Response of Elderly Women with Thyrotoxicosis to Treatment for Tardive Dyskinesia

Olga Shamrakov MD and Yitshal Berner MD, MPh

Department of Geriatrics, Hartzfeld Hospital, Gedera, and Kaplan Medical Center (Affiliatied to The Hebrew University Medical School), Israel

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Tardive dyskinesia is a common disorder that is prevalent in about 25–50% of patients who are maintained on neuroleptics for longer than 6 months. The prevalence increases with age. Although it has been described in the elderly, the condition is most common in patients taking neuroleptic drugs. The disorder is unpleasant for the patient as well as for those surrounding him or her, and therefore any attempt to understand its pathogenesis or treat the disorder is very important. We present a case of subacute thyroiditis and senile tardive dyskinesia that responded to treatment, leading to a partial remission of the tardive dyskinesia.

Case Description

A 89-year-old women with a past history of osteoporosis and dementia was admitted to the geriatrics ward with a 2 week history of fever and neck pain. Physical examination revealed a patient with a fever of 38.2° C and severe tardive dyskinesia of 1 month duration, but with no history of neuroleptic treatment. The neck pain was severe but neither edema nor redness was detected. Laboratory studies showed the erythrocyte sedimentation rate to be 90 mm/h, and white blood cells 14,000/mm^3 with 75% neutrophils. Liver and kidney function tests were within normal limits. Blood and urine cultures were sterile. Thyroid-stimulating factor was 0.005 mu/L (normal range 0.4–5 mu/L) and thyroxine 35 mg/dl (normal range 5–12 mg/dl) in three consequent tests. Due to the neck pain, elevated ESR, hyperthyroidism and fever, subacute thyroiditis was suspected. I_{131} was low. The diagnosis of subacute thyroiditis was established and treatment with acetylsalicylic acid and propranolol was initiated.

Towards the end of the first week of treatment the neck pain resolved. ESR decreased to 1 mm/h and WBC decreased to 12,000/mm^3. Signs of tardive dyskinesia disappeared and the patient recovered completely.

Comment

Tardive dyskinesia is a syndrome of persistent, stereotypical, repetitive abnormal involuntary movements, associated in most cases with chronic exposure to antipsychotic drugs. Grimacing and chewing are the most characteristic features, but choreoathetotic and ballistic movements of the extremities may also occur. The disorder disturbs normal function and body image and may be so severe that speaking and swallowing are impeded. The prevalence of tardive dyskinesia

increases with age and is more common in elderly women.

It is believed that the continuous long-term blockade of brain dopamine function with neuroleptic drugs leads to increased sensitivity to the effect of dopamine in certain areas of the brain, perhaps by an increase in the number of dopamine receptors. Tardive dyskinesia may be an expression of such increased sensitivity in extrapyramidal areas of the brain. Tardive dyskinesia may be associated with supersensitivity of postsynaptic dopamine receptors in the basal ganglia.

This disorder is difficult to treat. Vitamin E, reserpine or anticholinergics may reduce abnormal involuntary movements if given early in the development of the syndrome. Opioids, propranolol [1], and benzodiazepines are rarely helpful.

A Medline literature search for tardive dyskinesia and thyroid disease revealed an article on the partial resolution of tardive dyskinesia with treatment of co-existing thyrotoxicosis [2] and tardive dyskinesia complicated by hyperthyroidism [3]. In the evaluation of a patient with tardive dyskinesia, we contend that thyroid disease should be investigated since it may be a reversible cause of tardive dyskinesia.

References

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Correspondence: Dr. Y. Berner, Head, Dept. of Geriatrics, Hartzfeld Hospital (Kaplan Medical Center), P.O. Box 48, Gedera 70750, Israel. Tel: (972-8) 859 5305; Fax: (972-8) 859 5227; email: berner@inter.net.il.

Capsule

Ribosomes structure and function

Ribosomes are the cellular entities that translate information, encoded as nucleotide sequences, into protein-based machines that carry out the catalytic, structural, and signaling functions necessary for life. In bacteria, these entities are themselves composed of 50 to 60 distinct protein molecules and 3 distinct RNA molecules that are arranged into a complex, with a mass of approximately 2.5 million daltons. Information is provided in the form of messenger RNA (mRNA, which is essentially a copy of the nucleotide sequence of a gene). The keys to decoding are supplied by transfer RNA (tRNA) molecules that bind specifically to the mRNA at one end and carry amino acids at the other end; these amino acids are then assembled into peptide sequences. An overall view at 7.8 angstroms of the ribosome and the binding interactions with tRNA was presented by Cate et al. and a close-up analysis of the arrangement of the largest RNA molecule was described by Culver et al. in the 24th (September) issue of *Science.*

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Capsule

Protein mimics

Pathogenic bacteria and viruses must evade host defenses to survive. Two reports show how mimicry of host protein function can aid in cell entry and interrupt immune system responses. Entry of the bacterial pathogen *Yersinia pseudotuberculosis* into eukaryotic cells is mediated by the bacterial outer-membrane protein invasin, which binds to host cell integrins with a higher affinity than natural substrates such as fibronectin.

Hamburger et al. present the atomic-resolution structure of the invasin extracellular region. Comparison of this structure to fibronectin provides an example of convergent evolution. Although the proteins have different folding topologies, both form elongated structures comprised of tandem domains and have residues critical for integrin binding at similar locations. The structural comparison also reveals differences between invasin and fibronectin that might explain how the bacterial pathogen can compete with host proteins to exploit host cell receptors.

Epstein-Barr virus infects epithelial and B cells and is associated with various cancers and B lymphomas. This DNA virus has a latent phase and expresses latent membrane proteins such as LMP1, that are essential for transformation. LMP1 can interact with many of the signaling molecules that normally bind to CD40, a crucial activation signal for B cells. Uchida et al. report that LMP1 can mimic a constitutively active CD40 molecule and thus needs no ligation to aid in proliferation and antibody secretion of B cells. However, LMP1 blocks B cells from forming the germinal center, the site for affinity maturation and generation of memory B cells, and may increase the likelihood of viral survival.

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