



CARES Foundation

research, education and support for CAH

Improving health...connecting people...saving lives

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Use of Aromatase Inhibitors in Children with Short Stature and Advanced Bone Age



Jadranka Popovic, MD

Limited growth potential resulting from advancing skeletal maturation is a common problem in pediatric endocrinology. Estrogen is responsible for bone age (BA) advancement and growth plate fusion in children¹. In females estrogen is mainly formed in the ovaries and to a lesser degree through the aromatization of androstenedione. In males, the testes produce a small amount of estrogen and the majority of it is derived from the aromatization of testosterone. Aromatization is a chemical reaction requiring the enzyme cytochrome P450 aromatase. Blocking estrogen production by aromatase inhibitors (AIs) could potentially delay skeletal maturation and fusion, prolonging linear growth. This could improve the final adult height in children with short stature of various causes.

The FDA has approved AIs for use in reducing exposure to estrogen in postmenopausal women with breast cancer². AIs are not FDA approved for pediatric patients, although they have been used in this group for more than 20 years. The AIs first used were aminoglutethimide and testolactone, and the AIs now used in children are letrozole and anastrozole.³ These drugs are non-steroidal inhibitors which inactivate the aromatase enzyme. Letrozole appears to be a more potent suppressor of estrogen levels than anastrozole⁴ and has been more widely used in children.

Congenital adrenal hyperplasia (CAH) is one of the conditions in which use of AIs could potentially improve the final adult height. Bone age is often advanced in children with CAH in spite

of acceptable hormonal and metabolic control. Pediatric endocrinologists treating children with CAH often face the dilemma of how to balance the effects of hormonal replacement therapy. In order to control the excessive androgen levels and BA advancement, higher doses of glucocorticoids are sometimes required with possible negative effects on linear growth. On the other hand, lower doses could cause androgen levels that are too high followed by estrogen levels that are too high, which could lead to the advancement of BA and then to compromised final adult height.

The data on the use of AIs in pediatric patients is limited. Reports on letrozole treatment in children focuses on the effects on skeletal maturation and final

continued on page 22



Let's get warmed up for the 2008 No-Sweat Run for a Cure! Launching May 1. Please contact Ellie Avitan, ellie@caresfoundation.org, for details.

2008

No-Sweat Run for a Cure

a **virtual** event for a real cause

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2007 CARES CAH Conference

The 2007 CARES CAH Conference was held on November 10 at Cedars Sinai Medical Center in Los Angeles, CA. Nearly 350 people attended and made it a great day. The conference consisted of morning and afternoon sessions with tracks for adults, children, Classical CAH, Non-Classical CAH and Nurses. The featured talks included CAH Basics, Adult Treatment & Monitoring, Fertility & Pregnancy in CAH, Talking to Your Child about CAH, Surgical Reconstruction, and Sick Day Rules & Injection Training. Spanish language sessions were also available for Spanish-speaking attendees.

CARES Foundation would like to give special thanks to Cedars Sinai Medical Center for donating the use of their conference center, and Dr. Ricardo Azziz and Dr. Mitchell Geffner for co-hosting the conference. Ms. Faye Byrd and the staff of the conference center deserve a big thank you for all of their help in coordinating the day and helping everything to run smoothly.

Special thanks also go out to Scherr Lillico and The Proper Image Events for planning the conference, Tim & Liza Goodell and the Red Pearl Kitchen for hosting the speakers' dinner, all the hard-working volunteers who served as babysitters or translators for the conference, and the California Department of Health that provided the CEU's for nurses attending the conference.

The next CARES CAH Conference will be held in Winter or Spring 2009.



Jason Lin
and Kelly Leight



Eli'Anna Scott getting her face painted.



Children playing in the babysitting room

As always, CARES Foundation would like to thank all of the sponsors for this event.

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a message from the President & founder

We live in a time when the words impossible and unsolvable are no longer part of the scientific community's vocabulary. Each day we move closer to trials that will not just minimize the symptoms of disease and injury but eliminate them.—Christopher Reeve

Testimony to US House of Representative, 1999



and if so, how to fund it. If you are interested in helping, please email me at kelly@caresfoundation.org. To allow for more planning time, the next conference will be in the winter or spring of 2009.

At The Summit

And now for the most exciting news: CARES has begun planning its Summit to Establish Comprehensive Care Centers for CAH. As we are all aware, the quality of care for those with CAH can vary dramatically. Most especially, we have identified a huge gap in care for adults with CAH. Our goal is to establish guidelines for comprehensive care centers based on input from consumers (CARES members) and healthcare providers about how to best serve our community and improve healthcare quality. We believe that there should be a place for everyone with CAH to go for knowledgeable and experienced healthcare with access to sub-specialists as needed; where continuity of care is provided through the teen and adult years, where the volume of patients is sufficient to gain ample clinical experience, and where opportunities for research and to study and learn from our population are provided. The Summit project will be a 1-1/2 to 2 year project that will result in a publishable position statement. We believe this project will dramatically improve healthcare for our community and lay the groundwork for expanded research opportunities in the future.

Dear Friends,

We are on the brink of great things for our community. For the first time in decades, a new medication may be available soon to treat CAH. Phocus Pharmaceuticals has finished the second phase of its US clinical trial on Chronocort, with its unique delivery system for hydrocortisone. (*more on pg. 23*)

CARES Makes a difference!

For the fourth year, CARES is providing support to the CAH Natural History Study at NIH, which has studied over 210 people and has gained information which will shape the future of care. We have recently given grants to support two studies on nonclassical CAH while continuing our own quality of life survey of women with classical CAH. CARES has given out over \$300,000 in grants to support research since its launch 6-1/2 years ago, while providing support, education and resources for those affected, their families and the community that cares for those with CAH.

CAH Conference Impacts the World

This past November, almost 350 people attended our CAH conference from all over the world. We ran specialized tracks for different interests including parents, adults with classical and nonclassical CAH, nurses and Spanish-speaking members. The biggest complaints we received were that there was not enough time and some of the lectures were too crowded! A committee is looking at whether we should extend the conference to 2 days

The Best Non-Event!

In support of this great progress, I hope you will consider forming a team for our 2008 No-Sweat Run for a Cure; a virtual event for a real cause. Last year's run was a smashing success, and we're anticipating another fabulous "non-event." Please contact Ellie at 866-277-3737 or ellie@caresfoundation.org for all the exciting details.

Warmly,

Kelly

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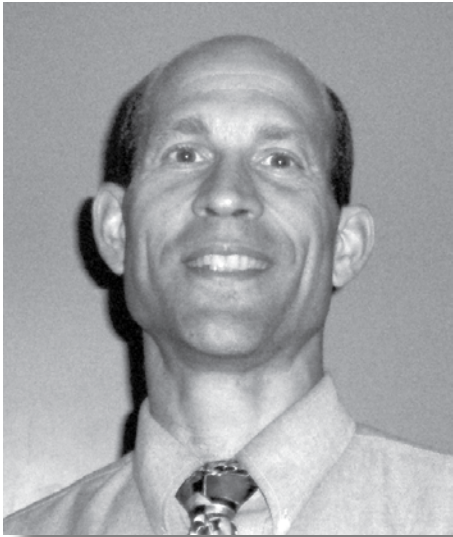
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CARES Foundation is pleased to welcome Richard J. Auchus, M.D., Ph.D., Felix Conte, M.D., Walter L. Miller, M.D., Sharon E. Oberfield, M.D., Selma Feldman Witchel, M.D., and Alejandro Diaz, M.D. to our Medical Advisory Board!

Richard J. Auchus, M.D., Ph.D.



Dr. Richard Auchus is Associate Professor of Internal Medicine, University of Texas Southwestern Medical Center, Dallas, Texas. He received his S.B. in Chemistry from Massachusetts Institute of Technology and his medical degree and doctorate in pharmacology from Washington University. Dr. Auchus completed an internship and residency in Internal Medicine at the University of Iowa Hospitals and Clinics and a fellowship in Endocrinology at the Wilford Hall USAF Hospital and the University of Texas Health Sciences Center in San Antonio. He did postdoctoral work and training at the University of California, San Francisco prior to joining the faculty in Dallas.

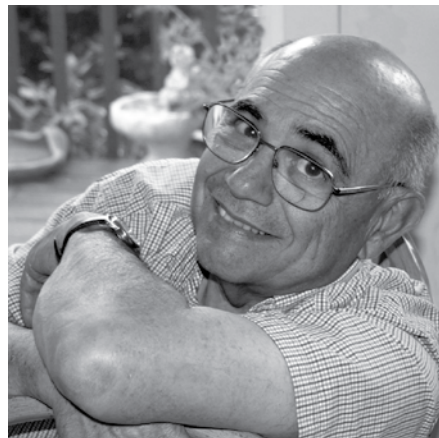
Dr. Auchus has been the recipient of several awards and honors including the Burroughs Wellcome Clinical Scientist Award in Translational Research and the Jean D. Wilson, M.D. Award for Excellence in Scientific Mentoring at UT Southwestern. Memberships in profes-

sional organizations include the American College of Physicians/American Society of Internal Medicine, the Endocrine Society and the Dallas County Medical Society/Texas Medical Association. Dr. Auchus has authored over 90 journal articles and book chapters and presented at a diverse range of national and international conferences. His group is active in research projects ranging from basic chemical principles of steroid biosynthetic enzymes to clinical and translational investigation in disorders of the pituitary, adrenals, ovaries, and testes that cause hypertension, infertility and obesity.

The common theme of all his work is steroid and sterol biosynthesis and action with an emphasis on human diseases. Dr. Auchus collaborates with a variety of investigators spanning a broad range of science from clinical neurobiology to basic mechanisms of nematode lifecycles. His clinical interests also focus on pituitary, adrenal, and reproductive diseases that involve disorders of steroid production.

Felix A. Conte, M.D.

Dr. Felix Conte, Professor Emeritus in Pediatrics at the University of California in



San Francisco (UCSF), is a graduate of Columbia University, New York University School of Medicine and was a resident in Pediatrics at Bellevue Hospital in New York City. He was a fellow in pediatric endocrinology at Babies Hospital and UCSF under the tutelage of Dr. Melvin Grumbach and Dr. Selma Kaplan. In 1970, Dr. Conte was appointed Assistant Professor at UCSF and has worked together with them ever since. During his tenure, he has helped train over 100 fellows from all over the world and has published numerous articles and chapters about pediatric endocrine conditions. Dr. Conte has a particular interest in children with atypical genitalia.

Walter L. Miller, M.D.



Dr. Walter L. Miller, Professor of Pediatrics and Chief of Endocrinology at the University of California, San Francisco (UCSF), holds joint appointments in the Center for Reproductive Sciences and the Human Genetics Program. He received his S.B. in Philosophy from the Massachusetts Institute of Technology and his M.D.

from Duke. After completing two years of residency in pediatrics at the Massachusetts General Hospital and two years of general endocrinology in the USPHS at NIH, Dr. Miller moved to San Francisco for a third year of residency, a two-year fellowship in biochemistry and one year of pediatric endocrinology before joining the UCSF faculty in 1978. Promoted to Associate Professor in 1983, and to Professor in 1987, he was named Division Chief in 2000.

Dr. Miller is internationally known for his landmark work in the molecular biology of steroid hormone synthesis. His group described the post-translational regulation of androgen synthesis and has used clinical investigation, molecular and cellular biology, biophysics and computational imaging to study human disease. Dr. Miller was the co-chair of the LWPES/ESPE consensus conference on CAH and principal author of the consensus statement published in 2002.

Active in numerous societies and editorial boards, Dr. Miller served on the Biochemical Endocrinology Study Section, the Basil O'Connor Advisory Committee of the March of Dimes and currently serves on the Board of Scientific Counselors of the National Institute of Child Health and Human Development. He received the Ross Research Award from the Western Society for Pediatric Research, the Edwin B. Astwood Award and the Clinical Investigator Award from the Endocrine Society, the Clinical Endocrinology Trust Medal from the British Endocrine Society, and the Samuel Rosenthal Foundation Prize for Excellence in Academic Pediatrics.

Sharon E. Oberfield, M.D.



Sharon E. Oberfield, M.D., Professor of Pediatrics is the Director of the Division of Pediatric Endocrinology, Diabetes and Metabolism and the Program Director of the Fellowship Training Program at Columbia University Medical Center, New York Presbyterian Hospital.

In the past, Dr. Oberfield has been a Director of the Lawson Wilkins Pediatric Endocrine Society (LWPES) and chaired its Drug and Therapeutics Committee. She is the current Chair of the LWPES Program Directors Committee and a member of the Endocrine Society and its Clinical Guidelines Subcommittee. She is a current member of the Diabetes, Endocrinology and Metabolic Diseases B Subcommittee of the Diabetes and Digestive and Kidney Diseases Initial Review Committee, National Institute of Diabetes Digestive and Kidney Diseases. The author or co-author of more than 125 articles, multiple chapters and reviews, Dr. Oberfield is also an invited speaker at national and international meetings on topics related to disorders of the adrenal gland and puberty.

Selma Feldman Witchel, M.D.



Dr. Selma Feldman Witchel is an Associate Professor of Pediatrics at the Children's Hospital of UPMC, University of Pittsburgh, Pittsburgh, PA where she also serves as the Program Director of the Pediatric Endocrine Fellowship Program. She is a graduate of Oberlin College and the University of Pittsburgh School of Medicine. Following her residency in pediatrics at the Children's Hospital Medical Center in Cincinnati, Ohio, Dr. Witchel completed her pediatric endocrine fellowship at the Children's Hospital of Pittsburgh.

Dr. Witchel has a long-standing interest in the diagnosis and management of congenital adrenal hyperplasia. She has published many research articles, reviews and chapters about congenital adrenal hyperplasia, ambiguous genitalia, genetics of disorders associated with androgen excess, and polycystic ovary syndrome. Dr. Witchel is a member of the Endocrine Society, Lawson Wilkins Pediatric Society, American Pediatric Society, and the Androgen Excess Society.

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Thank you! Thank you! Member Events Raise Money for CARES

Over the last few months, CARES' supporters have been very active, finding creative ways to raise money for the organization and our mission. We rely on the generosity of our members, their families and friends and corporate sponsors for our funding, and we appreciate all who pitch in! Here are some of the activities that occurred over the last few months.



Susan Fry in Massachusetts was wondering how she could raise money for CARES. As an Osborne Books consultant, she realized she could sponsor a vendor fair! She did so in her home town of Pepperall last October. It was a great success!



Gary Russell put on his running shoes again and ran in the 2008 Houston half marathon in January. Gary asked friends and family to sponsor him in loving memory of his cousin Nicole Chasson (inset), SWCAH, who passed away in 2005.



Marisa Langford formed Team CARES in honor of her son Jake, who has CAH. She ran in the Gasparilla Classic 15K Run in February and enlisted her friend, Eric Rabinovitz to run with her. If you want to read more about Marisa, her family, and this event, you can read her blog at <http://icareforjake.blogspot.com/>.



Happy Birthday wishes go out to Clay Upchurch. His 3rd birthday was in March. Jessica and Matthew also asked friends and family to make donations in lieu of birthday gifts. Everyone had a wonderful time at his birthday party!



Happy 1st Birthday to Kaylin Wentink. Her birthday was in January and her parents asked family and friends to make donations to CARES in lieu of birthday gifts. They handed out brochures and information about CAH and CARES. Kaylin certainly enjoyed her cake that day! Who could resist that "sweet" face?



Rhonda Brittain enlisted the help of Cold Stone Creamery in Oregon for her fundraiser. Cold Stone agreed to donate a portion of the proceeds to CARES for a few hours on April 3. To supplement her fundraising efforts, Rhonda also secured prizes for a raffle drawing held that day!



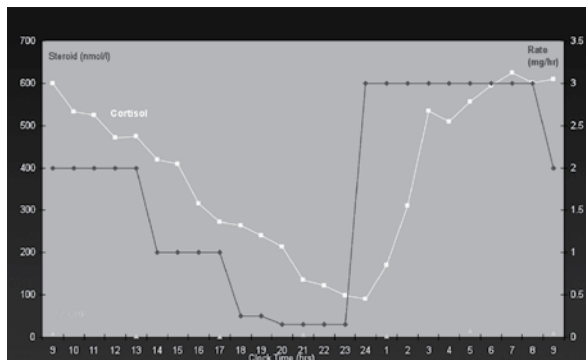
We are so grateful for everyone's support. Each of these events has such a positive impact on our entire community. They serve to not only support us financially, but also raise awareness about CAH. Way to go!

CONTINUOUS SUBCUTANEOUS HYDROCORTISONE INFUSION-PUMP THERAPY AS A WAY TO MIMIC NORMAL CORTISOL PROFILES

Peter Hindmarsh, MD, SM Bryan, MD, David Brown, MD and Chris G.

Dr. Peter Hindmarsh, a member of the Development Endocrinology Research Group at the Institute of Child Health at University College London in the United Kingdom, has used continuous hydrocortisone infusion therapy to treat congenital adrenal hyperplasia (CAH) in one of his patients, Chris. He has reported on this experience at a number of endocrinology meetings. The treatment involves a continuous subcutaneous (under the skin) injection of cortisone through a small needle that is left in place 24 hours a day. The equipment is identical to that used by diabetics who are treated with a continuous insulin infusion and is adapted to inject hydrocortisone instead of insulin. The rate of injection can be varied to mimic the natural cortisol secretion rate (see chart) and can also be increased to cover times of stress or illness. Besides controlling the infusion rate, the patient must periodically change the injection site.

This treatment is considerably more complicated and intrusive than taking a few tablets by mouth each day. However, for someone like Chris, with



Hourly pump infusion rates are shown in black.
Hourly blood cortisol concentrations are shown in white.

serious CAH control problems, it can be useful. Chris's problems included debilitating headaches, excessive weight gain, anger, depression, acne and gastritis, depending on which oral treatment he was taking. He was treated first with increasing doses of hydrocortisone, next with prednisolone and then with dexamethasone. Control was never satisfactory, and he always experienced some combination of the unwanted side effects. Finally, during puberty, he was switched back to hydrocortisone, but then he experienced weight loss, weakness, and dizziness and was unable to attend school. Although at first reluctant to try the continuous injection treatment, he was so desperate, he decided to give it a try. He is now a university student and is delighted with the results.

To quote Chris, "I have been on the pump for over two years: I think I probably have the best controlled CAH in the world. Another bonus is that I started to grow again... and am over 5'9". I go to the gym as often as I can. My weight is stable and everyone says I am very lean. I do battle with accepting that I am not fat and worry about my weight, but I realize now that my weight was not my fault. Of course you have to be careful with what you eat, but I am now certainly eating more than I ever did in the years where I battled with my weight, even though I am on the same dose. I think it is the way the hydrocortisone is delivered, slowly and continuously at a rate which has been specially tailored to suit my body's needs. It took some getting used to having it attached to me all the time, especially at night, but I am now so used to it that I feel strange without it."

"You have to be disciplined in changing the site regularly, but really it's a very small price to pay when I consider what advantages this method has given me. The pump gave me my life back, and I will always be grateful to Professor Hindmarsh and my mum, as I could not have got through any of this without her constant love and support."



This was before I started using the pump and I was not getting enough cortisol.

The pump was so efficient that after 2 months, I started to show signs of over suppression with a puffy face, so we reduced the rates.



This was taken a few months after photo 2, as Prof Hindmarsh lowered and adjusted the rates to what I needed. I no longer have a weight issue after battling with my weight all my life.

Alcohol, Teens & Adrenal Insufficiency

By Helen Mann, Coordinator, New Zealand CAH Support Group, Reprinted with permission, CAHNZ

Overview

Throughout human history alcohol has been used in many festivities, celebrations and social occasions. My purpose in writing this article is to encourage parents whose adolescents have CAH to develop a healthy and informed view about teenagers' alcohol use so they can assist them to intelligently negotiate the risks associated with adrenal insufficiency and alcohol use.

The normalization of binge drinking in our culture is well recognized and, in this regard, youth receive more than their fair share of criticism in the media. It should be noted however that many teens either do not drink or drink within sensible limits and engage in safe practices such as nominating "safe drivers." It is also true that, due to teens' increased autonomy and time spent with peers, some get caught up with others who misuse or abuse alcohol. This presents difficulties for parents who, on one hand, acknowledge the need for teens' increased independence and, on the other, are hard-wired to keep them safe. Shifts in the parenting role also occur during this period, from a strongly directive to more consultative position. This can be frustrating at times for parents when well-meaning information or support is offered, but neither wanted nor accepted.

Alcohol & New Zealanders

Many use alcohol responsibly and have healthy attitudes and practices around drinking. However, a significant proportion (about 20%) in our country misuse



it regularly through binge drinking. Mixing alcohol with other substances e.g. party pills, cannabis, creates additional health risks.

Alcohol, it can be said, is a great servant but a poor master. Along with nicotine and cannabis, it has been New Zealanders favorite drug of choice for many decades. The use and misuse of alcohol raises some special issues for parents of teenagers and young adults who have CAH. Many argue alcohol use among youth has become an area of increased concern. Why is this?

Since WW2, alcohol consumption has increased throughout the Western world, reflecting increased levels of personal autonomy and discretionary income (especially among youth), marketing & media pressures, a rise in more liberal or democratic styles of parenting and an increase in availability. For a variety of reasons, teenagers today are also less likely today to spend time in the company of adults, reducing opportunities for modeling

healthy drinking behavior and decreasing the monitoring of alcohol consumption in general. Research suggests around 60% of alcohol partaken by underage adolescents is obtained from parents.

Our attitude on drinking differs from some other countries. Our "binge" mentality has widespread repercussions for personal health, family life and our lives in the wider community and the workplace. According to one recent estimate, alcohol costs our country \$1.17 billion annually in lost productivity, is linked with 70% of accident and emergency

admissions at hospitals and is blamed for approximately 90% of weekend crime. When alcohol is teamed with access to fast cars and other illicit drugs, our high rates of teen pregnancy, sexually-transmitted infections and date-rape, along with recent research linking long term binge drinking with brain damage, it is clear this is a social issue that affects us all.

Parenting Guidelines Around Teen Alcohol Use: The Basics

According to renowned family therapist, Virginia Satir, parents are responsible for training children in four main areas: communication, limits and boundaries, self-esteem and links with the outside world. When it comes to communicating about and setting limits around alcohol use, effective parents recognize there is no "one size fits all" way of risk-proofing their teen. There are however, some principles that can assist them in negotiating this territory.

#1 The first is to enable children from an early age to make good choices. In early childhood, decision-making skills are flexed through allowing choices within limits, e.g. cheese or peanut butter; red or blue shoes; which nighttime story to read. Responsibility for choices expands from here into areas such as managing pocket money, household chores or caring for pets.

Decision-making improves when children have opportunities to make choices and learn from their mistakes without being judged or shamed. They need support and encouragement, but not lectures or moralizing when things do not work out. Neither should they be rescued. When consequences are not life-threatening or physically harmful, children should bear at least some of the weight of the consequences of poor choices. This learning from natural consequences is a critical part of learning independence and developing good judgment. Unfortunately, parents often must watch patiently while their children go “round the mountain” more than once. Learning self-responsibility is seldom a linear process!

Ability to make sound decisions becomes most important for adolescents because issues are weightier, e.g. dating, driving and career choices. As our culture makes it almost impossible to keep children completely away from alcohol, parents must accept that all young adults contend with alcohol at some stage, and many do so before the legal drinking age. Good decision-making and ability to take personal responsibility are both key factors here.

#2 Values are caught, not taught. The best way to teach healthy attitudes and habits around the use of alcohol is to be a good role model. Teenagers

in particular hate hypocrisy, and “do as I say but not as I do” is not tolerated by modern youth. Teenagers want adults to be authentic, which means actions speak louder than words.

#3 Parents are the first, and continue to be children’s most important teachers! From an early age they need to create and grab “teachable moments, e.g.

(i) using movies or TV news to initiate conversations about alcohol and drinking,

(ii) playing games to improve awareness and sharpen good thinking skills e.g. “What if”... “What if you were home here with a friend and they said ‘Let’s drink some of your dad’s gin and then top it up with water?’ What choices do you have? What might be the consequences for each?” This has the dual advantage of giving you insight into their decision-making capabilities and also subtly lets them know you’re one step ahead!

#4 Parents need accurate information. Other than hypocrisy, nothing turns away teenagers more than hyperbole or exaggeration. Today’s youth are generally well-informed. From an early age they access information through the web and school-based health and drug education programs like DARE. Parents need to be clear about facts before they talk to teens about alcohol and other drugs. There are lots of helpful resources—pamphlets, library books, websites such as www.faceproject.org and www.teens.drugabuse.gov.

#5 Parents also need to be realistic. Adolescents are on the threshold of adult life. They are working out what they believe and who they are and experimentation is normal. They will make some good and some poor decisions and make some mistakes. While it’s important not

to minimize alcohol misuse or abuse, neither should parents “sweat the small stuff.” One drunken episode is not a precursor to a life on the streets!

#6 There are some things parents can do to actively build resiliency. A large international study on youth well-being (ADD Health, 1996) outlines four things that help “risk proof” children:

- (i) Having high parental expectations along with provision of support;
- (ii) Providing homes that are drug and firearms-free;
- (iii) Being home at critical times of the day—when children are getting up and coming home from school & bed times;
- (iv) Having family meals together (This is considered particularly important.)

#7 Despite the fact that parents today are often extremely busy, they must continue to show interest in their teens’ lives and work at keeping communication open. There is truth in the saying that children spell “L.O.V.E.” as “T.I.M.E.” The New Zealand Youth 2000 report showed 40% of teens want to spend more time with at least one parent. The research is clear: teenagers are less at-risk when strong family bonds are maintained.

#8 When kids approach adolescence, parents must consider some strategies for alcohol-related incidents. Usually, natural and logical consequences work well, but the first and foremost step is active, open communication. For a “first offense” (e.g. teenager arriving home intoxicated) parents should wait until they are sober and calmly and non-accusingly talk with them about it. It may be the teen got out of their depth and made a poor decision. Parents can

continued on page 10

be understanding and perhaps share an early (repeatable) mistake they also made with alcohol. This will help teens feel that parents are for, rather than against, them and that they understand. Feeling upset/ashamed/distressed about this episode may be the only consequence the teen needs for a first offense along with some guided discussion about what could be done differently next time. Family strategies might need to be put in place e.g. "Call us any time and we'll come and collect you with no questions asked" (that is, until a calmer, more-rested stage.)

#9 Finally, even for a first or uncharacteristic lapse, parents must kindly, but firmly, follow through with logical consequences. This is not punishment, but about providing a learning opportunity, one which requires the teen to take responsibility for his/her actions. If the incident has involved vomiting and their bed has needed changing, parents should raise this with them on the next day and say "John, there are sheets that need washing from last night. Please make it a priority to rinse them and put them in the machine. I'd like this done before you go to Jack's this afternoon. Thank you." Note the importance of neutral, non-accusatory or shaming language, and the power of delivering this with calm, positive body language. Mini-lectures, interrogation, blaming, shaming especially when delivered in a highly emotive manner are always counterproductive.

**Alcohol and Teens with CAH:
The Extras**

Many young people make very good choices around alcohol and, conversely, many adults do not. For parents of teens who have CAH there are a number of ad-

ditional complicating factors. These are:

- Increased risk of electrolyte imbalance caused by vomiting;
- Increased risks of being drunk/falling asleep and failing to take their next dose of medication (which should be increased if they've vomited);
- Drinking buddies may not understand their medical needs or may also be "under the influence" reducing the likelihood of them getting appropriate medical intervention.
- Increased risk associated with unwillingness to wear Medic Alert disc and the potential of alcohol-related accidents/injury. This is

"Call us any time and we'll come and collect you with no questions asked"

important because a teenager requiring emergency help will need a CAH wallet card or Medic Alert disc to alert ambulance staff. (Also note: should SoluCortef be required, ambulances will not administer it, even when this is supplied by the patient and accompanied by a doctor's covering letter.

**Emotional Hurdles
for Parents of CAH Teens**

It's helpful for teens to understand how alcohol affects their bodies, especially with a complex condition like CAH. Alcohol is processed via the liver and the kidneys and anecdotal evidence from CAH adults suggests people with adrenal insufficiency do not process alcohol

as well as others. Many adults with CAH feel they have gotten drunk quicker and have been hung-over for longer than their peers.

As do most of us, adolescents learn by doing and working things out for themselves. However it is particularly important that parents with a CAH teen be pro-active about points #1 to #9 as safety issues are magnified for teens with CAH. One of the big challenges for parents of teens with CAH is to contain their anxiety, so they don't consciously or unconsciously restrict teens. (This goes for other areas too, not just alcohol). Protectiveness is understandable, but teens will resent it, especially if it's because of their CAH. As many teenagers with CAH have already grown up with anxieties around health and body issues, it is important that parents act calmly and reasonably. If a parent needs to cry or let off steam, they should

do so in private or seek support from a partner or friend. Talking with a GP can be helpful as can talking with other CAH parents who have teenagers the same age or older. It is also very helpful to signal to your teen's physician in advance that you would like some support with the issue. Depending on the maturity of the individual child, this discussion may need to take place just prior to or during adolescence. As physicians deal regularly with other teens for whom misuse of alcohol can be risky (e.g. diabetics), he or she is in a good position to educate a teen about the risks, as well as offer practical guidelines for healthy drinking habits. They have the advantage of being an independent adult voice, one which a teen may be more willing to listen to or take advice from at this stage. Another reason for not overstating the

perils of drinking is that teens with CAH may worry about upsetting parents, choosing to stay away from home if they have had one drink too many. If teens do get drunk or become under the influence of alcohol or other drugs they need to be where a responsible caregiver can keep an eye on them. Depending on the severity of the episode, they may require SoluCortef and their electrolytes monitored throughout the next day. They may need saline or fluids and will require extra medication as per the usual guidelines for vomiting.

Many CAH teens may feel angry their medical condition puts yet another limit on what they can or can't do. Peer-acceptance and belonging is so important in adolescence and alcohol is so central in many recreational and sporting events that restriction caused by CAH can be hard for some to bear. For some boys, it might mean they can't "hold their drink like a man" and thereby lose face with peers. They may be frustrated that friends get drunker, but bounce back quicker than them. This anger needs to be acknowledged and talked about.

Finally, while CAH presents extra challenges for young drinkers, parents must not focus on these to the exclusion of other alcohol-related risks. For young teens especially, the disinhibition caused by alcohol makes good decision-making about driving and dealing with sexual urges or advances very difficult. Use a variety of means to get the message across—older relatives or family friends whom teens like and trust, books or videos, pamphlets or websites designed for teens which discuss these issues.

P450 Oxidoreductase Deficiency: Another Nonclassic CAH

David Brown, MD

A recently recognized abnormality in steroid biosynthesis, P450 oxidoreductase (POR) deficiency, is discussed in Genetic and Clinical Features of P450 Oxidoreductase Deficiency by Rachel R. Scott, MD & Walter L. Miller, MD (Horm Res 2008; 69:266-275). This disorder is a distant relative of the much more common form of CAH, 21 hydroxylase (21OH) deficiency and is clinically far more devastating.

POR affects the production of a number of enzymes important for steroid synthesis (21 OH included) and results in a high serum concentration of 17-hydroxy progesterone, low serum androgen concentrations and poor cortisol response to ACTH stimulation. In addition, over 80% of the 50 recognized patients have skeletal abnormalities known as the Antley-Bixler Syndrome. The most serious of the bony abnormalities is coanal atresia a condition where the nasal passages are obstructed. This is serious for newborn babies because they will suffocate if they can't breathe through the nose. Coanal atresia can prove fatal if not recognized and treated soon after birth. The remainder of the skeletal abnormalities are serious but not life-threatening and include midface hypoplasia, craniosynostosis, fusion of the radius and ulna, femoral bowing and femoral fractures. The manifestations of the abnormal steroid metabolism include female virilization (clitoromegaly and hypoplastic labia majora), male under-virilization (penile hypoplasia and cryptorchidism), increased risk for adrenal crisis and, theoretically, abnormal drug metabolism by the liver.

Not everyone with Antley-Bixler Syndrome has POR. However, if a newborn baby has these skeletal abnormalities and a high serum 17-hydroxyprogesterone concentration on the newborn screening test, POR is a possible diagnosis. In addition, an older child with a number of skeletal problems fitting the Antley-Bixler Syndrome should be tested for POR.

Welcome New Staff members

Please join us in welcoming the newest members of the CARES Foundation team.

Suzanne Levy
Program Manager

Ellie Avitan
Development Director

Odaly Roche
Administrative Assistant/
Office Manager

Amelia (Mia) Moody
Adult Support

MORE SUPPORT GROUPS NEEDED!

We need volunteers to help run support groups in the following states:

Hawaii • Massachusetts
Montana • New Hampshire
North Dakota • Rhode Island
South Dakota • Wyoming

Please contact Suzanne at
suzanne@caresfoundation.org
or (toll free) 866-227-3737



Classical Women's Group

A place for women with classical CAH to talk about the issues that affect them. To join, visit <http://health.groups.yahoo.com/group/classicalwomen/>

CAHSisters2

A place for adult women with late-onset CAH. To learn more about this group, go to <http://groups.yahoo.com/group/CAHSISTERS2>

CARES Spanish Group

A Yahoo Group for the Spanish-speaking CAH community. To learn more and join, go to <http://mx.groups.yahoo.com/group/hiperplasia/>

Greek CAH Groups

Places for Greek speaking families and individuals affected by CAH. To learn more and join, visit <http://groups.yahoo.com/group/cabgreece> and <http://groups.msn.com/cabgreece>



CARES FOUNDATION
Support Groups are active in
most states and several countries:

UNITED STATES

ALABAMA, ALASKA, ARIZONA,
ARKANSAS, NORTHERN
CALIFORNIA, SOUTHERN
CALIFORNIA, COLORADO,
CONNECTICUT,
NEW ENGLAND,
FLORIDA, GEORGIA, IDAHO,
ILLINOIS, INDIANA, IOWA,
KANSAS, KENTUCKY,
LOUISIANA, MAINE,
MID-ATLANTIC,
MARYLAND & DELAWARE,
MINNESOTA, MISSISSIPPI,
MISSOURI, NEBRASKA,
NEVADA, NEW JERSEY,
NEW MEXICO,
NEW YORK (NCAH),
NEW YORK UPSTATE,
NORTH CAROLINA,
OHIO, OKLAHOMA, OREGON,
PENNSYLVANIA, SOUTH
CAROLINA, TENNESSEE, TEXAS,
UTAH, VERMONT, VIRGINIA,
WEST VIRGINIA, WISCONSIN

INTERNATIONAL

BRAZIL, CANADA, CHILE,
COLOMBIA, ECUADOR, FRANCE,
GREECE, HUNGARY, INDIA,
MEXICO, SYRIA, URUGUAY

For information,
please call us at 866-227-3737
or visit our website: www.caresfoundation.org

NEXT CARES CONFERENCE

The next CARES Conference will be Winter or Spring of 2009. We are re-working our model and looking to make it even better (and maybe longer). Please email Suzanne Levy at suzanne@caresfoundation.org if you would like to help with the planning committee.

Pfizer, with assistance from CARES Foundation, has developed an important tool for healthcare professionals

to use with patients who may experience an acute adrenal crisis:

The Solu-Cortef® Care Kit.

The care kit contains the following components:

- Patient brochure: Information about AI, including general education, crisis prevention tips and an "In Case of Emergency" form
- Injection brochure: Step-by-step on how to administer Solu-Cortef in case of an adrenal crisis
- Physicians can order kits and obtain samples of Solu-Cortef by calling 1.877.465.6437 or contacting Pfizer at www.pfizer.com



CARES Meetup at White Post Farms

CARES Foundation's NY City Metro Area Support Group is pleased to announce plans for a Meetup at White Post Farms in Melville, New York.

Bring the kids and enjoy a day in the country!

Date: Saturday, June 7, 2008 • Time: 11:00 am

Location: White Post Farms, 250 Old Country Road, Melville, NY 11747 • Host: Deborah Brown

For more information, please contact CARES Foundation NY City Metro Area Support Group Leader Deborah Brown at 516-808-9020 or deborah.annie.brown@gmail.com

Please check website for \$2.00 off coupons on up to four admissions. Rain date: June 14th. We will notify you the night before or early morning on June 7th. FYI: The Farm does not accept credit cards.

**Animal Farm • Gourmet Farm Market
Garden Center • Train Rides • So much more!**

CARES Support Group Family Fun Day

If you would like to get to know other families affected by CAH, join the CARES Foundation Support Group for SC for the Family Fun Day to be held on Saturday, May 17th from 11 am—2 pm. Support Group Leaders, Kevin and Johnette Kinard of 1988 Mt. Pilgrim Church Road, Prosperity, SC will host this event at their home. Please contact them if you would like to attend an afternoon of fun, food and fellowship. Hope to see you and your family there!!

We will have inflatables, games for all and a picnic potluck lunch.

Please bring your favorite picnic lunch item to share! Home Phone 803-364-9945 or email to kevin1@backroads.net.



NEWS ABOUT SOLU-CORTEF®

Pfizer's Solu-Cortef Available at Reduced Cost

Thank you to Pfizer for making Solu-Cortef available at reduced cost to those in financial need through their Savings Card Patient Assistance Program. Cortef continues to be available both free and at reduced cost through the savings card, based on level of individual financial need. Call 1-800-707-8990 to apply.

Solu-Cortef and Insurance Denials

CARES Foundation has been receiving reports that patients are having trouble getting their insurance to cover Solu-Cortef. This is a new phenomenon, and we would like to hear from you regarding why it was denied and by which insurance companies. E-mail us at: info@caresfoundation.org

Any communication from CARES Foundation, Inc. is intended for informational and educational purposes only and in no way should be taken to be the provision or practice of medical, nursing or professional health-care advice or services. The information should not be considered complete or exhaustive and should not be used in place of the visit, call, consultation or advice of your physician or other health-care provider. You should not use the information in this or any CARES Foundation, Inc. communication to diagnose or treat CAH or any other disorder without first consulting with your physician or healthcare provider. Any referral to physicians is provided as a courtesy only.

Volunteer Work in Costa Rica

By Nick Mann

My December trip with International Student Volunteers (ISV) to Costa Rica started with a 12-hour flight to LAX where we then caught a flight to the capital city San Jose. During the flight I made an effort to get to know the other students as I'd be working closely with them over the next month. On leaving Christchurch, I knew no one.

Once in Costa Rica the forty of us were split into our pre-chosen work projects, ten people in each team. We went our separate ways to the various places we'd be living and working for the fortnight's work—either eco-conservation projects or community development. I headed to Ostional beach, located on the north west coast of Costa Rica, where I was hosted by a local woman who lived with her granddaughter. I recall being shocked we were not allowed to flush toilet paper and was pleased I was not a fussy eater. (Beans and rice were the staple diet. One morning I was served condensed milk, peanut butter and crackers for breakfast.)

My job in Ostional was patrolling the beach at night (11 pm to 6 am) in order to find beached turtles coming ashore to nest. Four species of sea turtles nest on Ostional beach, but our primary concern was the Leatherbacks, or 'boula' in Spanish. (You can tell a leatherback because they don't have the usual 'panels', but five long ridges down



their backs.) Our aim was to locate nesting turtles, take measurements and place a locating chip in them if they did not already have one, collect eggs as they were being laid and relocate the eggs to the hatchery. The hatchery was built on the beach and served as a safe house to protect the relocated eggs from both non-human and human threats. Hatchery duty was another of my jobs, which simply meant my sitting on the beach and keeping guard against poachers stealing eggs to sell and keeping crabs at bay. Leatherback eggs are approximately 6 cm in diameter and spherical. They don't have a hard shell and resemble a ping pong ball feel—only feel slightly softer. Each time a

leatherback came ashore they laid around sixty eggs and another thirty yolkless eggs, which helped ventilate the nest and divert predators from the 'real' eggs. I was lucky enough to see two leatherbacks nesting. It was an amazing experience watching a turtle with a carapace length of over 155 cm laying eggs. The excitement was further emphasized by the fact they are severely endangered, that is, 98% of the original population has gone.

I battled initially with my fear of insects and spiders, so was pleased when I adjusted because the spiders were colossal. I learnt an efficient technique method, which we called the 'jandal smack' method. Scorpions and snakes were not such a problem, though I did see a few. (The former did not respond to jandal smacking and my host would get out a machete to deal with them.) I was also excited to see sloths, raccoons, squirrels and iguanas. Squirrels are definitely as cute in real life as they look in pictures.

After these two weeks of work all the Ostional teams reunited and then the 'adventure' tours began. Forty percent of us were Kiwis and the rest were Aussies. We started the tour with an amazing white water rafting trip on one of the top ten rapids in the world. Wow! It was exciting beyond description and for me it was definitely the best part of the whole tour. We went on numerous nature hikes and guided tours through different ecosystems. Costa Rica is known for its rainforests and endangered species. We stayed in some very interesting eco-motels, some in the rainforest itself. Other activities included rappelling down an 80m waterfall, natural hot pools, horse riding and sky trekking. Sky trekking meant flying through the jungle canopy on giant flying foxes up to 1000m in length. At times, the cables could be up to 200 metres above ground level and could produce speeds of 80 km/ph. It was fantastic.

In my time away I pushed myself to my limits as much as possible. I valued the 'out of comfort zone' experiences and the great new friends I made. My medical condition didn't minimise any of my enjoyment or participation in any activities. Overall it was the best time of my life and I'm grateful to mum and dad for making the whole trip possible.

Nick Mann, 21, a student at a New Zealand University, is studying psychology. Nick has SWCAH.

Reprinted with permission from New Zealand CAH support group newsletter March, 2007

CAH Studies

CAH and Osteoporosis Screening Study UNC Chapel Hill, North Carolina

WHO: Children with CAH who are 8-12 years old (bone age <14 years) and are still growing. Siblings (6-14 years old, bone age <14 years old) of those children with CAH who otherwise meet the same eligibility criteria except that they do not have CAH and are not on glucocorticoids.

WHY: Although cortisol replacement is essential to treat children with CAH, there is the potential risk of over-treatment with glucocorticoids that can result in abnormal weight gain, decreased linear growth and, more recently reported in adults, the risk of osteoporosis. We are now testing if there exists a risk for osteoporosis in children with CAH and if this risk is related to the dosing of glucocorticoid used, as would be expected with any medical condition in which steroids are required for long-term treatment. We are also examining if the subtype of CAH contributes to the risk for osteoporosis.

WHERE: Children will be enrolled in the study at the General Clinical Research Center at the University of North Carolina, Chapel Hill.

WHAT: Your child would have:

1. Bone Age X-ray
2. DXA scans (to screen for osteoporosis and for subtle spine fractures).
3. Special X-ray of his/her arm to look at the effects of glucocorticoid dosing (Cortef, for example) on bone structure itself
4. Blood and urine tests to determine the degree of his/her "control" of CAH
5. Blood test for genotyping for all children in the study. In this way, "control" siblings can find out if they are "unaffected" or "carriers".

WHEN: This would all occur in a one-time visit (3 hours) for your child with CAH and/or sibling.

HOW MUCH: The clinical visit, including laboratory testing, radiologic evaluation and physical exam will be paid for by this protocol. Overnight accommodations can be arranged, a rental car to/from the airport and parking at UNC will be covered. Travel assistance is possible (please inquire for details). There is a \$50 compensation provided for incidental costs for each child enrolled.

For more information, please contact:

Karen J. Loechner, M.D./Ph.D.

Director, UNC Pediatric Osteoporosis Clinic
Assistant Professor, Pediatric Endocrine Unit
(919) 216-5946 (*pager)
(919) 966-4435 ext. 224 (voice mail)
(919) 966-2423 (fax);

or

Roxanne Schock, CDE/RN

Study Coordinator
(919) 966-0428 (voice mail)
(919) 966-0971 (fax)

MODIFIER GENES IN 21-HYDROXYLASE DEFICIENCY STUDY

Dr. Richard J. Auchus is conducting a study to identify other genes that modify the clinical and biochemical variations in participants with CAH due to 21-hydroxylase deficiency (21OHD). The study is open to participants who are at least 18 years of age, taking less than 15 mg/m² hydrocortisone per day for at least 4 weeks, have two “severe” alleles excluding the A/C656G mutation and will consent to genetic testing, if necessary. Participants will be admitted to a research center in either Dallas or New York for a period of 48 hours. For questions about the study or more information, please contact Dr. Richard Auchus at (214) 648-6751.

TELEPHONE INTERVIEWS: WOMEN DIAGNOSED WITH CONGENITAL ADRENAL HYPERPLASIA

Researchers at Lehigh University’s Counseling Psychology Program are currently looking for women diagnosed with congenital adrenal hyperplasia (salt-losing or simple-virilizing types), aged 25-45, who would be willing to be interviewed over the phone for one hour as part of a confidential, qualitative investigation on health-related quality of life, mental health concerns and counseling. As treatment for CAH evolves, placing more emphasis on individuals and calling for the use of multidisciplinary treatment teams, we are eager to hear women’s insight on their experiences and recommendations for counselors. All participants who take part in the phone interview will be entered into a random drawing for a \$100 Visa gift card (odds of winning roughly 1 in 12). This study and participant request has been approved by Lehigh University’s Institutional Review Board.

If you would like to hear more about the study please contact:

Matthew Malouf—malouf@lehigh.edu
(484) 532-7338

Classical Adult Women's Quality of Life Study

CARES Foundation and Dr. Sheri Berenbaum from Pennsylvania State University have launched a quality of life study of women with classical CAH. It is open to women with classical CAH (Salt wasting and simple virilizing forms) over the age of 18, and entails answering a written survey. If you have questions about the study or want more information, please contact Kelly Leight at 1-866-227-3737 or email kelly@caresfoundation.org

NCAH study at Children’s Hospital of Los Angeles

The Division of Endocrinology at Children’s Hospital Los Angeles is currently recruiting subjects for a research study aimed at determining the stress-fighting ability in subjects with Non-classical Congenital adrenal hyperplasia (NCAH) and comparing these responses to those in subjects with Classical Congenital Adrenal Hyperplasia (CAH) and those in carriers of either disorder. If you have NCAH, CAH or are a family member (parent or sibling) of someone with either disease, and are interested in participating in this study, please contact: Dr. Maria Karantz (323) 644-8705 or Dr. Mitchell Geffner (323) 669-7032.

New Additions to Medical Advisory Board continued from page 5

Alejandro Diaz, M.D.

Dr. Alejandro Diaz graduated from La Universidad del Valle in Cali, Colombia and was trained in general pediatrics at Miami Children’s Hospital. He completed his specialization in Pediatric Endocrinology at New-York-Presbyterian Hospital/Weill Cornell Medical College. He remained at Cornell as an attending assistant professor in Pediatric Endocrinology.



Dr. Diaz’s special interests are in the care of children with short stature, thyroid disorders, disorders of puberty, congenital adrenal hyperplasia, obesity, and diabetes. He has been involved in clinical research of patients with certain genetic conditions concerning growth failure and small birth weight (i.e. Bloom’s syndrome). He is also part of the multidisciplinary team involved in the care of individuals with congenital adrenal hyperplasia, Fanconi’s anemia, Bloom’s syndrome, and thalassemia.

Dr. Diaz has participated in research on congenital adrenal hyperplasia. Currently, he is involved in the development of research protocols on overweight children to help promote healthy weight and lifestyles.

Newborn Screening Saves Lives & GINA

While great strides have been made in expanding newborn testing in the United States over the past decade, there are still huge inconsistencies in screening programs and follow-up from state to state, making whether a baby dies or lives, survives or thrives largely dependent on where they are born. On April 24, 2008, all that changed when President Bush signed the Newborn Screening Saves Lives Act (S.1858/H.R. 3825) into law.

This landmark legislation will save thousands of babies across America each year from dying unnecessarily or suffering mental retardation and severe disability from a disease that can be screened for at birth as part of a comprehensive screening panel allowing life-saving early intervention. The Newborn Screening Saves Lives Act provides funding necessary for states to expand and improve their newborn screening programs as well as ensure appropriate follow-up, treatment and education.

Thank you to all of the CARES Community for your hard work and dedication in our newborn screening advocacy efforts. Without your voices none of this is possible. As we move forward with initiatives in Canada, Mexico and the United Kingdom, we look forward to the continued support of CARES Foundation members and saving the lives of our children, our future, one heel prick at a time.

Additionally, after 13 long years, on April 24, 2008, the Genetic Information Non-Discrimination Act (GINA) unanimously passed the Senate clearing the way for this landmark legislation's signature into law by President Bush. Thanks to all of you who worked so long and hard on this most important initiative so no family in the United States will need to fear discrimination based on genetic information in employment or health insurance coverage again.

NEWBORN SCREENING INITIATIVES IN CANADA, MEXICO AND THE UNITED KINGDOM

CARES members and advocacy partners—Perkin Elmer, Canadian Organization for Rare Disorders, SaveBabies Canada, and others to the north and south of the United States—have been working hard together over the past several months on newborn screening expansion initiatives in both Canada and Mexico.

In Canada, our focus has been on expansion of screening in British Columbia with direct appeals to the Minister of Health and the Newborn Screening Advisory Committee. The latest word is that an expanded panel including CAH has been proposed and is awaiting budgetary approval. Special thanks to members Diana Aspen and Dr. Jerilynn Prior in British Columbia as well as Support Group Leader Alison Weatherall for all the letters, phone calls and dissemination of information they have been doing.

From Mexico we have just received word that the Mexico Ministry of Health is in the process of putting together a newborn screening pilot study expanding screening from one condition to four including testing for CAH.

Over the past several months, we have been gathering information on newborn screening in the UK and building relationships that may help us achieve the goal of expanded screening in the UK, including testing for CAH. While at first it appeared there was little to no hope of CAH testing starting in the “near” future, we have seen a shift in thinking and forward movement.

If you are a resident of or have family/friends in Canada, Mexico or the UK, and are interested in bringing your story and efforts to our newborn screening expansion initiatives—including testing for CAH—please contact Gretchen Alger Lin at gretchen@caresfoundation.org. ***You can help us save lives!***

Every Grain Of Effort

by **Terry Owen**, Bootle Times

Martin Sands has returned with four gold medals from the Special Olympic Games in Shanghai.

The 27-year-old, whose family lives in Bootle, had always dreamed of becoming a professional footballer since he was five.

Sadly, he was soon diagnosed with congenital adrenal hyperplasia—a condition that affects the adrenal gland and causes abnormalities in the production of hormones, resulting in the early appearance of male characteristics.

After undergoing treatment for the condition, Martin's leg bones were left bent and a series of operations also left him with pain in his knee joint—ruining any dreams of becoming a footballer when he was still a teenager.

But he refused to let it keep him from taking part in sports and embarked on a career as a powerlifter back in 2003.

Martin attended a mainstream school, then went on to complete a catering course. He studied performing arts with the 'Mind the Gap' Theatre Group and at Thomas Danby College, Leeds.

In 2005, he won a silver and three bronze medals at the Special Olympics GB National Games in Glasgow—his first major competition, which also allowed him to qualify for a place at the World Games.

His powerlifting personal bests before the World Games stood at 140 kilos for the squat, 180 kilos for the deadlift and 90 kilos for the bench press.

Martin's upper body strength—at which he works hard—makes him a natural for powerlifting. He trains with

other powerlifters every Sunday at Armley Prison gym in Leeds.

Not only do Martin and his fellow team-mates have the full support of their coaches, but also the inmates. They have taken a great interest in the group and are involved in helping to coach the Special Olympians.

Martin's training certainly paid off. He returned home to Liverpool to show his grandad, Peter McParland, who lives in Lincare Lane, Bootle, his four gold medals after triumphing

in every category—bench press, deadlift and squat—as well as winning the overall gold at the 12th Special Olympics World Summer Games.

Proud mum, Moria said: "In competition, he does suffer from nerves but his coach Jane Haig has worked with him on 'internalising' the fear and using it to strengthen his performance."

"You can really see the determination on his face. You can see him thinking 'I can do it'. He gives so much concentration. Even if he doesn't make it, he knows he has the power to do it."



"Martin has a strong sense of responsibility towards his team and is most often the one who gives most support in training sessions to other powerlifters, particularly those who are visually impaired."

Lawrie McMenemy, chairman of the Special Olympic Games Board, said: "The World Games is the pinnacle towards which all athletes strive. This is a chance for Special Olympics athletes to showcase their talents on a worldwide level, proving they deserve just as many accolades as other world-class athletes."

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The Day that Lana Elizabeth Was Reborn

By Charlene S.Tomic

It was a cold morning in Houston, TX, February 6, 1974. Around 5:30 A.M., I began having labor pains. My husband took me to Methodist Hospital. Being my first child, the labor pains seemed so painful, but the excitement of the baby numbed it all. During delivery, I was drowsy. At that time, sedatives were generally administered, and I barely heard the doctor tell me that I had had a baby girl. I was very excited, but could not stay awake. Several hours passed and the pediatrician I had elected, a very nice and extremely wonderful man whom we used for the next 25 years, approached my bedside to let me know that the baby was fine, but had “some type of genital” problem. I immediately asked if she had hermaphroditism. He was somewhat impressed that I had not used the ignorant term “morphodite” but, nonetheless, went on to tell me that she did not, but that there was most assuredly a problem. He told me that she had been rushed to the ICU at Texas Children’s Hospital. Needless to say, that part scared the life out of me. Why would she need to go to the ICU?

Later that evening, I saw her, a beautiful, dark-haired baby girl, whom I named Lana Elizabeth. We were told that her condition was an endocrine one and had caused the ambiguous genitalia. However, they were still not sure what it was and would do further testing. We were asked if either of us had used steroids. I knew that I definitely had never used anything in my life, not even birth control pills. I did everything to stay healthy, eat well, attended every ob-gyn visit, etc.



Charlene and Lana

I later learned that my husband had used metabolic steroids, unbeknownst to me, to bulk up.

A day later, we were introduced to an endocrinologist who told us to get prepared to learn that the baby was not a girl, but a boy. I was upset and felt that something was amiss. However, my main concern was the baby’s health. The doctor went on to explain that they had done a buccal smear on the baby and had found not a single Barr body. They also explained that “he” had a very life-threatening condition known as congenital adrenal hyperplasia and that it was inherited. My husband’s family was flabbergasted. They had no grasp whatsoever on the situation. My husband began accusing me with statements like, “there’s never been anything

in my family like this, it must be your side”. He was now relieved that it had not been his “fault” with his steroid usage.

I, however, remembered my Mendelian genetics. I asked what type of inheritance. They explained that it was autosomal recessive. Again, his family was at a loss. I did not care what they did or did not understand nor did I care about the gender of the baby. I wanted to know what the “life-threatening” condition was and how to cope with it. I asked them my most important question: “What is the best that we could expect in the future and what is the worst”. They explained.

From that point on, I was determined to learn any and everything about CAH that I could. This was not an easy feat considering there was no internet at that time, and certainly no books written for the lay public. This began years of frequenting medical school book stores in the city by pretending to be a med student, looking up everything from Addison’s disease to ambiguous genitalia of all sorts. My main concern was the health of the baby who we named David Brian.

Needless to say, when friends call you at the hospital, the first question is never about how the baby is doing, nor its weight, but simply—is it a boy or girl. It was fairly difficult trying to convince friends that I had never said it was a girl and that perhaps I had been drowsy if I had done so.

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A urologist was sent in the next morning to explain to us how the boy might require genital reconstructive surgery as the genitalia were certainly not typically male and how easy it would be to raise him. My own feelings were that it was not true. I felt deep inside that raising a girl with ambiguous genitalia would certainly have been easier. It is obviously easier to “take away” than to “add” when it comes to reconstructive surgery.

My ob-gyn doctor, another wonderful man whom we also used for the next 25 years and who delivered all my children and grandchild, came in shortly after the urologist left. He seemed depressed. He said that all his colleagues had ridiculed him, asking how, after years of being a gynecologist, he could not tell a girl from a boy. He said, “I just know it is a girl.” I told him that deep inside, I felt the same way and asked him if they had not been remiss in basing their findings solely on a buccal smear. I asked if there was any type of blood test for sex determination. Luckily, even back then, there was.

I asked the endocrinologists to please run a blood test for sex chromosomes. They laughed and told me that was silly and not necessary at all, as the buccal smear was very accurate. I would not back down. I demanded that they do it. They complied.

“David Brian” and I were at TCH for two weeks as I learned from the nurses how to take care of him, how to administer the cortisone injections. They placed the DOCA pellet in his back which, I was told, would last 6 months and would need replacement. I learned what to look for such as symptoms of dehydra-

tion, projectile vomiting vs. spitting up, etc. We were released from the hospital after 2 weeks.

During that time, my husband walked off and left us alone. He could not cope with the confusion. I had no job, as I had quit my job about one month before delivery, and, at that time, there were few social services to help out with my bills, not to mention the cost of the medicines and the subsequent visits to Texas Children’s. My maternal aunt, who was like a mother, moved us in with her temporarily.

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Then we got the call. The doctors had something “very important” to tell us. I was terrified. Could David have another medical problem, heart murmur, etc. I knew that many defects are associated with other problems and was very fearful. My husband met me at their offices. We were told that, indeed, I and my ob-gyn were correct. The blood test revealed XX chromosomes, a girl. I was ecstatic. No matter how difficult this switching back and forth had been, she had no further medical problems. She would require eventual genital surgery and, of course, much monitoring of her condition.

My ex-husband and his family could not comprehend this and were furious with the doctors. He wanted to sue. I can certainly see the justification in this in hindsight. Imagine having raised her as a boy with subsequent surgery to make her “male” and years of hormone therapy. However, the fact that she was alive was all I cared about. I would do everything to keep her healthy and that was all that mattered to me.

That was the day that Lana Elizabeth was reborn.

My husband and I subsequently divorced and I proceeded to get another job when she was 3 months old. I tried many nurseries with disastrous results. The nurseries of the 1970’s were notoriously incompetent and unregulated. I eventually found a wonderful one where they listened to me and knew what to do in an emergency. But, while searching through the mess, one of the nurseries caused her to become severely ill with fever and vomiting. When she was about 6 months old, I picked her up from the nursery. Her little lips were so dry that they were actually sealed. I could not open them to place even a drop of water. She was listless and going into a coma. So I rushed to the ER. The pediatrician I so trusted kept telling me over the phone to wash her down. As much as I trusted him, I did not that night. When we arrived, a young intern said, “this is quite impressive, I don’t know why your doctor would not have told you to rush here. It is a good thing you did.” She was thrown into a tub of ice and I was pushed out. I cried and prayed. I had never been that scared. She was then admitted and for 2 days, she did not respond. The doctors asked permission to run all tests including meningitis, etc. Their final diagnosis

was E. coli which they felt was “no big deal” and “natural” to our systems. Looking back on it, it was the worse possible diagnosis a child with CAH could have. While normal babies barely survive E. coli, she was at a real disadvantage. I stayed by her side at the hospital. Two days after being unresponsive, I awoke to the most wonderful words, “look mommy, a twuk.” Lana was looking out the window at a truck in the hospital parking lot. Thank God, she recovered from that horrible ordeal.

Needless to say, I also had to endure weekends of worrying about Lana when her father would pick her up for visitations. Did his family understand the problem? Would they call me at the hint of dehydration as I had asked? I had all sorts of notes to pass out to them and the nursery, which I myself composed concerning the Do’s and Don’ts of CAH as there was no official list at my disposal as there now is everywhere on the internet. I had to depend on his family to have the local doctor administer her shots while she was away from



Lana, husband and 2 kids—all grown up!

me and to make sure they called me with any fever or vomiting.

I remember spending the next months preparing her formula with “extra” salt added. We attended every doctor visit we were given. She had blood drawn from her tiny heel as an infant, and I gave her injections until she was about 10 years old and able to take Prednisone. We spent years having DOCA pellets replaced and many subsequent nights at the ER with illnesses, fever, dehydration necessitating I.V.’s as well as that horrible incident where she contracted the E. coli. She eventually had her vaginal reconstruction at 18 months, and all went well.

She was a beautiful, happy child growing up, listened to me about coming in from the outdoors when her fat little cheeks became too red. She was outgoing and knew her condition well. She helped out with her baby sister and 2 baby brothers. The only problem she ever gave me was in high school, trying fit in with the “in crowd” and losing too much weight, dropping to 89 lbs. I explained to her that she needed the extra weight to maintain her fluid/electrolytes in case of any vomiting and that this anorexia along with CAH could possibly delay her puberty by being too thin. I changed her to another school, and, luckily, she gained up to 135 lbs. by her senior year.

Today, Lana is 33 years old and a beautiful lady. She is a cardiology R.N. and has a daughter who is 14 and a son who is 2 years old. She does not seem to have suffered any untoward psychological effects at all from being “slightly different” in her childhood and is doing great.

The purpose of this story may be obvious, but...

1. Follow your “motherly” instincts even while dealing with supposed expert clinicians. Think of the pro’s and con’s of what is being relayed to you and do what you think is right.
2. Don’t worry if you are called “over protective” by family/friends/medical personnel. To me, there is no such thing as “over protective”. A mother is either protective or negligent.
3. Question everything you are told until you fully understand. That includes even modern-day doctors who “should” know their medicine, but are woefully ignorant as we found out as recently as 2005. Lana went to the ER of a highly “acclaimed” Houston hospital for nausea and stomach virus. They would not listen to her own directions to administer Solucortef or even give her ice chips to suck on. The doctor seemingly knew nothing about CAH. You would think he would at least be familiar with an adrenal crisis. She was charged \$1,000 and never given a thing. Luckily, she survived that.
4. Find other families and organizations (like CARES) who can share stories with you. At the time Lana was born, the accepted view was that mothers should not meet each other as they could give out “false information”. Believe me, there is nothing better than to know there are other people out there who understand.

predicted adult height, although AIs could have other hormonal and metabolic effects. Most of the studies are on boys with few reports on letrozole use in girls. The studies that have been done show improvement of final adult height prediction and delay in BA advancement.

One cross-over study on 28 children⁵ with CAH reported better control of linear growth, weight gain, and bone age on a four-drug treatment regimen containing an older AI (testolactone), an antiandrogen (flutamide), fludrocortisone, and reduced hydrocortisone dose. The comparison group (control group) was treated with hydrocortisone and fludrocortisone. During the two year study, children receiving the four-drug treatment had significantly higher plasma androgen levels with normal linear growth rate and bone age. There were no significant harmful effects reported. The authors concluded that the four-drug treatment provided effective control of CAH with reduced risk of glucocorticoid excess. However, potential problems with this combination therapy are a complex administration schedule and the large number of medications taken on a daily basis. In addition, flutamide could be associated with liver toxicity. In another study⁶ on 33 boys with delayed puberty, the progression of BA advancement was significantly less in the letrozole treated group compared to a placebo. Three groups of subjects were followed for eighteen months: untreated boys, boys treated with testosterone and placebo, and boys treated with testosterone and letrozole. The BA progression was statistically significantly slower in the testosterone and letrozole treated group than in either control group. The

delayed BA progression also improved the average predicted adult height in the testosterone and letrozole group.

In a study with no control group, letrozole was given to 24 males with various endocrine disorders and associated short stature. This treatment resulted in an increase in predicted adult height and slowed down BA advancement. The average duration of letrozole treatment was 12.29 months⁷.

In another uncontrolled study on 19 girls with endocrine conditions associated with short stature and/or advanced BA, letrozole treatment resulted in a trend toward increasing predicted adult height and decreased BA progression.

No side effects were reported. The average length of letrozole treatment was 1.34 years.⁸

In a study on nine females with McCune-Albright syndrome (a condition associated with precocious puberty and advanced BA due to estrogen secretion from ovarian cysts), the authors reported that letrozole may be effective therapy in decreasing the rates of growth and BA advancement. Possible undesirable effects reported were ovarian enlargement and cyst formation.⁹

Estrogen is important in many metabolic processes. Aromatase inhibition could theoretically cause unwanted metabolic and hormonal effects in children. Decreased estrogen levels could cause abnormalities in fat and insulin metabolism, bone mineralization, growth hormone production, psychosexual development and intelligence^{10,11,12}. Though the risks may be low, it is important to keep in mind that the studies done so far are inadequate to show side effects, even if side effects are present.

In conclusion, AIs may be useful in improving final adult height in children with decreased growth potential and advanced BA. The treatment with AIs in children is still not FDA approved. Therapy should be tailored for the needs of individual patients and carefully monitored for potential side effects. The AIs could be used either alone or in combination with other hormonal therapy. Parents should be thoroughly informed about potential benefits and risks of AI treatment. Additional controlled clinical trials are needed in order to prove the long term safety and effectiveness of AI therapy in the pediatric population.

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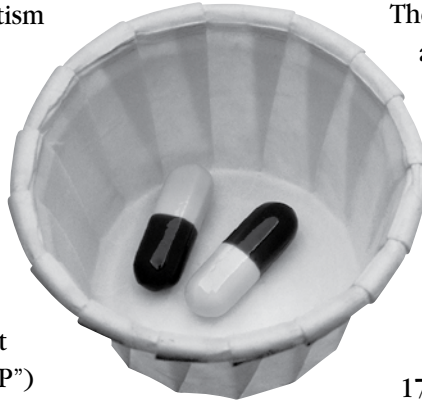
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Phoqus Pharmaceuticals Announces Positive Results from a Phase II study of its Novel Cortisol Replacement Therapy, Chronocort®

West Malling, UK, 3 March 2008

Phoqus Pharmaceuticals, the speciality pharmaceutical company, today announces positive results from a Phase II study evaluating its delayed, sustained release hydrocortisone therapy Chronocort®, in patients with Congenital Adrenal Hyperplasia (“CAH”). CAH is a genetic enzyme disorder characterised by deficiency of the hormone cortisol and excess production of androgens (male sex hormones). Raised androgens, together with a lack of cortisol, are responsible for the majority of symptoms such as fatigue, infertility, hirsutism and obesity.

In healthy subjects, cortisol is produced in a distinct circadian rhythm: building over night, peaking early in the morning and declining throughout the day to its lowest point around midnight. CAH patients lack the enzyme to convert 17-Hydroxyprogesterone (“17-OHP”) into cortisol. In the absence of cortisol, which acts as a brake to 17-OHP production, 17-OHP and other androgens accumulate. 17-OHP levels are used to adjust the dose of steroid replacement but with conventional therapy it is very difficult to replicate the natural circadian rhythm and to get the balance right between under and over treatment. This leaves patients at chronic risk of steroid excess which may lead to obesity, high blood pressure, diabetes and osteoporosis.



The Phase II trial, which was conducted at the National Institutes of Health in Bethesda, Maryland, showed that treatment with Chronocort® gave an overnight cortisol profile much closer to the normal physiological profile than conventional immediate release hydrocortisone. In addition, the majority of patients had lower morning levels of 17-OHP when treated with Chronocort® compared with conventional therapy.

Fourteen patients with CAH received a 7 day run-in period of immediate release hydrocortisone given three times a day. They then switched to a single dose of Chronocort® at 10.00pm for 28 days. A 24 hour pharmacokinetic (“PK”) profile was performed at the end of each treatment period. The primary endpoint was the 24 hour cortisol profiles which, during the Chronocort® treatment period, more closely matched the overnight physiological pattern than with conventional immediate release treatment. An important secondary endpoint (and key pharmacodynamic measure) was the morning 17-OHP level which showed reduced mean levels with Chronocort® compared with conventional treatment. These results give confidence that Chronocort® has performed as designed and allow the design of an appropriate dosing regimen for a Phase III pivotal trial. The Company is now preparing to discuss such a trial with regulatory authorities. The data will be submitted for publication in a peer reviewed journal in due course.

Chronocort® was well tolerated with no serious adverse events. <http://www.phoqus.com/RNS08030301.aspx>

CARES Supported Research Grantee Carol Van Ryzin Receives Prestigious Award

Carol Van Ryzin, RN, CPNP was awarded the PENS First Time Presenter Case Presentation Poster Award for the poster: Consequences of Late Diagnosis of Congenital Adrenal Hyperplasia: A Case of Three Boys.

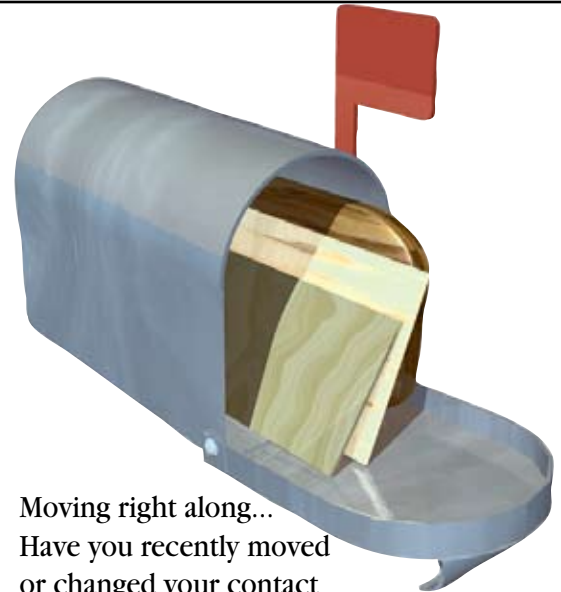
The award arose out of research supported by CARES Foundation at the National Institutes of Health and was presented to Carol at the Pediatric Endocrine Nursing Society (PENS) conference in Cincinnati, OH this past April.



AND NOW FOR SOME GOOD NEWS...maybe

Having a genetic abnormality doesn't have many positive associations. To the well-known problems for those with CAH, some reports have added cognitive deficits. However, information we've extracted from last year's CAH survey offers a different slant on the cognition problem. Eighty percent (80%) of the 113 adults with CAH (average age 37 years) who completed the survey had attended college, 35% had attended graduate school and 7% had attended or graduated from doctoral programs (MD or PhD). These numbers far exceed those of the population at large, based on US statistics.

The problem is that this is a very small, self-selected sample. To make a convincing argument that CAH is linked with "high intelligence" and/or "high achievement," we need information from more than 4% of our members. To that end, be on the alert for a short questionnaire in the next six months. To those who completed the first survey, Thank you!



Moving right along...
Have you recently moved or changed your contact information? Please notify Meryl at the CARES office, so we can continue communicating! Office: (toll-free) 866-227-3737 or email: meryl@caresfoundation.org

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