cost to the patient will be. The patient, of course, eventually finds out.

If you choose not to bill your post-partum patients for epidural blood patches, it makes sense to negotiate with your hospital to waive the ancillary charges as well.
The β₁ adrenergic receptor (β₁-AR) reactivity, bronchial tone, uterine tone, and nociception, among others. Anesthesiologists, such as heart rate, blood pressure, and vascular participate in regulation of numerous features paramount for the as part of the autonomic nervous system, adrenergic receptors following examples may serve to illustrate the impact of disease severities. An exhaustive catalogue of all alterations in efficacy may in part explain interethnic differences in drug responses and toxicity profiles is beyond the scope of this column, but the significant influence on therapeutically important drugs. Furthermore, natural occurring variants in the structure of genes that may have a genetic polymorphisms. Single nucleotide polymorphisms (SNP’s) are important inter-individual variability in their effects due to For anesthesiologists, numerous drugs used in our daily practice may make medicines safer and more effective for everyone. Clinically relevant polymorphisms For anesthesiologists, numerous drugs used in our daily practice may display important inter-individual variability in their effects due to genetic polymorphisms. Single nucleotide polymorphisms (SNP’s) are naturally occurring variants in the structure of genes that may have a significant influence on therapeutically important drugs. Furthermore, marked ethnic differences in frequency of numerous genetic variants may in part explain interethnic differences in drug responses and disease severities. An exhaustive catalogue of all alterations in efficacy and toxicity profiles is beyond the scope of this column, but the following examples may serve to illustrate the impact of pharmacogenetics on OB clinical anesthesia and pain therapies. Adrenergic receptors As part of the autonomic nervous system, adrenergic receptors participate in regulation of numerous features paramount for the anesthesiologist, such as heart rate, blood pressure, and vascular reactivity, bronchial tone, uterine tone, and nociception, among others. The β₂ adrenergic receptor (β₂-AR) The β₂-AR mediates chronotropic and inotropic responses to catecholamines. The Arg389 variant of a common polymorphism, Arg389Gly, has been shown in vitro to have a greater response to agonist stimulation. Reduced sensitivity of individuals with the Gly389 allele to atenolol was determined in clinical trials. Furthermore, the Gly389 allele was found to be more frequent in populations of African descent (42%) compared with white subjects (28%) and may contribute to the known decreased sensitivity to β-blockade reported in black subjects. The β₂ adrenergic receptor (β₂-AR) The β₂-AR is expressed at the surface of numerous cells, such as smooth muscles cells (bronchial, uterine, vascular, etc.) with a relaxation of cells in response to endogenous catecholamines and synthetic β₂-agonists. Several SNP’s have been identified on β₂-AR, with three SNP’s (Arg16Gly, Glu27Glu, Thr164Ile) specifically associated with interesting phenotypes. It has been determined in vitro that the Gly variant increases receptor down-regulation, while the presence of the mutant Glu27 appears to decrease receptor down-regulation, hence preventing tachyphylaxis. Consistent with this, asthmatic subjects homozygous for Arg16 have been found to have an enhanced response to β₂-agonist bronchodilators. The Arg16 genotype might have a protective effect in women at risk for preterm delivery. Furthermore, it is most likely that the response to β₂-agonist therapy for tocolysis is influenced by the genetic profile of women presenting with preterm labor. It remains to be determined whether β₂-AR genotype influences the severity of the disease (i.e., that Arg16 homozygote women present with a milder disease than women with other genotypes) or directly affects the response to therapy. Opioids Inter-individual variability in pain perception and sensitivity to analgesic therapy has been long noted. Although opioids are among the most widely used drugs for the management of acute and chronic pain, they display large interindividual variability in efficacy, side effects, and tolerance profiles. µ-opioid receptor (µ-OR) The µ-opioid receptor (µ-OR), encoded by genetic locus OPRM1, has been the focus of numerous genetic studies because this receptor is the primary site of action for many endogenous opioid peptides and opioid analogs. In vitro, the A118G polymorphism appears to increase the binding affinity and potency of β-endorphin. Therefore, individuals carrying the variant receptor gene may show differences in some of the functions mediated by β-endorphin action at the altered µ-OR. Ethnic variability has been shown to be important, with 22% of subjects carrying at least one G118 allele regardless of gender among white subjects. In Asians, the frequency of the G118 variant is much higher, ranging between 35 and to 47%. Interestingly, in an African-American population, the variant was found to be much rarer than in all other ethnic groups. A relatively high frequency of the A118G variant was shown to occur in a diverse obstetric population from two different institutions (in USA and Europe). The fact that a genetic variant of the µ-OR associated with an increased response to

Pharmacogenetics Applied to Obstetric Anesthesia: Myth or Reality?

Over this last decade, there has been an explosion of scientific publications in the field of pharmacogenetics, the study of the variability in drug response due to genetic variability, and more recently in pharmacogenomics, which incorporates recently acquired sophisticated genomic tests and a genome wide approach to define the inherited nature of drug response. Does all this tremendous work translate into anything tangible and applicable for OB anesthesiologists?

Undoubtedly, the knowledge and technology acquired during these past years through the Human Genome Project should contribute to prevent genetically determined diseases, and promote "targeted personalized medicine." The ultimate goal of pharmacogenetics research is to help doctors tailor doses of medicines to a person's unique genetic make-up (http://www.PharmGKB.org, the Pharmacogenetics Research Network). This paradigm shift should make medicines safer and more effective for everyone.

Clinically relevant polymorphisms

For anesthesiologists, numerous drugs used in our daily practice may display important inter-individual variability in their effects due to genetic polymorphisms. Single nucleotide polymorphisms (SNP’s) are naturally occurring variants in the structure of genes that may have a significant influence on therapeutically important drugs. Furthermore, marked ethnic differences in frequency of numerous genetic variants may in part explain interethnic differences in drug responses and disease severities. An exhaustive catalogue of all alterations in efficacy and toxicity profiles is beyond the scope of this column, but the following examples may serve to illustrate the impact of pharmacogenetics on OB clinical anesthesia and pain therapies.

Adrenergic receptors

As part of the autonomic nervous system, adrenergic receptors participate in regulation of numerous features paramount for the anesthesiologist, such as heart rate, blood pressure and vascular reactivity, bronchial tone, uterine tone, and nociception, among others.

The β₂ adrenergic receptor (β₂-AR)

The β₂-AR mediates chronotropic and inotropic responses to catecholamines. The Arg389 variant of a common polymorphism,

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Pharmacogenetics applied to Obstetric Anesthesia: Myth or Reality?

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β-endorphin was present in more than 30% of an obstetric population might have clinical implications. Further studies to elucidate the impact of this genetic variant on labor pain and neuraxial opioid requirements for labor analgesia are ongoing.

Future applications
To date, the choice of one medication over another does not take into account inter-individual genetic variability. It might well be that certain drugs have the potential for serious side effects or are ineffective in a certain subset of the population. With the advances in technology, it is likely that each genetic subset of the population will be treated with a specifically tailored drug to obtain the sought therapeutic effect.

In conclusion, while it is probably too premature to expect immediate implications on the daily practice of anesthesiologists, it is most likely that advances in the field of genomics will identify with greater certainty which polymorphisms definitely impact on drug responses.

References

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ASA/SOAP Abstract Submission:

The deadline to submit your abstracts for the ASA and SOAP Jointly Sponsored ASA 2005 Abstract Session is April 1, 2005.

Additional information available at: http://www.call4abstracts.com/asa/

Review

Management of Accidental Dural Puncture and Subsequent Headache

Stephanie Goodman, MD
Department of Anesthesia
Columbia Presbyterian Medical Center
New York, NY

While the overall incidence of postdural puncture headache (PDPH) remains between 1 and 5% after neuraxial anesthesia, the incidence approaches 80% when accidental dural puncture occurs with an epidural needle. If a laboring woman experiences accidental dural puncture with an epidural needle, many anesthesiologists advocate giving a small spinal dose of medication (for example 2.5mg bupivacaine with 20mcg fentanyl) through the epidural needle to achieve immediate comfort in the face of a complication. Some of this dose will escape with the outflow of cerebrospinal fluid through the dural puncture and thus be ineffective; however, enough of the medication should enter the subarachnoid space to at least provide initial analgesia.

At the time of dural puncture, there are then two options for providing continuing analgesia. The first and probably most common approach is to remove the epidural needle and replace it at a different interspace. One risk of this approach is causing a second dural puncture. Also, it may be technically difficult, which may have been a contributing factor for the initial dural puncture. With this strategy, all subsequent dosing must be done carefully since the spread of drug may be increased due to intrathecal passage through the dural tear. One major advantage of replacing the epidural catheter is that it can be used postpartum for administration of a prophylactic epidural blood patch (EBP). Advocates of this approach believe that the prophylactic EBP is efficacious and spares the patient from experiencing a headache and the need to undergo a second procedure. A recent study by Scavone, et al showed that prophylactic EBP did not decrease the incidence of PDPH or the need for therapeutic EBP, but it did decrease the duration and severity of symptoms.

Some anesthesiologists still replace an epidural catheter after accidental dural puncture but do not feel that prophylactic EBP is indicated. They argue that prophylactic patches unnecessarily treat approximately 20% of women who will not develop PDPH, and that this exposes those patients to the risks of EBP, namely backache, radicular pain and infection. Controversy remains regarding both the volume of blood needed for effective EBP and the timing of therapeutic EBP in relation to dural puncture, but discussion of these topics is beyond the scope of this review. There are successful reports of the use of epidural saline and dextran for prophylaxis and epidural dextran, colloid, and fibrin glue for PDPH treatment, but the standard treatment remains autologous blood.

A second strategy at the time of accidental dural puncture is to place the catheter through the needle into the intrathecal space. The biggest disadvantage of this approach is the risk of inadvertently administering an epidural dose intrathecally. Advantages of a spinal
catheter include the provision of rapid and predictable analgesia and anesthesia without risk of patchy blocks from an epidural evidence or local anesthetic toxicity from larger epidural doses. There is some evidence that administering intrathecal normal saline after an accidental dural puncture has occurred may decrease the incidence of PDPH and the need for EBP. There is also evidence that leaving an accidental dural puncture has occurred may decrease the incidence of PDPH. Ayad, et al, found that only 6% of patients with intrathecal catheters for 24 hours had PDPH compared to 91% who had replacement of the epidural catheter.

When patients refuse EBP or if the procedure is contraindicated by coagulopathy or sepsis, medications may play a role in the treatment of PDPH. Caffeine, a cerebral vasoconstrictor, has been used to treat PDPH with some success. Sumatriptan, typically used for the treatment of migraine, has been reported to decrease PDPH symptoms as well. And while there are case reports of adrenocorticotrophic hormone and its synthetic analogues being efficacious in the treatment of PDPH, a recent randomized trial did not confirm its usefulness.

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EPIDURAL TOP-UP IN THE COMBINED SPINAL EPIDURAL ANALGESIA HAS TIME-LIMITED DIRECT SPINAL EFFECT

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