Message from Paul J. McAndrews, Program Chair of the 2010 Annual Meeting

Dear Colleagues:

By the time this is published, the registration site for the Boston meeting should be up and running. I encourage you to register for the meeting, if you have not done so already. We have a top-notch program planned and details can be found on the ISHRS website at: http://www.ishrs.org/members/18thAnnualMeeting.html.

New this year, we are offering a bank of 3 lunch symposiums on Thursday at the meeting, and this is included with the price of your main registration. During the registration process you may select which Lunch Symposium you would like to attend:

Lunch Symposium 111: Powered Systems for Follicular Unit Extraction (FUE) *Director:* James A. Harris, MD

Lunch Symposium 112: Roving Microphone on Complications *Director:* Mario Marzola, MBBS

Lunch Symposium 113: Going Viral: Unlocking the Secrets of Social Media for Hair Transplant Patient Education and Beyond *Director:* Alan J. Bauman, MD

We also have 5 small-group workshops planned. Register early because these are first-come, first-served!

Workshop 101: Beginning FUE — hands-on with cadaver tissue *Director:* Paul T. Rose, MD, JD

Workshop 102: Recipient Sites — hands-on with pork skin *Director:* Arthur Tykocinski, MD

Workshop 103: Painless Anesthesia Techniques *Director:* Steven Chang, MD

Workshop 104: Pearls for Maximizing Graft Survival and Avoiding Poor Growth *Director:* Michael L. Beehner, MD

Workshop 105: Surgical Assistants Hands-on Cadaver Tissue Workshop: Dissecting & Implanting *Director:* Margaret Dieta

2010 Keynote Speakers

Bruno A. Bernard, PhD, Dr.ès Sci., Head of the Hair Biology Research Group, L'Oréal Advanced Research, Life Science Department, at the C.Zviak Research Center of L'Oréal, in Clichy, France. He will speak on, "New Insights into Human Hair Growth, Shape, and Whitening."

Kurt S. Stenn, MD, Aderans Research Institute, Inc., Philadelphia, Pennsylvania, USA, who will speak on, "Perspectives of Bioengineering of the Hair Follicle."

David Whiting, MD, Clinical Professor of Dermatology and Pediatrics, University of Texas Southwest University, Dallas, Texas; and Medical Director, The Hair and Skin Research and Treatment Center, Baylor University Medical Center, Dallas, Texas, USA. Dr. Whiting will speak on, "Senescent Alopecia: Fact or Fiction?"

I am looking forward to creating a revolution in Boston in 2010 with all your help. Bringing tea is optional; however, coming from an Irishman, bringing beer is encouraged.

Sincerely,

Paul J. McAndrews, MD

Chair, 2010 Annual Scientific Meeting

doctor@hairgrowthdoctor.com

CALL FOR NOMINATIONS

2010 Follicle Awards

GOLDEN FOLLICLE AWARD — Presented for outstanding and significant clinical contributions related to hair restoration surgery.

PLATINUM FOLLICLE AWARD — Presented for outstanding achievement in basic scientific or clinically-related research in hair pathophysiology or anatomy as it relates to hair restoration.

DISTINGUISHED ASSISTANT AWARD — Presented to a surgical assistant for exemplary service and outstanding accomplishments in the field of hair restoration surgery.

How to Submit a Nomination:
Include the following information in an e-mail to: info@ishrs.org

- Your name,
- The person you are nominating,
- The award you are nominating the person for, and
- An explanation of why the person is deserving; include specific information and accomplishments.

Nominating deadline: July 1, 2010

See the Member home page on the ISHRS website at www.ishrs.org for further nomination criteria. All awards will be presented during the Gala at the ISHRS 18th Annual Scientific Meeting, October 20-24, in Boston, Massachusetts, USA.

Surgeon of the Month: Frank Neidel, MD

Maurice P. Collins, MBBch *Dublin, Ireland* mauricecollins@blackrockclinic.com

Dr. Frank Neidel and his wife, Petra

Dr. Frank Neidel comes from a town called Altenburg in the eastern part of Germany. He studied medicine in Leipzig and graduated from medical school in 1980. His career started in a hospital in Kirchberg/Sachsen, where he worked for several years. From 1988 until 1991, he worked as a general surgeon in a hospital close to Cologne. In 1991, he discovered hair transplantation and started with his own office in this field. "I was working as a surgeon in hospital when I heard about this innovative new method of hair transplantation, practically unknown in Europe in the early nineties. I figured I'd just have a try at it."

This attempt soon became a passion. Frank started using the standard techniques at a clinic in Düsseldorf, Germany, and exchanged experiences with Dr. Manfred Lucas, who shared a lot of the keys to success. Frank says that the impulses for new ideas often came from the patients, who wished their treatments would be more comfortable and efficient. Frank was among the first to stop using bandages and to realize graft numbers larger than 1000 in a single session. When what he calls "laser euphoria" hit the market, Frank scientifically compared and analyzed the results with the standard techniques. He comments: "It's always good to evaluate one's results, and in this case laser assisted hair surgery stayed an outsider method."

Frank has been working in the field of hair restoration surgery for almost 20 years. He has successfully treated over 7000 patients and is considered an internationally acknowledged specialist in the field. In the beginning, Frank believes a lot of surgical colleagues were jealous of his career and success in hair surgery: "They didn't consider my work serious and sneered at my decision to do hair surgery. Nowadays many colleagues want to know how to do hair transplantation." Frank has been sharing his extensive knowledge for many years and younger physicians from all over the world come to his office regularly for practical training.

Besides working in his own office of hair restoration surgery in Düsseldorf, Frank also works as a consultant for various hair surgery clinics in several other countries. He works in the famous Bodenseeklinik with Professor Dr. Mang, for the Transhair clinic in the Netherlands, and for a clinic in Moscow, Russia. Furthermore, he works with experts from various university clinics in Germany. This professional knowledge is reflected in several publications in medical specialist books and journals.

When I asked him what attracted him to the field of hair restoration surgery, Frank responded: "The question is what fascinates a surgeon, who isn't even bald, about this part of esthetical surgery? The answer is that my friends told me how they suffered when they started losing hair, when the sink was suddenly full of hair after combing. I can help people with my knowledge and my skills to feel comfortable again. Appendicitis can cause pain, as can hair loss. A full head of hair adds to one's well-being. Hair doesn't belong in the sink, but on the head."

But Frank goes on to say: "It takes more than hair to achieve happiness in life. Recreation is very important for me and my profession. I need some compensation to the daily demands of my work. I mostly find recreation in nature. At the weekends especially I go for long walks with my wife Petra and our Labrador, Joody. In the winter time I enjoy skiing and in the summer we spend our leisure time in our garden, and barbecuing with friends. We like to travel around Europe or to Asia."

Dr. Neidel and his walking companion, Joody

Petra works alongside Frank and is responsible for the administration and patient care in the clinic in Düsseldorf.

Frank is president and board member for several different societies of hair restoration surgery, including the Society of German Hair Surgeons in Berlin and the European Society of Hair Restoration Surgery. Dr. Neidel is our surgeon of the month because of his commitment to the field of hair restoration surgery, his extensive knowledge of the field, as well as his devotion to achieve the best results for his patients by means of continuous learning and training, and through sharing of experiences and of knowledge.✧

Review of the

Literature: Dermatology

Marc R. Avram, MD *New York, New York* dochair@aol.com; Nicole E. Rogers, MD *Metairie, Louisiana* nicolerogers11@yahoo.com

Scalp Skin Grafting: A Hidden Advantage

Citation: Weyandt, G.H., et al. Split-skin grafting from the scalp: the hidden advantage. *J Dermatol Surg.* 2009; 35:1873-1879.

Dermatologists in Germany recently published a case series of 85 men and 81 women who underwent split-thickness skin grafts for coverage of chronic leg ulcers or other large skin defects using skin from the scalp. The patients were on average 71 years old and underwent grafting from the occipital scalp in all cases. A microtome was used to harvest either 0.2mm-thick (n = 18) or 0.3mm-thick (n = 148) grafts. The mean size of the grafts was 42.1 ± 6.25cm^2. The mean healing time for the donor sites was 5.4 ± 1.0 days. Patients who were over the age of 70 had a slightly longer healing time, and patients with an immunodeficiency, diabetes, or on high-dose heparin also showed a slightly longer healing time. Over 95% of the 114 patients who could be reached via telephone 8-30 months after surgery had complete regrowth of hair, and over 96% of patients said they would undergo the procedure again if necessary. Careful attention by the microtome operator to not harvest too deeply will result in good long-term results and help avoid permanent alopecia.

Comment

The scalp is an excellent donor source for split-thickness skin grafts. Traditionally, split-thickness skin grafts are taken from the lateral or anterior aspects of the thighs, abdomen, or buttocks. However, they often result in unsightly scars of their own, which are square or rectangular in shape and may be hyper- or hypo-pigmented. Furthermore, the resulting defects may significantly limit mobility postoperatively. Skin grafts taken from the scalp have rapid healing time due to the rich supply of stem cells in and around the hair follicles. These serve as a reservoir to rapidly repopulate the epithelium. Harvesting from the scalp does not result in permanent alopecia unless the microtome goes too deep to inadvertently remove part of the bulge component, or unless the skin is re-harvested too soon after the first procedure.✧

Mouse Models May Help Solve AGA Puzzles After All

Citation: Crabtree, J.S., et al. A mouse model of androgenetic alopecia. *Endocrinology* 2010; 151:1-8 (Epub ahead of print).

Recently, basic science researchers have devised a way to genetically engineer transgenic mice expressing human androgen receptor (AR) in the basal epidermis and outer root sheath in order to study the potential role of androgens in mediating alopecia. AR is a transcription factor that regulates gene expression in response to ligand binding. Researchers postulate that β-catenin is a constitutive part of the Wnt signaling pathway, which is necessary for hair growth. Androgen receptor expression is thought to sequester β-catenin, and thus interfere with Wnt signaling, in an androgen-dependent manner. Using mouse models, researchers exposed the transgenic mice to high levels of DHT, which resulted in delayed hair growth and mimicked an AGA scalp. They then treated the mice with AR antagonist hydroxyflutamide, which inhibited the effect of DHT on hair growth and helped regrow hair.

It is known that AR expression is higher in the balding areas of the scalp compared with nonbalding areas of the same subjects. And, it is known that finasteride, which blocks the conversion of testosterone to DHT by inhibiting 5-alpha reductase, can help reverse hair loss. Conversely, aromatase inhibitors, which block the conversion of androgens to estrogens in women treated with breast cancer, can reportedly induce AGA in women. The results reported here support these findings and demonstrate how they may be reproduced in mouse models.

Comment

Until now, there have been no good mouse models for studying androgenetic alopecia. Rodents do not normally display either age-related or androgen-dependent hair loss, and androgen-mediated changes in hair growth appear to be restricted to humans and primates. This study is the first to describe a viable *in vivo* model for studying human AGA in mice. The results are certainly exciting and will open a new realm of possibilities for research. Although this supports the role of androgen receptors in determining hair loss, there are still a number of other signaling pathways that are being investigated. These include the sonic hedgehog pathway and bone morphogenetic protein (BMD) signaling.✧

Lowering Lipids May Treat Alopecia Areata?

Citations: Ali, A., and J.M. Martin 4th. Hair growth in patients with alopecia areata totalis after treatment with simvastatin and ezetimibe. *J Drugs Dermatol.* 2010; 9:62-64.

Robins, D.N. Case reports: alopecia universalis: hair growth following initiation of simvastatin and ezetimibe therapy. *J Drugs Dermatol.* 2007; 6:946-7.

In 2007, a single case report published the regrowth of hair in a 54-year-old with a 15-year history of alopecia universalis after starting Vytorin (combination drug of simvastatin 40mg and ezetimibe 10mg) daily for hyperlipidemia. In January 2010, two more case reports were published in which hair regrew after treatment with the same medication. The first was a 26-year-old female with a 6-month history of alopecia areata treated with intralesional corticosteroid injections, and the second was a 40-year-old female who had a 6-month history of hair loss in the scalp and eyebrows. Simvastatin is a type of statin, or 3-hydroxy-3 methylglutaryl coenzyme A reductase inhibitor, which is believed to act as an immunomodulatory agent participating in the repression of MHC class II molecules. These help mediate CD4 T-lymphocytes, which are activated in alopecia areata.

Comment

Although it is difficult to draw broad conclusions from isolated case reports, these reports do suggest an immunologic role that may be played by this cholesterol-lowering medication. Skeptics point out that simple coincidence may explain the regrowth of hair during this time, and indeed there is no way to prove a link. Studies have shown that there is a significant decrease of the inflammatory marker C-reactive protein when ezetimibe is combined with simvastatin. This may help explain why simvastatin alone (which the patient in the first case report took for many years) did not regrow the hair. Larger, controlled studies will be helpful in determining whether this drug is a real treatment option for alopecia areata.✧

Letters to the Editors

Joseph F. Greco, PhD, Robert Brandt
Sarasota, Florida*

Re: Response to Dr. Robert Reese's Article on Autologous PRP

To propose only utilizing AutoloGel by Cytomedix as the standard in Hair Transplantation because it has 510 K medical device approval for wound care, would be limiting and counterproductive to experienced practitioners of hair restoration and regenerative medicine.

In his article, "Autologous platelet rich plasma (PRP): What do we know?" (*Hair Transplant Forum Int'l.* (20)1:14), Dr. Reese infers that cytokine levels above standard "accepted therapeutic baseline" are dangerous and potentially harmful and that "physiologic levels" of cytokines would be most appropriate. It is difficult to understand how one cannot take into account the successful use of PRP in hundreds of thousands of surgical wound cases since the "therapeutic level" was standardized 9 years ago.[1,2]

Hair transplantation surgical wounds are no different than other surgical wounds that have been successfully treated for years with standard PRP therapy.

The definition of PRP derived from Wikipedia states "not all PRP is the same. The strict definition of PRP is platelet concentration above baseline (published by Marx or 4 times baseline). PRP may or may not contain increased concentrations of white blood cells. The data supporting the use of PRP for tendonitis contains 5.5 times baseline and a similar increase in white blood cells. As more data emerges from clinical trials, the dosage of PRP must be better defined."

Therapeutic baseline PRP has been the standard of care since 2001 with experienced practitioners in hundreds of thousands of surgical applications. For example, the incidence of bacterial infection in cardiac surgery patients has been shown to be as high as 21.7%.[3] Geisinger Medical Center in Danville, Pennsylvania, uses PRP in over 1,000 open heart surgeries per year to prevent sternal wound infections. This therapeutic use of PRP to prevent infections, which also includes leukocytes, is standard practice in a far more serious surgery than hair transplantation.

Additionally, there are dozens of large hospitals throughout the USA utilizing this same technology to prevent life-threatening infections. Why have none of these hospitals switched to using Autologel to prevent wound infections in cardiovascular surgery? It is doubtful any of these hospitals would switch from using a known therapy that reduces life-threatening infections just because a company lobbied the FDA for approval of a medical device.

Dr. Reese states that "most of these other devices are intended for use in only diagnostic and orthopedic surgery." While these devices are used in orthopedic surgery, they are not limited to orthopedics. If they were, the FDA would have forced them off the market years ago. For example, Harvest SmartPReP has been approved for use to prepare PRP since 1999 and is used in cardiovascular surgery, thoracic surgery, general surgery, plastic surgery, etc.

Another misconception in the article is that when used in orthopedic surgery the "PRP is *diluted* by mixing with different amounts of bone material prior to application to the surgical site." The reason for mixing is not dilution, but to promote a synergistic response for angiogenesis and osteogenesis.

Therapeutic levels of cytokines are very effective without mixing or diluting, as this author and colleagues have demonstrated complete closure of multiple non-union fractures by injecting *"PRP/thrombin only"* into the fracture sites.

Dr. Reese mentions that "high concentrations of growth factors TGF-B, EGF, and PDGF may contribute to impaired wound healing and increased scarring." This infers that cytokine levels above physiologic levels are harmful, which is not true. Carter, et al. (2002) compared biopsies of wounds treated on the same patient that demonstrated 1) enhanced healing, 2) decreased scar collagen, more organized collagen, and 3) higher tensile strength in the treated wounds.[4] The PRP in this study was prepared at "therapeutic levels" not physiologic levels.

While RBCs and WBCs are reduced in AutoloGel, it contains both red blood cells and leukocytes because the only way to remove all WBCs is to run the product through a leukocyte reduction filter, which is not standard processing for AutoloGel.

"The presence of red cells is an obvious consideration; whereas recent data supports that contaminating leukocytes may detrimentally impact performance" with regard to hair growth. Most PRP systems achieving therapeutic levels of cytokines include a number of red cells because that concentrated layer also contains many juvenile platelets rich in growth factors. This author and colleague demonstrated increased hair shaft diameter in non-transplanted hair after stimulation and infusion of "therapeutic levels" of cytokines containing WBCs (Greco and Brandt, 2007).[5]

It was also demonstrated that 60% of AA patients treated with the same "therapeutic cytokine levels" grew hair in a condition where high levels of pro-inflammatory cytokines caused hair loss. (Greco and Brandt, 2009).[6] These studies are mentioned because positive effects were observed with regard to hair growth, while the platelet concentrate contained leukocytes. Additionally, this author has used PRP in over 400 hair restoration cases the past three years and no case of poor hair growth has been observed in this group. On the contrary, most hair restoration patients appear to have more mature hair growth sooner when PRP is used.

Unfortunately, with autologous blood, cytokine levels vary from one individual to another and will vary in the same individual day to day. While no one knows what the optimal levels of cytokines should be, we need to look at what has worked and what is the standard of care in treating surgical wounds with PRP. The standard of care has been to use therapeutic levels (over 4 times baseline), and until there is overwhelming evidence that it is harmful, or until studies prove what the optimal levels should be, that must be the standard. Promoting any one system is both limiting and questionable to others experienced in the art.

Fact: Through the purchase of a patent issued to one of the first pioneers of platelet rich plasma, Dr. David Knighton,

Cytomedix aggressively attacked every clinician that they could identify in an attempt to intimidate them into purchasing a licensing agreement to practice this procedure. The sales of Cytomedix's Autologel have been very modest. In their own report to their shareholders they state: Currently, the Company's revenues are primarily earned through its licensing agreements. These revenues, which constituted approximately 95% of the Company's revenues in 2008, will cease by the end of November 2009 as the underlying license agreements expire at that time.

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5. Greco, J., and R. Brandt. Preliminary experience and extended applications for the use of autologous platelet rich plasma in hair transplant surgery. *Hair Transplant Forum Int'l.* 2007; 17(4):131-133.
6. Greco, J., and R. Brandt. A Research Grant Report on the Effects of PRP and Various Growth Factors in Alopecia Areata. Presentation at the ISHRS Annual Meeting, Amsterdam, The Netherlands, August 2009.✧

* *Authors' Disclosure of COI:* Joseph Greco is Vice President of OroGen Bio Sciences, Inc., a research and development company dealing with growth factor and stem cell technology in both human and veterinary medicine. Robert Brandt is the President of OroGen Bio Sciences, Inc. and Blood Recovery Systems. Blood Recovery Systems is a service provider for physicians and hospitals with cell saver and PRP technology and has been doing so the past 10 years.

IN REPLY

Robert J. Reese, DO *Edina, Minnesota*

Re: Response to Dr. Greco

I thank Dr. Greco for his comments and welcome a debate that will lead to a review of the peer reviewed literature surrounding the topic at hand.

The major point of my article was to suggest a current industry standard for the use of PRP in the field of Hair Restoration Surgery, based on patient safety and protection from criticism over "off label" use of PRP products.

Dr. Greco dismisses my suggestion and FDA language guiding appropriate use and patient safety. I maintain FDA oversight is important, and differences between PRP systems are worth consideration. To be clear: The FDA has cleared one PRP gel specifically pertaining to wound healing. Important distinctions of that product are:

1. AutoloGel is specifically and exclusively cleared for wounds.
2. A randomized controlled trial demonstrates safety and efficacy.
3. AutoloGel is standardized and patent protected.

Other PRP devices are FDA cleared to produce PRP for diagnostic and orthopedic indications. Dr. Greco rightly points out, PRP devices have seen significant "off label" use, but I do not agree that "Hair transplantation surgical wounds are no different than other surgical wounds that have been successfully treated for years with standard PRP therapy." Healing in bone, for example, requires proliferation and differentiation of osteoblasts, which is not required for wounds involving the integument. The indication is important. Devices other than AutoloGel cannot legally provide reagents and methods for producing PRP gel, so off-label use has seen different reagents and methods. This lack of standardization fosters controversy on safety and utility of PRP and thus my statement, "PRP systems are not equal and thoughtful consideration is important in selecting a PRP system that is appropriate to the intended application". I stand firm on this point.

Dr. Greco quotes me as "most of these other devices are intended for use in only diagnostic and orthopedic surgery." I actually stated, "While most of the PRP systems have been developed for orthopaedic indications, only the Cytomedix AutoloGel system is cleared by the FDA for wound healing applications." Table 1 in my review compares FDA cleared "indications for use" for various PRP technologies and AutoloGel is the only PRP product cleared specifically for wounds.

Dr. Greco claims, "Harvest SmartPReP has been approved for use to prepare PRP since 1999 and is used in cardiovascular surgery, thoracic surgery, general surgery, plastic surgery, etc." Dr. Greco's use of the phrase "and is used for" is important in that it does not indicate "cleared use," but translates to "off label" use.

The distinction between platelet and cytokine warrants discussion. Dr. Greco misrepresents me, stating, "The author infers that cytokine levels above standard 'accepted therapeutic baseline' are dangerous, potentially harmful and that 'physiologic levels' of cytokines would be most appropriate." Nowhere do I reference appropriate or physiological levels of cytokines. Rather, I discuss physiological or appropriate concentrations of platelets. I did state: "PRP concentrates may be most useful in applications wherein PRP is to be diluted; for example, with bone graft material in orthopaedic applications. In contrast, PRP containing physiologic concentrations of platelets would be most appropriate for applications such

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as wound healing where PRP is not diluted. It therefore is appropriate that multiple PRP systems are available to serve two FDA cleared indications for use."

And while I do agree with Dr. Greco that "the reason for mixing PRP is not dilution, but to promote a synergistic response," the point is that when PRP is mixed or diluted with bone graft material, the effective concentration of growth factors is reduced. Thus, different platelet concentrations and FDA cleared uses may be warranted.

Dr. Greco's concept of "therapeutic" cytokine level is intriguing. Unfortunately clinical studies typically don't define cytokine content of PRP but describe platelet concentration. Although experiments have shown correlations between platelet and cytokine levels, these cannot be generalized because different methods and reagents used impact growth factor and cytokine release. For example, Frechette demonstrates PRP activated with calcium and thrombin release high epidermal growth factor (EGF) and Insulin-like growth factor-1 (IGF-I), but low angiopoietin-2 (ANG-2).[1] When calcium and thrombin are diluted 25-fold, the profile reversed; platelets release low EGF and high ANG-2. There is no clear correlation between platelet count, cytokine concentration, and clinical outcome, and it is not appropriate to interchange concepts of platelets and cytokines.

Regarding Dr. Greco's statement, "While no one knows what the optimal levels of cytokines should be, we need to look at what has worked and what is the standard of care in treating surgical wounds with PRP. The standard of care has been to use therapeutic levels (over 4 times baseline)…" once again the concepts of platelet and cytokine appear confused. Times baseline (i.e., a fold increase over physiologic) in PRP literature typically refers to platelet not cytokine concentration. This also is true for the Wikipedia and Marx references Dr. Greco chose to support his statement: "It is difficult to understand how one cannot take into account the successful use of PRP in hundreds of thousands of surgical wound cases since the 'therapeutic level' was standardized 9 years ago." The first Marx reference contains no supporting references and the second supports a "therapeutic level" based on a cell culture experiment presented as an abstract at a 2002 orthopedic research society meeting. Furthermore, considering a normal physiologic platelet concentration (150,000-450,000/uL), the 4-fold and 5.5-fold "therapeutic" ranges quoted by Dr. Greco translate to 600,000-1.8 million and 820,000-2,475,000 platelets/uL, respectively. Clearly, the concept of "fold" increase is somewhat nebulous and the "therapeutic level" has yet to be established. Regarding Wikipedia, anyone can post definitions on this open source platform, and it should not be used to define this field.

Anitua, et al. suggest that "more is better" (high platelet concentrations) may not be the case with PRP. My review highlights this controversial statement with recent references indicating high concentrations of PRP or platelets inhibit regenerative activities, cell growth, and migration and can induce cell death, while physiologic concentrations induce wound healing. Although not palatable to those invested in old "more is better" dogma, information is presented in the best interest of patients and clinicians. Dr. Greco takes issue with Gu, et al.'s (2006) suggestion that "high concentrations of growth factors, TGF-Beta, EGF, and PDGF may contribute to impaired wound healing and increased scarring" and cites positive outcomes of Carter (2002) claiming, "The PRP in this study was prepared at "therapeutic levels" not physiologic levels." This is inaccurate and Carter's paper directly contradicts the concept of 4 times "therapeutic baseline." Carter's study targeted a platelet concentration of 1.5×10^{11}/Liter and used 4.9×10^{11} platelets/Liter. This translates to 150,000/uL and 490,000/uL, respectively. Consequently, these values are within the physiologic norm for a horse (100,000-600,000/uL).[2] Of interest:

1. Carter's "patient" subject was a horse.
2. Carter's co-author, Charles Worden Sr., authored intellectual property that is the basis of the current patent protected AutoloGel.

Dr. Greco references Marin, et al., stating that "the incidence of bacterial infection in cardiac surgery patients has been shown to be as high as 21.7%," and links this statement to "therapeutic use of PRP to prevent infections." Consequently, Marin does not mention PRP but indicates the majority of nosocomial infections are complications of tracheal intubation, Foley catheterization, and intravenous catheterization, sites where PRP is not utilized. To address anti-infective properties of PRP, I refer to Trowbridge, et al. (2005).[3] In this retrospective analysis, infection in 2,259 cardiac surgery patients (from Geisinger Medical Center) was evaluated. Infection rates of 1.8% approached 0% with PRP. Trowbridge suggests that platelet proteins may directly kill bacteria but acknowledges a role for leukocytes, and concludes that further study is required.

Dr. Greco misrepresents me again stating: "The presence of red cells is an obvious consideration; whereas recent data supports that contaminating leukocytes may detrimentally impact performance with regard to hair growth." As stated in my article, "The presence of red cells is an obvious *aesthetic* consideration, whereas recent data supports that contaminating leukocytes may detrimentally impact performance." I made no statement "with regard to hair growth." My statement refers to Frechette's observation that leukocytes in PRP can contribute elevated interleukin-1 and TNF-alpha. These pro-inflammatory cytokines underlie tissue destruction in diseases like arthritis, inflammatory bowel, and psoriasis. Billions were spent developing anti-TNF antibodies (Enbril, Humira, and Remicade) and IL-1 inhibitors (Rilonacept and Anakinra). While low levels of IL-1 released by platelets may be beneficial,[4] impacts of high IL-1 and TNF should be considered. Although Dr. Greco is correct that one cannot ensure leukocyte-free preparations of PRP, Anitua used a protocol similar to AutoloGel to produce PRP containing undetectable levels of leukocytes.[5]

In conclusion, Dr. Greco is correct that PRP is used "off label" in many fields, but without standardization, and this underpins controversy regarding benefits of PRP.[6] Dr. Greco mentions Dr. David Knighton, "one of the first pioneers of platelet rich plasma." I agree, have visited his laboratory many times, enjoyed libations and a cigar with him on the porch of his home, and, nearly eight years ago, it was Dr. Knighton

who recommended I work with Cytomedix to evaluate PRP in hair restoration surgery. My review presents recent findings that challenge old dogma of "more is better." We must also appreciate that well-designed comparison studies are needed to identify PRP formulations optimal for hair restoration, but in their absence, I suggest that to avoid problems that plague other fields, we consider a standardized method with unique FDA clearance and proven safety (randomized controlled trial completed with FDA oversight).[7] As stated in my article, "Thoughtful consideration is important for selecting a PRP system that is appropriate to the intended application." Each clinician must choose what they believe is in the best interests of their patients, and consider that, without standardization, divergent results may lead to confusion.

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Robert T. Leonard Jr., DO, *Cranston, Rhode Island*

Re: Eventually, You're Going to See Everything!

This is my twenty-fourth year practicing in the field of hair restoration surgery and, thank God, I have not had any dangerous situation occur with a patient. A wise man once told me that if you do something for long enough, however, you're eventually bound to have a negative experience.

I had a "first" recently…not a dangerous situation, but a medical incident in a patient that could have been. I performed a hair transplant on a 28-year-old man who traveled from across the country for his procedure. He underwent an uncomplicated linear harvest procedure and was discharged to a local family member's home. My follow-up telephone call to him on the night of the surgery was unremarkable. He returned to the office the following day for a hair shampoo and a laser therapy treatment. All was well with him.

NINE DAYS post-op, I received a telephone call from him indicating that he had swelling and some bleeding in the donor area. This type of clinical scenario is highly unusual this far out from surgery day. Upon questioning, he indicated that, the day before, he performed TWO HOURS OF "VERY, VERY STRENUOUS CARDIOVASCULAR EXERCISE." I asked him if the swollen area was pulsating; he said that he was not sure.

I decided to examine him that evening and did a house call. On examination, I found a non-pulsatile, area of firm fullness measuring approximately 1.5cm by 2.5cm slightly superior to the surgical scar. There was no current bleeding, bruising, or drainage. I told him that I thought the swelling was from a hematoma that developed from the strenuous exercise he performed. I arranged to see him in the office the next day but told him to call me if there was any increase in swelling, pain, or bleeding. His exam the next morning revealed less swelling and minimal pain.

Two days later, he called me indicting that he had another episode of bleeding from the right half of the donor area. I picked him up and brought him to my office to further investigate the problem.

I cleansed, anesthetized, and opened the right-most aspect of the donor scar. There was a large amount of clotted blood in that area, which I removed. Upon further probing, I discovered a small vein that was bleeding. I cauterized the vessel, made sure the site remained dry, and sutured the area without difficulty. I brought him home and instructed him NOT to exercise until the sutures were removed! These remaining sutures were removed after one week.

Hair restoration surgery is an extraordinarily safe procedure; however, on occasion, things do not go according to plan. You must be prepared to deal with such cases if they should arise.

This case demonstrates some important aspects of providing medical care to our patients. Firstly, *be available* to them. Secondly, *ask them pertinent questions* and then *listen to what they tell you*. If you have any question about safety, then either immediately refer them to emergency services or examine them right away. Finally, *be sure to follow up with them*.✧

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Letters to the Editors

from page 103

Fateme Sadat Sadrolodabaei, MD, Damkerng Pathomvanich, MD, Radah Palakurthi, MD
Bangkok, Thailand

Re: Is There a Relationship Between Receding Hairline and Hairstyle?

The re-creation of the natural hair is a very important task for hair transplant surgeons. Framing the face requires more than just a frontal hairline. It requires temporal angles, temple points, and the hairline. As a man's hair recedes with an expanding frontal triangle, there is always the temptation to comb the hair from where the hair is more abundant to where the hair is lost.

We have performed a study to objectively evaluate a possible relationship between the receding hairline with the combing style (from left to right, right to left, forward, backward, middle part, and no part).

We studied 123 patients who came to the DHT Clinic in Bangkok, Thailand, from March to August 2009 for hair transplantation. All patients were males, between 20-50 years, with Norwood type II-VI hair loss. The observer initially asked the patients how they combed their hair. Receding hairline was measured from lateral epicanthus to apex with a ruler. Several factors, such as direction and angle of the hairs in the frontal area, were examined under close inspection by a single observer. We also recorded whether the patient was dominant right- or left-handed.

According to our measurements, 85 out of the 123 patients (69%) had a more pronounced receding hairline at the right side, 29 (23.57%) had a more receding hairline at the left side, and 9 (7.31%) equally on both sides. Out of the 123 patients, 58% of the patients combed their hair from left to right, 13% combed their hair from right to left, 10% combed their hair backwards, 8% middle part, 4% no part, and 3% combed their hair forward.

Of those, 84% of the patients with a more pronounced receding hairline on the right side opted to comb their hair from left to right. A large number of patients with receding hair on the left chose to comb their hair right to left (58%). All patients whose hair receded equally on each side preferred to have a middle part. We did not find a significant difference between right- and left-handed patients and the pattern of combing their hair, although the number of left-handed patients in our study were few.

In conclusion, the hairline in most patients is asymmetric. More frequently, the right side of the hairline is higher than the left even though they may look symmetrical when the patient is observed from the front. This survey establishes that there is a relationship between the pattern of combing and the receding hairline.✧

Surgical Assistants Editor's Message

Laurie Gorham, RN *Boston, Massachusetts* laurieg@bosley.com

Greetings Assistants!

It's spring time in Boston, the location of our meeting in October. The rain is falling, the streets are washing out, basements are flooding, and we are one with our wet-vac! The good news is…October is a great time to visit Boston! Join us for a great meeting!

Laurie Gorham, RN

Editor, Surgical Assistant's Corner; Surgical Assistants Program Chair

"Placing" strategies: Part 1

Patrick Tafoya *Orlando, Florida* patrickatafoya@yahoo.com

There are more dynamics involved with implanting grafts by the technicians than meets the eye. We are all aware of the potential of damage (crush injury) to the grafts caused by too much pressure applied by the forceps and over manipulation of the grafts being placed into the recipient site (slit). We also know how dehydration (drying) of the grafts will destroy their ability to survive and regenerate new hair. Although most hair technicians perform excellent placing techniques, many are not aware there are other decisions made that can affect the outcome and influence the patient's results.

One example of a poor placing strategy is having two techs begin placing grafts in the opposite temple regions at the front hairline. The reason most techs "choose" this strategy is to stay out of the other tech's way. The problem with this strategy is the last region, or "zone," of the scalp where grafts are placed has the highest priority for the best results: the frontal forelock region (see Figure 1). This area requires the best coverage with grafts that have the best chance of survival. That means the frontal zone should be the first area in which the grafts are placed (less out-of-body time), and effort should be made to ensure this area receives the best quality grafts. If the frontal zone is placed last, then it typically will receive the grafts that have been sitting out the longest, and these are usually placed with tired eyes and less patience.

A solution to this common and less productive placing strategy is to have one of the two technicians placing in the frontal hairline zone start in the middle area (red) of the front half of the balding area while the other tech starts in either temple zone (see Figure 2). They would then proceed placing in the same direction to stay out of the other's way. This prevents the priority zone (red) from receiving the last grafts with tired eyes and hands. This also requires the techs to place in "zones" rather than in "lines."

Developing "placing strategies" will help improve the patient's results, lower the risk of injury, and potentially make the process of placing grafts more efficient and comfortable for all technicians.✧

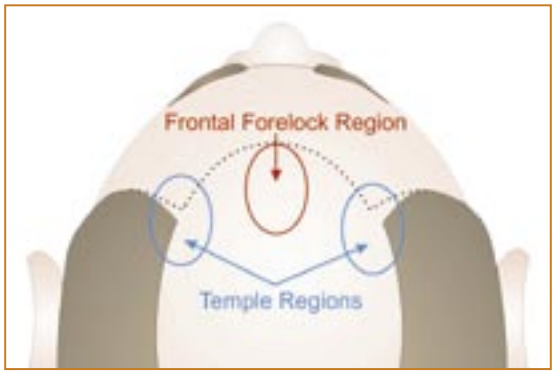

Figure 1

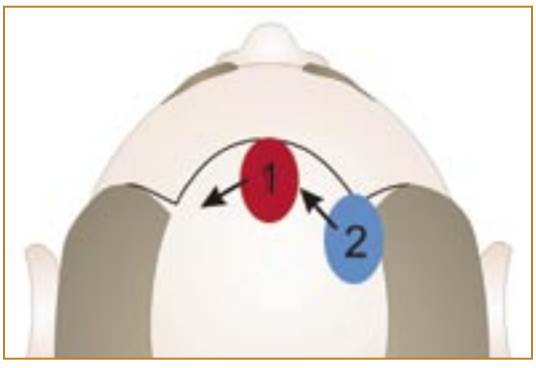

Figure 2

Classified Ads

Hair Transplant Physician Wanted

Established hair transplant center in Central London seeks EU or UK GMC-licensed hair transplant physician.
Some experience preferred. Will provide advanced training.
Email bio to: medicalpartners@aol.com

2010 Research Grant Application Deadline: June 30

Research Grants Available

1. The annual ISHRS research grants with amounts in the range of $1,200 to $2,400 USD per grant.
2. In addition, one grant is being offered for US $10,000 via a joint program between the ISHRS and the International Hair Research Foundation (IHRF).

The deadline for all grant applications is
June 30, 2010

Further information and a full application can be obtained on the ISHRS website at
http://www.ishrs.org/member-grants.htm

Revolution & Evolution

Advances in Hair Restoration: Revolutionary Concepts & Evolutionary Techniques

Plan to Attend! The ISHRS's annual scientific meeting is THE premiere meeting of hair transplant surgeons and their staff. You don't want to miss it.

- ★ Live Surgery Workshop
- ★ Basics in HRS Course
- ★ Board Review Course
- ★ Surgical Assistants Program
- ★ Morning Workshops
- ★ Cutting/Placing Workshop
- ★ Lunch Symposiums
- ★ Breakfast with the Experts
- ★ Live Patient Viewing
- ★ Controversy Panels
- ★ Surgical Video Session in HD
- ★ Hairline Design Panel
- ★ Audience Response System
- ★ Exhibits
- ★ Socializing and Networking

Newcomers Are Welcome! A"Meeting Newcomers Program" will again be offered to orient those who are new to the ISHRS annual meeting. We want to welcome you, introduce you to other colleagues, and be sure you get the most out of this meeting.

www.ISHRS.org/18thAnnualMeeting.html

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Fax: 630-262-1520
info@ishrs.org ★ www.ISHRS.org

ISHRS Launches Hair Transplant Challenge Online Survey

To demonstrate how difficult it can be to detect a modern-day hair transplant, the ISHRS is challenging the public to take the ISHRS "Hair Transplant Challenge."

The Media Relations Committee developed this 16-question online survey, which includes a series of photos of male and female hair transplant patients surrounded by non-patient decoys. Other questions ask people to pick the male and female celebrity who they think has the best hair, while others gauge peoples' interest in hair restoration and the extent to which they value their hair.

The survey is accessible on the homepage of the ISHRS website—www.ishrs.org—and a banner at the top of the page announces the Hair Transplant Challenge and links people to the survey.

You can help us drive traffic to this survey by letting your patients, friends, and colleagues know about our survey and encourage them to take the Hair Transplant Challenge. It's fun and only takes a few minutes to complete.

Watch for results of this survey to be posted in the Media Center of the ISHRS website later this year and in an upcoming issue of the *Forum*.

Online Buyer's Guide Now at Your Fingertips...

NEW! We have instituted an Online Buyer's Guide for members' use on the ISHRS website. It includes the names and contact information of many hair restoration surgery vendors—past exhibitors, advertisers, and corporate supporters of the ISHRS.

Click on the Members Only section at www.ishrs.org. The Online Buyer's Guide is listed under "What's New".

We hope you find the new Online Buyer's Guide convenient and useful.

INTERNATIONAL SOCIETY OF ISHRS HAIR RESTORATION SURGERY

Advancing the art and science of hair restoration

Upcoming Events

Date(s)	Event/Venue	Sponsoring Organization(s)	Contact Information
May 20-22, 2010	XIII International Congress of ISHR *Capri, Italy*	Italian Society of Hair Restoration *www.congresso.ishr.it/*	*info@ishr.it*
May 27–29, 2010	13th Annual Congress on Live Surgery Workshop *Vienna, Austria*	European Society of Hair Restoration Surgery *www.eshrs.com*	*www.eshrs.com*
June 25-27, 2010	ISHRS Regional Workshop New Advances in Asian Hair Transplantation *Bangkok, Thailand*	International Society of Hair Restoration Surgery *www.ishrs.org* Hosted by Damkerng Pathomvanich, MD	Damkerng Pathomvanich, MD *path_d@hotmail.com*
July 23-25, 2010	2nd Annual Hair Restoration Surgery Cadaver Workshop *St. Louis, Missouri, USA*	Practical Anatomy & Surgical Education, Center for Anatomical Science and Education, Saint Louis University School of Medicine *http://pa.slu.edu* in collaboration with the International Society of Hair Restoration Surgery	*http://pa.slu.edu*
August 18-21, 2010	4th Scientific Meeting of the Brazilian Association of Hair Restoration Surgery *Belo Horizonte/Ouro Preto, Minas Gerais, Brazil*	Brazilian Association of Hair Restoration Surgery	*clinica@marcelopitchon.com.br*
September 10-12, 2010	2nd Annual Meeting of the Indian Association of Hair Restoration Surgeons *Rajasthan, India*	Indian Association of Hair Restoration Surgeons *www.ahrsindia.com*	*www.ahrsindia.com*
October 20-24, 2010	18th Annual Scientific Meeting of the International Society of Hair Restoration Surgery *Boston, Massachusetts, USA*	International Society of Hair Restoration Surgery *www.ISHRS.org/18thAnnualMeeting.html*	Tel: 630-262-5399 Fax: 630-262-1520
February 24-25, 2011	16th Annual Scientific Meeting and Live Surgery Workshop *Okinawa, Japan*	Japan Society of Clinical Hair Restoration (JSCHR) *www.jschr.org* Hosted by Akio Sato, MD	Tel: +81-3-5351-0309 Fax: +81-3-5351-1395 *drsato@crux.ocn.ne.jp*
DIPLOMAS			
Academic Year 2010–2011	Diploma of Scalp Pathology & Surgery U.F.R. de Stomatologie et de Chirurgie Maxillo-faciale; *Paris, France*	Coordinator: Pr. P. Goudot Directors: P. Bouhanna, MD, and M. Divaris, MD	Tel: 33 + (0)1 + 42 16 13 09 Fax: 33 + (0) 1 45 86 20 44 *sylvie.gaillard@upmc.fr*
January 2011	International European Diploma for Hair Restoration Surgery	Coordinator: Y. Crassas, MD, University Claude Bernard of Lyon, Paris, Dijon (France), Torino (Italy), Barcelona (Spain). Department of Plastic Surgery *www.univ-lyon1.fr*	For instructions to make an inscription or for questions: Yves Crassas, MD *yves.crassas@wanadoo.fr*

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Dates and locations for future ISHRS Annual Scientific Meetings (ASMs)

2010: 18th ASM, October 20-24, 2010
Boston, Massachusetts, USA

2011: 19th ASM, September 14-18, 2011
Anchorage, Alaska, USA

2012: 20th ASM, October 17-21, 2012
Paradise Island, Bahamas

2013: 21st ASM, October 23-27, 2013
San Francisco, California, USA