Oral Candidiasis

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Oral candidiasis (thrush) is a common problem encountered in Sjögren’s patients. The severity of the infection is highly variable from patient to patient and even in the same patient over time. Effective treatment, on-going management and maintenance therapy are often elusive and frustrating for dentist and patient alike.

There are many contributing causes for oral candidiasis, which is caused by an infection (or overabundance of Candida albicans or other Candida species), as well as many reasons why oral candidiasis may recur or only partially resolve with treatment. Among these are: decreased salivary flow (and changes in salivary composition), immunosuppression (both systemically and/or locally within the oral cavity), and gastrointestinal problems. Although several effective treatments are available for oral candidiasis, often the choice as to which agents to use is a difficult and confusing one for the dentist. Another consideration is recurrence which is also common as long...
as etiological factors persist, so effective treatment may only be achieved by treating the underlying etiology (i.e., stimulating salivary flow).

The purpose of this article is to review the etiologies, clinical presentation, and treatment strategies for oral candidiasis.

**Signs and Symptoms of Oral Candidiasis**

- Oral tissue burning
- Bad (metallic-acidic) taste
- White film on oral mucosa

**Clinical Appearance of Oral Candidiasis**

**Erythematous candidiasis (atrophic):**
- Looks red and “raw”
- Most common – 60% of cases

**Pseudomembraneous candidiasis:**
- White plaques
- 35% of cases

**Hyperplastic white plaques:**
- Looks like leukoplakia
- 5% of cases

"Oral Candidiasis" Continued from page 1

Treatment has several approaches and contingencies.

**Level 1**

For a mild oral-only infection with few underlying contributing factors:
- Clotrimazole troches, 100 mg; dissolve 1 troche tid for 7 days, or
- Nystatin rinse, 100,000 IU/5 cc; 100 cc; 5 cc tid for 7 days, or
- Mycostatin cream (ointment); apply tid for 7 days, or
- Mycolog II ointment; apply tid for 7 days (This contains triamcinolone acenatate which can help inflammation as well.)

**Level 2**

For more severe clinical manifestations having more systemic disease contributors and which have failed previous Level 1 treatment:
- A combination of two of the above - i.e., clotrimazole troches, 100 mg; dissolve 1 troche tid for 7 days ± Nystatin rinse, 100,000 IU/5 cc; 100 cc; 5 cc tid for 7 days

**Level 3**

For much more severe clinical manifestations with many more systemic disease contributors and which have failed previous Level 1 or 2 treatment:
- Diflucan (fluconazole) 100 mg qd for one, two, three, or four days or
- Ketoconazole) 400 mg qd for one, two, three, or four days

**Level 4**

For very severe clinical manifestations:
- A combination of Levels 2 and 3 treatment
**Conclusion**

In all cases, as long as the patient continues to have a contributing condition (xerostomia, diabetes, etc.), he or she will continue to be susceptible to recurrences and exacerbations of oral candidiasis. Therefore, the following recommendations should apply for maintenance therapy:

- Regular professional care and follow-up every three months
- Treat the underlying contributing conditions (i.e., xerostomia)
- Use a magic mouthwash with diphenhydramine, nystatin, and Maalox® frequently for maintenance
- Use chlorhexidine gluconate rinses or maintenance (also a good way to clean dentures)

Understanding the frequency with which oral candidiasis occurs in Sjögren’s patients, knowing how to identify the infection, and initiating a plan to keep the infection under control are critical for the Sjögren’s patient.

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**For Further Reading:**

A Shared Autoimmune Response and Commonality

The job of the immune system is to distinguish self from non-self. This recognition allows organisms, including humans, to determine whether and when they have been confronted with or invaded by bacteria, fungi, and viruses. Once this identification has been made, the subsequent job of the immune system is to do something about it. The effectors of the immune system are the wide array of white blood cells, many of which circulate in the blood. Thus, the immune system is set to recognize infection and then orchestrate a response designed to rid the body of the infection.

At least several dozen human illnesses are identified as autoimmune. In these diseases, the ability of the immune system to tell one’s own body apart from everything else is lost. In this case, there is immune attack on self. In many instances, this autoimmune attack can be likened to the immune attack that occurs against a transplanted organ. Sjögren’s syndrome is one of the most common forms of autoimmune disease. In Sjögren’s, the immune attack is directed mainly against the lacrimal and salivary glands and results in dysfunction of these exocrine glands.

Another extremely common autoimmune disease is Hashimoto’s thyroiditis in which the immune attack is directed against the thyroid gland. The thyroid gland sits at the base of the neck just in front of the trachea (windpipe) and (conveniently enough) makes thyroid hormone. Thyroid hormone is released into the blood and is then taken up by every cell of the body. Thyroid hormone thus has effects on every cell and organ. Similar to Sjögren’s, the immune attack against the thyroid leads to destruction and dysfunction of the organ so that not enough thyroid hormone is produced.

Similarities Between Autoimmune Thyroid and Sjögren’s

Autoimmune thyroid disease is common in the general population. Of particular interest, like Sjögren’s, the population most affected by autoimmune thyroid disease is predominantly middle- to older-aged women. This means that just on the basis of chance alone, many patients with Sjögren’s will have autoimmune thyroid disease. But, there may be reason beyond chance that Sjögren’s and autoimmune thyroid disease might occur together. When considering the full spectrum of autoimmune lesions in Sjögren’s, one can consider the disease as one in which polarized epithelial cells are targeted by the immune system. In fact, the epithelial cells of the thyroid gland are polarized in a manner similar to salivary epithelial cells. So, there are commonalities in the make-up and function of the thyroid gland that suggest thyroid autoimmune injury can be part of Sjögren’s.

Frequency of Autoimmune Thyroid in Sjögren’s

A number of studies exist on autoimmune thyroid disease among patients with Sjögren’s. Some time ago, Karsh and colleagues found 6 of 24 SS patients previously had diagnosed hypothyroidism, while another 7 had an elevated TSH indicative of undiagnosed hypothyroidism. Another study found that 8 of 33 SS patients were hypothyroid and 2 had hyperthyroidism.

So, from these studies, it is clear that hypothyroidism is common among those with Sjögren’s. But, these studies do not show that thyroid disease is more common than expected given that the same group of people is generally affected by both diseases.

In order to determine whether or not there is more thyroid disease, studies need a control group. The controls need to be similar to the patients in terms of age, sex, race, and ethnicity. While such studies have taken place, the results are not completely consistent. In one study, 4 of 42 (9.5%) patients had autoimmune thyroid disease while 16 of 207 (11.4%) relatives did so. Compared to sex- and age-matched but non-concurrent (i.e. historical) controls, there was significantly more autoimmune thyroid disease in the SS patients as well as among their first degree relatives. A second study examined 53 primary Sjögren’s patients compared to 53 age- and sex-matched controls for thyroid antibodies and thyroid disease, finding neither antibodies nor thyroid disease in excess among the SS patients. Ramos-Casals and his colleagues in Barcelona also found no difference in thyroid disease among patients versus controls. A recent study of a large group of Sjögren’s patients showed similar results. Among 886 patients, 47 had physician-confirmed hypothyroidism, but, among 221 controls with Sjögren’s, 7 had physician-confirmed hypothyroidism. There was no statistical difference between the incidence of hypothyroidism in the Sjögren’s and control groups. In practical terms, this lack of a statistical difference means that if the study was repeated many times, the difference found would not be replicated.

The question is not a simple one and neither are the potential problems and confounders in the various trials. Another recent study showed that in more than 500 Sjögren’s patients in Hungary, 6.3% had autoimmune hypothyroidism, while the rate of autoimmune hypothyroidism in the Hungarian population is only about 1%. Unfortunately, this study suffers from the same deficiency that I cited for several other studies when I
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• Cevimeline HCl should be administered with caution to patients taking beta-adrenergic antagonists because of the possibility of conduction disturbances and to patients with a history of nephrolithiasis or cholelithiasis

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• Cevimeline HCl should be administered with caution to patients taking beta-adrenergic antagonists because of the possibility of conduction disturbances and to patients with a history of nephrolithiasis or cholelithiasis

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• Safety and effectiveness in pediatric patients have not been established

• Cevimeline HCl is metabolized by the P-450 isozymes CYP2D6 and CYP3A3/4. Thus, there may be potential for interaction between cevimeline HCl and other compounds

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• The most frequently reported adverse events associated with the pharmacologic action of a muscarinic agonist (>10% incidence) in clinical trials of cevimeline HCl were: excessive sweating, nausea, rhinitis, and diarrhea. Consult the full Prescribing Information for other adverse events


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### Warnings

**Gastrointestinal**

Cevimeline can potentially cause abdominal pain and nausea. Cevimeline is contraindicated in patients with a history of ulcerative colitis or irritable bowel syndrome, or on medication known to cause ulcerative colitis.

**Pulmonary**

Cevimeline can potentially cause dryness of the mouth, fatigue, and increased coughing.

### Precautions

**Genetic**

Cevimeline is likely to be characterized by an alteration of its pharmacodynamics. This may include: headache, visual disturbances, somnolence, somnolence, respiratory distress, gastrointestinal pain, nausea, vomiting, diarrhea, dry mouth, xerostomia, or psychiatric reactions.

**Drug Information**

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### Information for Patients

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**Headache**

16.0% 20.0%

**Nausea**

10.5% 16.0%

**Diarrhea**

6.5% 7.0%

**Abdominal Pain**

6.5% 6.0%

**Coughing**

5.0% 9.0%

**Vomiting**

4.5% 4.2%

**Dry Mouth**

4.0% 4.0%

**Other**

-**n=10** is the total number of patients exposed to the drug at any time during the study.

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**In addition, the following adverse reactions occurred in patients with Sjögren’s syndrome:**

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**Placebo**

**Adverse Event**

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**Placebo**

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**DAIEVO010_Quarterly_Ad_R2b:DSEV08000074 7/11/11 11:26 AM Page 1**
Melinda Larsen, PhD

Current SSF research grantee Dr. Larsen has received an RO1 grant from the National Institute of Dental and Craniofacial Research (NIDCR), National Institutes of Health (NIH), to expand her research on the use of specialized technology in dry mouth and Sjögren’s. Dr. Larsen is an Assistant Professor of Biological Sciences at the State University of New York at Albany and in the second year of her two-year grant from the Sjögren’s Syndrome Foundation (SSF) for her project, “Application of multiplexing technology to the study of Sjögren’s syndrome.”

Dr. Larsen is partnering with Dr. James Castracane, Professor and Head of CNSE’s Nanobioscience Constellation at SUNY at Albany, to lead the NIH-funded project entitled “Engineering Functional Salivary Glands Using Micropatterned Scaffolds.” The investigators hope eventually to provide the groundwork for engineering artificial salivary glands. A major stumbling block to creating such glands involves understanding extracellular signals required to maintain or produce acinar cell differentiation. They will use nanofibers to develop bioengineered artificial scaffolds to promote the growth of salivary gland cells. The five-year grant runs from July 1, 2012 – June 30, 2017.

Dr. Larsen currently holds two additional NIH grants to further her innovative research targeting xerostomia. Her five-year NIDCR grant with co-investigator and theoretical mathematician Bulent Yener, PhD is entitled “Modeling Dynamics of Salivary Gland Branching Morphogenesis” and will be completed July 31, 2013. Dr. Larsen also has a two-year NIDCR R21 grant entitled “Extracellular Scaffold Elasticity and Binding Sites in Acinar Differentiation” that is scheduled to end Nov. 30, 2013.

Olga Baker, DDS, PhD

Dr. Baker has received two RO1 grants from the NIDCR, one of which also is working on acinar differentiation and salivary gland scaffolding for future creation of artificial salivary glands. She is partnering with Co-Investigator Stelios Theocharis Andreadis on the four-year project, “The Use of Fibrin Hydrogels to Build an Artificial Salivary Gland,” which will be completed the end of June 2016. Drs. Baker and Andreadis will attempt to create functional salivary acinar structures using modified fibrin hydrogels (FH) which are linked to growth factors and extracellular matrix proteins in growth factor-reduced-Matrigel (GFR-MG).

Dr. Baker’s second NIDCR-funded project, “Resolution of Cytokine-Mediated Salivary Gland Inflammation,” runs for five years and will be completed the end of April 2017. Her work focuses on understanding the mechanisms of resolvins (RvD1 and AT-RvD1) in reducing inflammation in the salivary gland which could lead to improvement in salivary function.

Dr. Baker, an Assistant Professor in the Department of Oral Biology in the School of Dental Medicine, State University of New York at Buffalo, received an SSF grant for two years in 2006 and 2007 for her project, “Effects of pro-inflammatory cytokines on polarized salivary epithelium.”

Kathy L. Moser Sivils, PhD

As Dr. Sivils winds up her 2-year SSF research grant on “The Genetic Basis of Human Sjögren’s Syndrome,” she will continue and expand her focus on Sjögren’s and genetics through a U19 grant from the National Institute of Allergy and Infectious Diseases (NIAID), NIH. Her project, “Genetics of Interferon Pathway Dysregulation in Sjögren’s Syndrome,” started in May 2012 and runs for one year. She will define the genetic variation in the interferon (IFN) dependence in Sjögren’s. Dr. Sivils is Director of the Oklahoma Medical Research Foundation (OMRF) Sjögren’s Research Clinic and Associate Member of the OMRF Autoimmune and Cancer Biomarkers Group, Arthritis and Immunology Program.

The NIAID grant comes in addition to two P50 grants this year from the National Institute of Arthritis and Musculoskeletal Disease (NIAMS) reported in the Fall issue 2011 of the Sjögren’s Quarterly. The five-year grant (through June 2016), “Oklahoma Sjögren’s Syndrome Center of Research Translation (OSSCORT)” funds a unique multidisciplinary network of investigators to focus on Sjögren’s research and brings together additional U.S. and international sites to expand research opportunities. The SSF is pleased to serve on the External Advisory
reviewed this topic a few years ago. The patient group has been studied much more thoroughly and extensively for thyroid disease than the controls. So, naturally, the patients have more thyroid disease.

This question of whether there is an association of autoimmune thyroid disease and Sjögren’s may seem to be a simple one that could be answered. Nonetheless, when reviewing this literature now and in the past, my opinion has not changed. Many patients with Sjögren’s have hypothyroidism, but whether or not there is more hypothyroidism among Sjögren’s patients than well-matched controls is not certain. In fact, the answer is probably no.

Clinical Advice

Given this lack of certainty, is there practical advice for patients and doctors? Perhaps there is. Hypothyroidism is a disease that is simple and cheap to screen for, but the potential benefit of screening is not well known (see reference 11, the US Preventive Task Force website for discussion). Again, we have uncertainty. Nonetheless, all authorities, organization and learned societies would agree, that women with symptoms consistent with hypothyroidism should have a determination made as to whether or not they have hypothyroidism. The symptoms of hypothyroidism can be non-specific, subtle and vague. These include problems such as dry skin, cold intolerance, hoarseness, weight gain, constipation, paraesthesia (numbness and tingling in the hands and feet), weakness and fatigue. As is likely appreciated by both Sjögren’s patient and health care professionals taking care of those with Sjögren’s, many of these symptoms are commonly found in Sjögren’s. Thus, Sjögren’s patients with symptoms suggestive of hypothyroidism should have a TSH measured. There is probably little reason to repeat this study more often than every 5 years.

Summary

In summary, vigilance for the presence of autoimmune thyroid disease is required when caring for Sjögren’s patients. Clinicians should check for autoimmune thyroid disease in their Sjögren’s patients when there are symptoms suggestive of hypothyroidism. As a reminder, clinicians also should check for Sjögren’s in other autoimmune patients. About 20% of patients with rheumatoid arthritis, scleroderma, SLE or primary biliary cirrhosis have Sjögren’s, so those autoimmune patients should be checked for SS, and those with secondary SS, for autoimmune thyroid disease. While the age and gender similarities between SS and autoimmune thyroid disease may account for some of the increased incidence, autoimmune thyroid disease clearly is common among patients with both primary and secondary Sjögren’s, and of the latter group, SLE patients with Sjögren’s may be at particular risk.

References

11. www.uspreventiveservicestaskforce.org/3rduspstf/thyroid/thyrrs.htm#discussion.

NIH News

Concept Clearance for “Design and Development of Novel Dental Restorative Resin Systems”

The National Institute of Dental and Craniofacial Research (NIDCR), NIH, has issued a Concept Clearance on the development of restorative materials in dentistry. Resin chemistry has remained fundamentally unchanged since the 1960s, and current resins have been shown to lead to secondary caries that can develop next to such restorations and muted immune responses. The primary goal of this concept is to encourage the development of new materials that not degrade in the oral environment.

http://www.nidcr.nih.gov/GrantsAndFunding/See_Funding_Opportunities_Sorted_By/ConceptClearance/CurrentCC/ResinSystems.htm
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SSF EXHIBIT BOOTH · #204
Sunday, Nov. 11 – Tuesday, Nov. 13, 10:00am - 5:00pm daily

Sunday, November 11
7:45-9:15am Meet the Professor: Controversies in Sjögren’s – Alan Baer, MD (002) Pre-registration required.
4:30-6:00pm Classification and Treatment of Sjögren’s
(Tentative location: Ballroom C)
Part 1: ACR Classification Criteria
(Lindsey Criswell, MD, MPH, DSc, Moderator)
2012 ACR Classification Criteria for Sjögren’s Syndrome – Steve Shiboski, MD
Part 2: SSF Clinical Practice Guidelines
(Frederick Vivino, MD, Moderator)
Rationale and Procedures for Guidelines Development in Sjögren’s – Ann L. Parke, MD
Preliminary Clinical Practice Guidelines for Sjögren’s – Steven E. Carsons, MD

Monday, November 12
2:30-4:00pm Curbside Consults – Ask the Professors: Sjögren’s Syndrome: Challenges in Clinical Practice – Frederick B. Vivino, MD
4:30-6:00pm Meet the Professor: Controversies in Sjögren’s – Alan Baer, MD (053)
Pre-registration required.

Tuesday, November 13
1:00-2:00pm Sjögren’s Syndrome Study Group – Jacques-Eric Gottenberg, MD

Abstract Sessions TBA
Session locations are TBA in September. Check the ACR website at www.rheumatology.org.
Instructors covered the following topics:

- How to identify dry mouth
- How to identify possible causes of a patient’s dry mouth
- How to manage, treat & prevent complications from dry mouth

**Florida Dental Association (FDA)**

Following the success of the California program, the SSF took the educational show on the road and presented two three-hour continuing education programs at the FDA annual meeting in Orlando, Florida in June. About 150 dentists and dental hygienists attended each course for a total of 300 attendees. The session was co-hosted with the SSF and moderated by Dr. Carol Stewart, University of Florida, Gainesville. Speakers included:

- Michael Brennan, DDS, MHS (listed previously)
- Vidya Sankar, DMD, MHS (listed previously)
- Carol M. Stewart, MS, DDS
  Professor, Oral and Maxillofacial Diagnostic Sciences, University of Florida College of Dentistry, Gainesville, Florida

**American Optometric Association (AOA)**

The Foundation’s first CE program for optometrists took place in Chicago on June 30 at the American Optometric Association Annual Meeting. Moderated by Robert Prouty, OD, Denver, Colorado, the program took a new tack by educating attendees about more than dry eye, educating them about the many systemic symptoms and complications that can occur in addition to dry eye in Sjögren’s and encouraging them to become knowledgeable about related symptoms that might lead to a diagnosis of Sjögren’s and referral to other appropriate healthcare professionals. About 100 optometrists attended the session.

Entitled “Sjögren’s Disease – More than Meets the Eye: A Multidisciplinary Approach,” speakers included:

- Robert Prouty, OD
  Denver, Colorado
- Frederick B. Vivino, MD
  Former SSF Medical and Scientific Advisory Board Chair; Chief, Division of Rheumatology, Penn Presbyterian Medical Center; and Director, Penn Sjögren’s Syndrome Center, Perelman School of Medicine, University of Pennsylvania, Philadelphia, Pennsylvania
- Vidya Sankar, DMD, MHS (listed previously)

This is a new program for the Sjögren’s Syndrome Foundation, and the SSF appreciates the tremendous time and expertise all speakers donated to make these educational opportunities possible.

**NIH News**

**Office of Emergency Care Research created at the NIH**

The NIH has created a new office to encourage innovation and improvement in emergency room care. While the Office of Emergency Care Research (OECR) will not fund grants, it will coordinate efforts in ER research across the NIH by promoting scientific meetings, coordinating and catalyzing funding opportunities, and fostering career development. NIH Director Francis S. Collins, MD, PhD says, “The NIH Office of Emergency Care Research will focus on speeding diagnosis and improving care for the full spectrum of conditions that require emergency treatment.”

The OECR provides yet another NIH venue for Sjögren’s Syndrome Foundation involvement as improving identification and understanding of and care for Sjögren’s patients in the ER setting is clearly needed.
Special summer issue of J. Autoimmunity devoted to Sjögren’s

Special Issue: Current pathogenetic, clinical and therapeutic aspects of Sjögren’s syndrome


Edited by Athanasios G. Tzioufas and Haralampos M. Moutsopoulos

Sjögren’s syndrome: An update on clinical, basic and diagnostic therapeutic aspects; Original Research Article – A.G. Tzioufas, P.G. Vlachoyiannopoulos

Pathogenesis of Sjögren’s syndrome: What we know and what we should learn; Original Research Article – Athanasios G. Tzioufas, Efstathia K. Kapsogeorgou, Haralampos M. Moutsopoulos

Classification criteria for Sjögren’s syndrome: A critical review; Review Article – Chiara Baldini, Rosaria Talarico, Athanasios G. Tzioufas, Stefano Bombardieri

Subgroups of Sjögren syndrome patients according to serological profiles; Original Research Article – Vasiliki-Kalliopi Bournia, Panayiotis G. Vlachoyiannopoulos


Primary biliary cirrhosis and Sjögren’s syndrome: Autoimmune epithelitis; Review Article – Carlo Selmi, Pier Luigi Meroni, M. Eric Gershwin

Monoclonal gammopathy related to Sjögren syndrome: A key marker of disease prognosis and outcomes; Original Research Article – Pilar Brito-Zerón, Soledad Retamozo, Myriam Gandía, Miriam Akasbi, Marta Pérez-De-Lis, Candido Díaz-Lagaress, Xavier Bosch, Albert Bové, Roberto Pérez-Alvarez, María-José Soto-Cárdenas, Antoni Sisó, Manuel Ramos-Casals

Sex steroids in Sjögren’s syndrome; Original Research Article – Yrjö T. Konttinen, Georg Fuellen, Yan Bing, Pauliina Porola, Vasily Stegaev, Nina Trokovic, Steffi S.I. Falk, Yi Liu, Peter Szodoray, Yuya Takakubo

Genetics of Sjögren’s syndrome in the genome-wide association era; Review Article – John A. Ice, He Li, In-dra Adrianto, Paul Chee Lin, Jennifer A. Kelly, Courtney G. Montgomery, Christopher J. Lessard, Kathy L. Moser

The salivary gland epithelial cells of patients with primary Sjögren’s syndrome manifest significantly reduced responsiveness to 17β-estradiol; Original Research Article – M.N. Manoussakis, M. Tsinti, E.K. Kapsogeorgou, H.M. Moutsopoulos

Role of toll-like receptors in primary Sjögren’s syndrome with a special emphasis on B-cell maturation within exocrine tissues; Original Research Article – Thomas Guerrier, Laëtitia Le Pottier, Valérie Devauchelle, Jacques-Olivier Pers, Christophe Jamin, Pierre Youinou

The immunobiology of Ro52 (TRIM21) in autoimmunity: A critical review; Review Article – Vilija Oke, Marie Wahren-Herlenius

Continued on page 13

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Committee for this grant and attended the committee’s first meeting in July 2012 to review progress and provide input. Committee members were deeply impressed with the infrastructure and project goals. Co-Directors of OS-SCORT with Dr. Sivils are R. Hal Scofield, MD and Darise Farris, PhD.

The second NIAMS grant for “Integrative Genomics in Primary Sjögren’s Syndrome (SS) will test Sjögren’s patients for genetic variants identified with other closely-related autoimmune diseases, explore novel candidate loci associated with Sjögren’s, and attempt to replicate findings in independent cohorts. This grant runs for one year and ends in June 2013.

**Patricia Mongini, PhD**

Dr. Mongini is the recipient of a 2-year NIH grant to extend studies begun with SSF support. Her NIAMS-funded project, “B Cell-expressed COX2 and AID Dependent Sjögren’s Syndrome Autoimmunity” started in April. She will examine whether B cell-expressed COX-2 is important for autoantibody development in Sjögren’s, which, if successful, could suggest a similar strategy that could be used for therapeutic purposes in targeting pharmacologic agents selectively to B cells.

Dr. Mongini, who is with The Feinstein Institute for Medical Research, North Shore – LIJ Health System in Manhasset, New York, received the SSF Innovative Concept Award in 2008 and 2009 for her project, “B cell-expressed COX-2 and Sjögren’s syndrome development.”

**Helen Makarenkova, PhD**

Dr. Makarenkova has received an R21 grant from the National Eye Institute (NEI) at the NIH to further build on her SSF-funded investigation in 2009 and 2010 for her project, “Molecular mechanisms of lacrimal gland development and regeneration.” She has made significant progress since her SSF grant in understanding how structural differences in various FGFs reflect on their functional properties. Her NEI-funded project, “Regulation of Lacrimal Gland Development and Regeneration,” will expand her focus on the fibroblast growth factor (FGF) family as important regulators of lacrimal gland morphogenesis and elucidate important basic biology that could help lead to new therapeutic approaches to dry eye. The award runs for two years and ends in January 2013. Dr. Makarenkova is with the Neurosciences Research Foundation in San Diego, California.

**Cristian Perez, PhD**

Former SSF research grantee Dr. Perez has moved from The Rockefeller University in New York to become a Research Associate at the Monell Chemical Senses Center in Philadelphia. He will continue his work in Sjögren’s and is currently characterizing brain circuits in NOD mice and exploring the use of a mouse that expresses the reporter luciferase in salivary glands as a better mouse model to study the kinetic of salivation and the role that different candidate drugs may have modulating salivation.

Dr. Perez received an SSF research grant for two years in 2005 and in 2006 for his project, “Characterizations of brain areas innervating salivary and lacrimal glands.” He published the results of his project last year on neural circuits that was supported by the SSF grant:


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members-only discounts on a variety of products and services such as numerous Sjögren’s-related books and articles, our online product guide, and daily survival tips. Exclusive access to a network of knowledgeable volunteers and local support groups. These knowledgeable and empathetic professionals provide patient and professional education, and the funding to support its ongoing programs, including support groups, newsletter. Regarded as the outstanding source of current information on Sjögren’s syndrome, this monthly newsletter contains the latest developments in Sjögren’s syndrome and the Foundation’s activities.

Warning Signs and Symptoms

Since saliva plays such an important role in the oral cavity, decreased salivation can lead to many problems. If dry mouth is not diagnosed early, it can involve several body systems, including the digestive system, respiratory system, and skin. It can lead to severe and progressive tooth decay, oral infections (parasites and fungi), difficulty swallowing, and increased risk for oral cancer.

It is important to determine if dry mouth is caused by Sjögren’s syndrome or another condition. Symptoms such as a sore or cracked tongue, dry or burning throat, dry, itchy eyes, and difficulty talking, chewing, or swallowing should alert you to seek medical attention. Some conditions that can cause dry mouth include diabetes, thyroid disease, menopause, drug side effects, or other medications.

Sjögren’s syndrome is a systemic autoimmune disease that affects the exocrine glands, which produce saliva and tears. The disease was first identified by a Swedish physician, Henrik Sjögren, in 1933. The disease is diagnosed by observing the amount of saliva pooled under/around the tongue and by documenting dry mouth, difficulty swallowing, decreased salivation, and decreased lacrimation.

When a person is diagnosed with Sjögren’s syndrome, they often don’t know where to begin as they develop a partnership and understand their disease. In addition, you will hear three Sjögren’s patients who will share their experiences with the disease.

Healthcare professionals: Call to order complimentary materials to share with your patients!

Contact us for more information: 800-475-6473 • www.sjogrens.org
You should always know the latest travel rules before packing for your next airline trip!

As an invited member of the Transportation Safety Administration (TSA) Disability and Disease Coalition, the Sjögren’s Syndrome Foundation has been fortunate to play an important role in educating officials about the special needs of Sjögren’s patients. TSA policies apply to all domestic and international flights originating in the U.S.

**TSA Guidelines and Tips for Travel**

- You may place in a separate pouch all prescription and medically necessary OTC items to take with you on the plane.  
  - Include all OTC items needed on your trip including eye drop; saline solutions; ointments; gels and lozenges to lubricate the eyes, mouth, nose or lips; gum; special toothpastes and sunscreen.  
  - Medications in daily dosage containers are allowed.  
  - While the TSA states that items do not need to be labeled, consider using original prescription bottles and packaging when possible to avoid questions.  
  - You no longer need to have a doctor’s note or prescription or information explaining why you need your items.  
  - Pack medically necessary products in a clear bag separate from other carry-on items to make inspection easier and faster. X-rays will not damage medications.  
  - The bag or pouch containing these items may be of any size.  
  - Either place the bag to be X-rayed or request a visual inspection if you prefer.

- In addition to a bag with medicines and medical products, you are allowed a single, one-quart, clear zip-lock bag with any liquid, gel or aerosol in containers marked three-ounces or smaller and placed separately on the conveyor belt for X-ray screening.

- The TSA states that you may bring water or other liquid through security if your medical condition requires it. You must, however, declare the liquid to a Transportation Security Officer and be prepared to provide information from you or your physician about your condition and why you need it. Allow plenty of time for additional questioning and testing.

  - Wait to purchase water if at all possible after you’ve gone through security. Or, bring an empty water bottle, and when you board, ask the flight attendant to fill it or ask for a bottle of the airline’s water.

  - Bring sugar-free candies, lozenges, gum and/or juicy fruit on board to stay moist. Foods in original containers are allowed through security and on the plane.

  - Use nasal saline a couple of days before flying and on the plane.

  - If you take Salagen® or Evoxac®, ask your doctor about taking it before boarding.

  - Carry a wet washcloth in a zip loc bag to place on your eyes or use special humidifying goggles such as Tranquileyes™ (an airline attendant can provide hot water). Bring moisture chamber glasses if you have them.

  - If taking an immunosuppressant, consider wearing a mask over your nose and mouth.

  - Always check out the latest information at www.tsa.gov, or call your airlines before traveling – especially if you are traveling internationally.

A new service, TSA Cares, is now available specifically to help travelers with medical conditions and disabilities. Contact their office 72 hours ahead of your scheduled travel for answers to your questions. Call the TSA Cares Help Line at 1-855-787-2227, email TSA-ContactCenter@dhs.gov, or visit their site online at www.tsa.gov/travelers/airtravel/disabilityandmedicalneeds/index.shtm.
New Product Hits the Market for Dry Eye

A new product to help dry eye patients is available. Tears Again® ADVANCED Eyelid Spray comes from OCuSOFT, Inc. and is available at CVS, Walgreens and Duane Reade.

Tears Again® Spray is a refreshing spray that is applied directly to the eyelids with the eyes closed, lubricating and protecting the eyes against moisture loss. With added nutrients and antioxidants including vitamins A, C, and E, the company states that Tears Again® Spray provides relief from eyelid irritation throughout the day.

OCuSOFT also makes lid scrubs and foaming eyelid cleansers. Eyelid hygiene is especially important when blepharitis, a condition that is not uncommon, co-exists with dry eye and Sjögren’s. Blepharitis, which causes inflammation of the eyelids, often results in crustiness along the eyelashes and can exacerbate dry eye symptoms.