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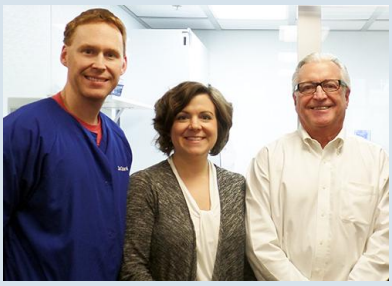
The Mortar & Pestle:

MD Custom Rx's monthly e-newsletter

September 2016

Greetings!

Thank you for entrusting in the compounding services at MD Custom Rx to help meet the unique medication needs of your patients. We are excited to share our monthly newsletter with you and look forward to continuing to be your medication problem solvers. Please don't ever hesitate to let us know how we can be of further assistance to you and your practice.



Sincerely,
Dan, Monica and John

Telomeres on Steroids - Chromosome Protection Turning Back the Mitotic Clock?1

In a study reported in May 2016 in the New England Journal of Medicine, Townsley et al., of the National Institutes of Health and other prestigious facilities, found that patients with diseases believed to result from defective telomere maintenance benefit from treatment with androgenic anabolic steroids.2

"One of the processes associated with ageing is progressive shortening of telomeres, DNA-protecting structures at the ends of chromosomes, like the plastic tips on shoelaces," explained one of the researchers, Rodrigo Calado from the University of São Paulo in Brazil. "Each time a cell divides, its telomeres get shorter," Calado added. "Eventually, the cell can't replicate anymore and dies or becomes senescent [biologically aged]. However, telomerase can keep the length of telomeres intact, even after cell division." 3

Telomeres are proteins located at the ends of linear chromosomes; telomeres function to protect the chromosome ends from recognition as damaged or infectious DNA. The repair of telomeres by the enzyme telomerase solves the "end replication problem" - the otherwise inevitable loss of genetic material with every cell division. Telomerase is active

during embryogenesis and in proliferating adult tissue".2 In individual cells, critical shortening of telomeres leads to senescence or apoptosis and, in cells that continue to divide, to chromosome instability. In telomere diseases, mutations in genes responsible for telomere maintenance and repair lead to organ dysfunction, including bone marrow failure, aplastic anemia, liver cirrhosis, and pulmonary fibrosis, as well as to an increased risk of cancer.

Androgens have been a therapeutic option for marrow failure syndromes since the 1960s. In the latest experiments, researchers from Brazil and the US used the steroid danazol, a synthetic male hormone, to stimulate the production of telomerase.

This phase 1-2 prospective study involved patients with telomere disease. Researchers administered danazol orally at a dose of 800 mg per day, divided into two doses per day. The goal of treatment was the attenuation of accelerated telomere attrition, and the primary efficacy end point was a 20% reduction in the annual rate of telomere attrition measured at 24 months. The occurrence of toxic effects of treatment was the primary safety end point.

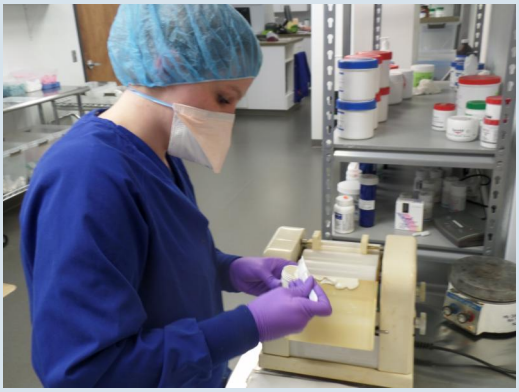
After 27 patients were enrolled, the study was halted early, because telomere attrition was reduced in all 12 patients who could be evaluated for the primary end point, and 11 of the 12 had evidence of telomere elongation instead of telomere loss. Significant telomere elongation was found at 6, 12, and 24 months after the initiation of treatment with danazol. When treatment with danazol was stopped at 24 months, a decrease in telomere length was observed at 30 months and 36 months.

The most common adverse events were elevations in liver-enzyme levels (in 41% of the patients), muscle cramps (in 33%), edema (in 26%), and lipid abnormalities (in 26%). This study used the highest dose of danazol that is currently approved for use in humans, but a dose-finding strategy may identify the minimum effective dose. Lower doses of danazol or other hormone formulations are likely to have better side-effect profiles.

Sex hormones may be useful in the treatment of other types of accelerated telomere attrition, such as the attrition that occurs after chemotherapy and hematopoietic stem cell transplantation. "Specifically, the effect of this treatment on lung and liver in older patients with these disorders needs to be examined. Further studies are also needed to establish the dose and duration of treatment. Because significant effects on telomere length were already observed after 6 months, this time point could possibly be used to evaluate effectiveness in future studies."2

1 An Editorial by Peter M. Lansdorp, M.D., Ph.D. N Engl J Med 2016; 374:1978-1980
2 N Engl J Med 2016; 374:1922-1931
3 http://www.worldhealth.net/list/news/mechanisms-aging

Topical Glycopyrrolate for Excessive Sweating



Hyperhidrosis is a disorder of excessive sweating beyond what is expected for thermoregulatory needs and environmental conditions, and can have a significant impact on patients' quality of life and emotional well-being. Hyperhidrosis is divided into primary and secondary categories, depending on the cause of the sweating. Primary hyperhidrosis has an estimated prevalence of nearly 3% and is associated with significant medical and psychosocial consequences. In plantar hyperhidrosis (excessive sweating on the soles of feet), there is an overall increased risk of cutaneous infection in the presence of hyperhidrosis, including fungal, bacterial, and viral infections.

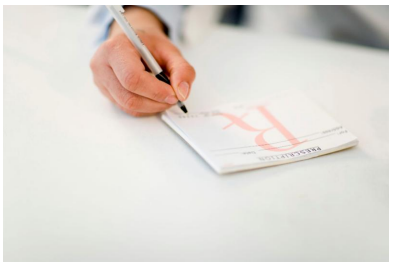
For axillary and palmoplantar hyperhidrosis, topical treatment is recommended as first-line treatment. A study examined the initial effectiveness of 1% and 2% topical glycopyrrolate spray and compared it with Botulinum toxin type A injections for the management of axillary hyperhidrosis in a non-randomized, consecutive patient, prospective questionnaire, treatment comparison study. Forty patients with axillary hyperhidrosis were allocated to one of four study groups (10 patients to each group): (a) 1% glycopyrrolate spray, (b) 2% glycopyrrolate spray, (c) subcutaneous Botulinum toxin type A injections, (d) no treatment. The three treatment groups showed a significant improvement in their hyperhidrosis scores. The degree of improvement was less for the 1% glycopyrrolate group when compared with the Botulinum toxin type A group, but there was no difference in treatment outcomes between the 2% glycopyrrolate and Botulinum toxin type A groups. Patients in both the 2% glycopyrrolate and Botulinum toxin type A groups reported a significant improvement in axillary hyperhidrosis symptoms. These included reduction in psychologically precipitating factors (e.g. public speaking) and axillary hyperhidrosis-specific physical effects (e.g. limitation of clothing choice).

Although facial hyperhidrosis has been frequently associated with a diminished quality of life, various conservative modalities for its management are still far from satisfactory. Therefore, for the treatment of primary craniofacial hyperhidrosis, three studies evaluated anticholinergic therapy: topical glycopyrrolate demonstrated high efficacy (96%) with minimal adverse effects and oral oxybutynin demonstrated relatively high efficacy (80-100%) but with noticeable adverse effects (76.6-83.6%).

To evaluate the antiperspirant efficacy and safety of topical glycopyrrolate on facial hyperhidrosis at specified posttreatment intervals, 39 patients with facial hyperhidrosis were enrolled and treated with 2% topical glycopyrrolate on one-half of the forehead, whereas the other half of the forehead was treated with a placebo. All patients applied topical glycopyrrolate or placebo once a day for nine successive days. Each evaluation included weighing sweat and assessing the Hyperhidrosis Disease Severity Scale (HDSS) score and any adverse effects. Compared with the placebo-treated sides, topical glycopyrrolate-treated sides showed a reduction in the rate of sweat production at the forehead of 25.16 ± 10.30% (mean ± SD) at 90 minutes after the first application (day 1), 29.63 ± 7.74% at 24 hours after the first application (day 2) and 36.68 ± 11.41% at 24 hours after eight additional successive daily applications (day 10). No serious adverse events were reported during the course of this study. Only one patient developed a transient headache after treatment.

Am J Clin Dermatol. 2011 Oct 1;12(5):285-95

Clin Podiatr Med Surg. 2016 Jul;33(3):441-51
J Eur Acad Dermatol Venereol. 2016 Jul 13.
Am J Clin Dermatol. 2015 Oct;16(5):361-70.
J Eur Acad Dermatol Venereol. 2015 Feb;29(2):278-82.



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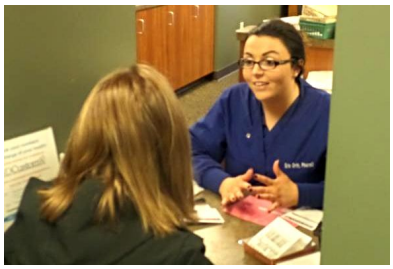

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