Awareness on MULTIPLE SCLEROSIS and Role of histamine in multiple sclerosis; A survey based study

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ABSTRACT:

Multiple sclerosis (MS) is one of the most common neurological conditions among young adults. MS is known as an autoimmune condition. It is an inflammatory, demyelinating CNS disease. Our survey aimed to find out its awareness among the undergraduates of MBBS & Pharmacy in Karachi city. A cross-sectional and random method was used to collect data in the month of April-June, 2014 in different medical colleges and universities of Karachi. We find that undergraduate students are well aware of this term Multiple sclerosis (MS). Different questions were asked for the collection of data. The overall awareness rate among MBBS and Pharmacy undergraduates in Karachi according to our survey is found to be as 75.4%. According to our survey, 87% undergraduates have basic knowledge about MS. 79% undergraduates aware about the stages of MS while 75% undergraduates aware about the causes of MS. Multiple sclerosis has no cure yet. 76% undergraduates aware about the treatment strategies for the betterment and stop progression of MS whereas 60% undergraduates aware about the role of histamine in MS.

Keywords: Multiple sclerosis (MS), neurological, autoimmune, inflammatory, demyelinating

INTRODUCTION:

Multiple sclerosis (MS) is an autoimmune, inflammatory, demyelinating CNS disease. It strikes generally at early adult years. Symptoms of MS include numbness, loss of balance, impaired vision, bladder dysfunction, weakness, and psychological changes. Fatigue is an earliest symptom in MS. The disease progresses to severe disability and premature death.[1]

The name of MS is due to the presence of hardened (multiple sclerotic) lesions in the brain and spinal cord – multiple scars. The optic tract is also involved in MS. This disease has major character of autoimmune, with T-cells and some other immune effector populations attacking the nerve cells after entering the brain, stripping away their myelin insulation and sometimes destroying their axons and entire remaining structures.[2]

Neurologic disability is commonly caused by MS in young adults. The demyelination lesions are histopathologically characteristic of the disease. Brain examination by MRI (magnetic resonance imaging) can accurately detect these "white matter plaques." [3]

Stages:

The multiple sclerosis consists of two stages on the basis of their pathogenesis:

1. Inflammatory phase
2. Neurodegenerative phase.[4]

Pathophysiology of MS:

MS is an autoimmune disorder in which immune cells (T lymphocytes and macrophages) in the blood are "primed" (sensitized), may be due to viral-related antigens, attacking the myelinated neurons and glial cells of the central nervous system.[5,6] Candidate viruses include measles,[7] herpes,[8] vaccinia,[9] and multiple sclerosis retrovirus.[10,11]

Treatment

Multiple sclerosis has no cure. To decrease the relapse frequency and to delay progression of the disease MS, many options are available now. Several ways to treat are present and can be taken according to the patient's condition. Intramuscular or subcutaneous injections are used to treat MS. Some drugs also used orally or through IV route for the treatment of MS.

- **Beta interferons, Glatiramer acetate and Mitoxantrone** are medications used for the treatment of relapsing-remitting MS.

- **Fingolimod, Dimethyl fumarate, and Teriflunomide** is used for the treatment of relapsing forms of MS to reduce the frequency of clinical exacerbations and to delay the accumulation of physical disability
- **Natalizumab** is for patients with rapidly progressing MS or with high disease activity despite the use of an alternate MS therapy. [12]

ROLE OF HISTAMINE

Histamine is the most widely recognized mediator released by mast cells. Release of histamine by brain mast cells may initially accelerate inflammation by increasing the permeability of the blood-brain barrier, an H2 receptor- mediated phenomenon.[13] Increased blood-brain barrier permeability would then presumably increase the influx of sensitized peripheral immune cells. In the pathophysiology of MS, this process is considered as central. Ongoing mast cell degranulation with histamine release might also create an increased demand for histidine (the direct precursor of histamine), and potentially compromise the supply of histidine at other histamine-synthesizing sites in the brain, such as histaminergic neurons.

Interestingly, the location, number, and histamine content of mast cells in brain have been shown to be inherited traits.[14,15]

METHODOLOGY

This is a survey based study on the awareness of Multiple sclerosis (MS) among MBBS and Pharmacy undergraduates. A cross-sectional and random method was use to collected data from different universities and medical colleges of Karachi city about the knowledge of Multiple sclerosis (MS) in the month of April-June, 2014. A specially designed questionnaire was used for data collection. Data of 50 MBBS and 50 Pharmacy undergraduates (n=100) was collected and analyzed.

DATA ANALYSIS

We have analyzed our data statistically and used tables and graphs for analysis of our data obtained.

RESULT

According to our survey on the awareness of Multiple sclerosis (MS) among MBBS and Pharmacy undergraduates, we find 87% undergraduates have basic knowledge about MS. 79% undergraduates have awareness about the stages of MS while 75% undergraduates have awareness about the causes of MS. 76% undergraduates have awareness about the treatment of MS whereas 60% undergraduates have awareness about the role of histamine in MS.

DISCUSSION

Multiple sclerosis (MS) is an autoimmune, inflammatory, demyelinating CNS disease. We have survey on the awareness of Multiple sclerosis (MS) among MBBS and Pharmacy undergraduates, belonging to different universities and medical colleges in Karachi city. 50 MBBS and 50 pharmacy students were asked 5different question to check the awareness on MS. Data of total 100 students were collected to conclude the result.

Case Processing Summary						
	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Students * MULTIPLE SCLEROSIS	100	100.0%	0	0.0%	100	100.0%
Students * Stages of M.S	100	100.0%	0	0.0%	100	100.0%
Students * Cause of M.S	100	100.0%	0	0.0%	100	100.0%
Students * Treatment Of M.S	100	100.0%	0	0.0%	100	100.0%
Students * Role of Histamine	100	100.0%	0	0.0%	100	100.0%

Students * MULTIPLE SCLEROSIS

According to our survey on the awareness of Multiple sclerosis (MS) among MBBS and Pharmacy undergraduates, 87% students have basic knowledge of MS, while 13% students have no basic knowledge about MS. In the pharmacy undergraduates, 44out of 50 have basic knowledge about MS whereas 6 out of 50 have no basic knowledge. In MBBS undergraduates 43out of 50 have basic knowledge whereas 7out of 50 have no basic knowledge about the term Multiple Sclerosis.

Crosstab				
Count				
		MULTIPLE SCLEROSIS		Total
		no	yes	
Students	PHARMACIST	6	44	50
	DOCTORS	7	43	50
Total		13	87	100

Chi-Square Tests					
	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.088[a]	1	.766		
Continuity Correction[b]	.000	1	1.000		
Likelihood Ratio	.088	1	.766		
Fisher's Exact Test				1.000	.500
Linear-by-Linear Association	.088	1	.767		
N of Valid Cases	100				
a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 6.50.					
b. Computed only for a 2x2 table					

Bar Chart
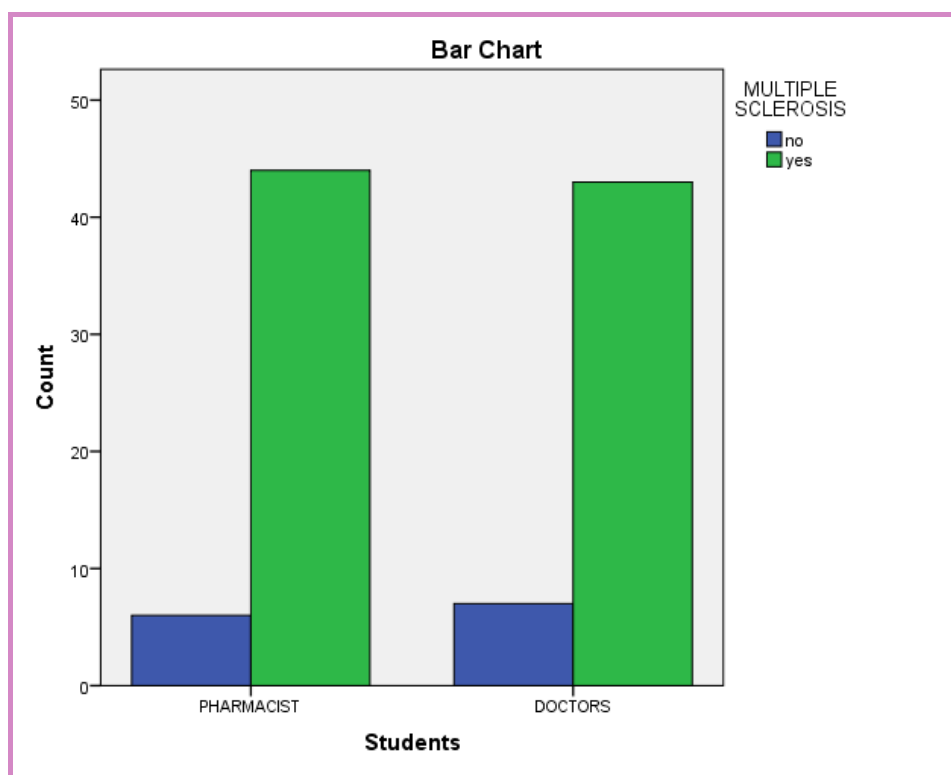
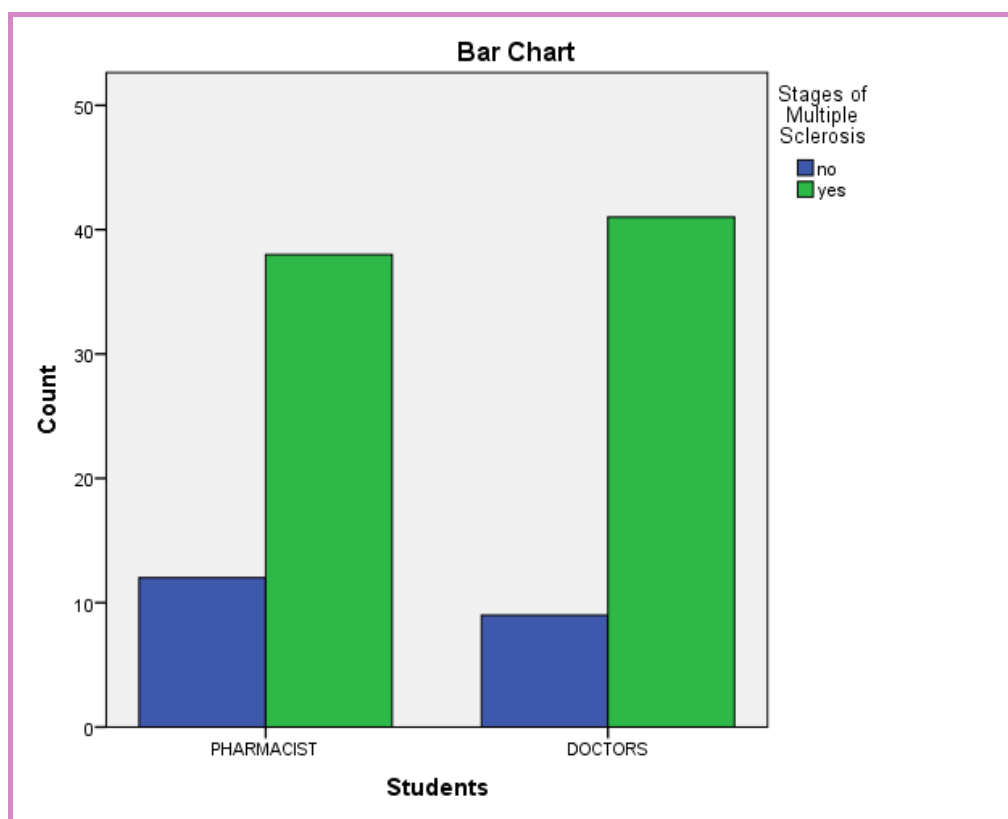**Students * Stages of Multiple Sclerosis**

According to our survey on the awareness of Multiple sclerosis (MS) among MBBS and Pharmacy undergraduates, 79% students have basic knowledge about the stages of MS, while 21% students have no basic knowledge about the stages of MS. In the pharmacy undergraduates, 38out of 50 have basic knowledge about the stages of MS whereas 12out of 50 have no basic knowledge about the stages. In MBBS undergraduates 41out of 50 have basic knowledge about the stages whereas 9out of 50 have no basic knowledge about the stages of Multiple Sclerosis.

Crosstab				
Count				
		Stages of Multiple Sclerosis		Total
		no	yes	
Students	PHARMACIST	12	38	50
	DOCTORS	9	41	50
Total		21	79	100

| Chi-Square Tests					
	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.542[a]	1	.461		
Continuity Correction[b]	.241	1	.623		
Likelihood Ratio	.544	1	.461		
Fisher's Exact Test				.624	.312
Linear-by-Linear Association	.537	1	.464		
N of Valid Cases	100				
a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 10.50.					
b. Computed only for a 2x2 table					

Bar Chart

Students * Cause of M.S

According to our survey on the awareness of Multiple sclerosis (MS) among MBBS and Pharmacy undergraduates, 75% students have basic knowledge about the causes of MS, while 25% students have no basic knowledge about the causes of MS. In the pharmacy undergraduates, 38out of 50 have basic knowledge about the causes of MS whereas 12out of 50 have no basic knowledge about the causes. In MBBS undergraduates 37out of 50 have basic knowledge about the causes whereas 13out of 50 have no basic knowledge about the causes of Multiple Sclerosis.

Crosstab

Count

		Cause of M.S		Total
		no	yes	
Students	PHARMACIST	12	38	50
	DOCTORS	13	37	50
Total		25	75	100

Chi-Square Tests

|	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.053[a]	1	.817		
Continuity Correction[b]	.000	1	1.000		
Likelihood Ratio	.053	1	.817		
Fisher's Exact Test				1.000	.500
Linear-by-Linear Association	.053	1	.818		
N of Valid Cases	100				
a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 12.50.					
b. Computed only for a 2x2 table					
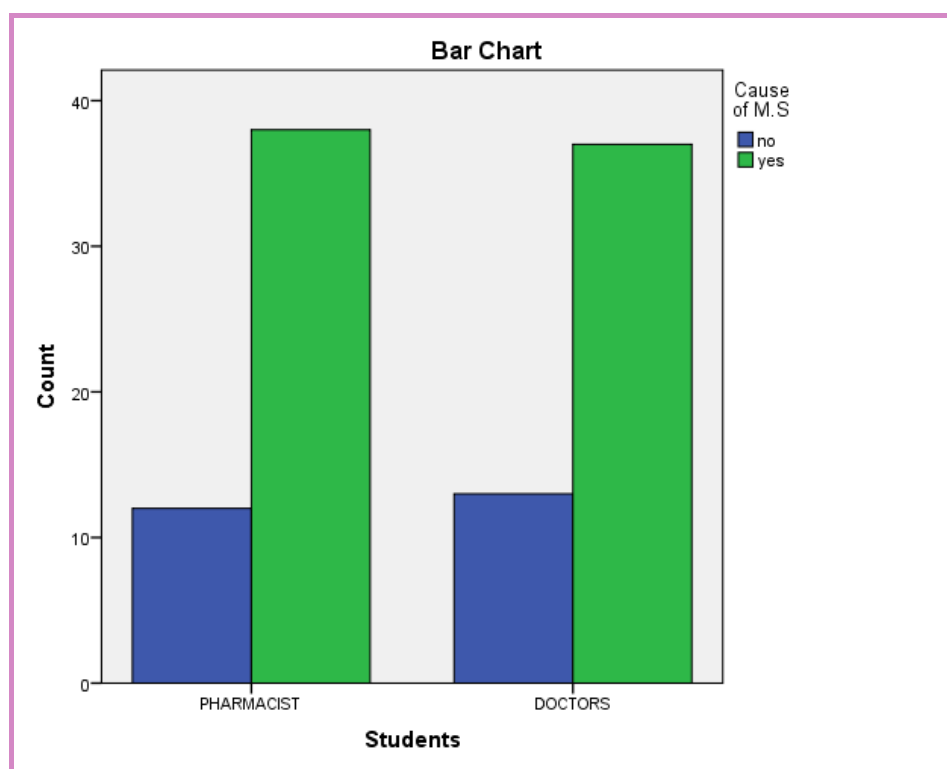
Students * Treatment of M.S

According to our survey on the awareness of Multiple sclerosis (MS) among MBBS and Pharmacy undergraduates, 76% students have basic knowledge about the treatment of MS, while 24% students have no basic knowledge about the treatment of MS. In the pharmacy undergraduates, 39out of 50 have basic knowledge about the treatment of MS whereas 11out of 50 have no basic knowledge about the treatment. In MBBS undergraduates 37out of 50 have basic knowledge about the treatment whereas 13out of 50 have no basic knowledge about the treatment of Multiple Sclerosis.

Crosstab				
Count				
		Treatment Of M.S		Total
		no	yes	
Students	PHARMACIST	11	39	50
	DOCTORS	13	37	50
Total		24	76	100

| Chi-Square Tests					
	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.219[a]	1	.640		
Continuity Correction[b]	.055	1	.815		
Likelihood Ratio	.219	1	.639		
Fisher's Exact Test				.815	.408
Linear-by-Linear Association	.217	1	.641		
N of Valid Cases	100				
a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 12.00.					
b. Computed only for a 2x2 table					

Bar Chart
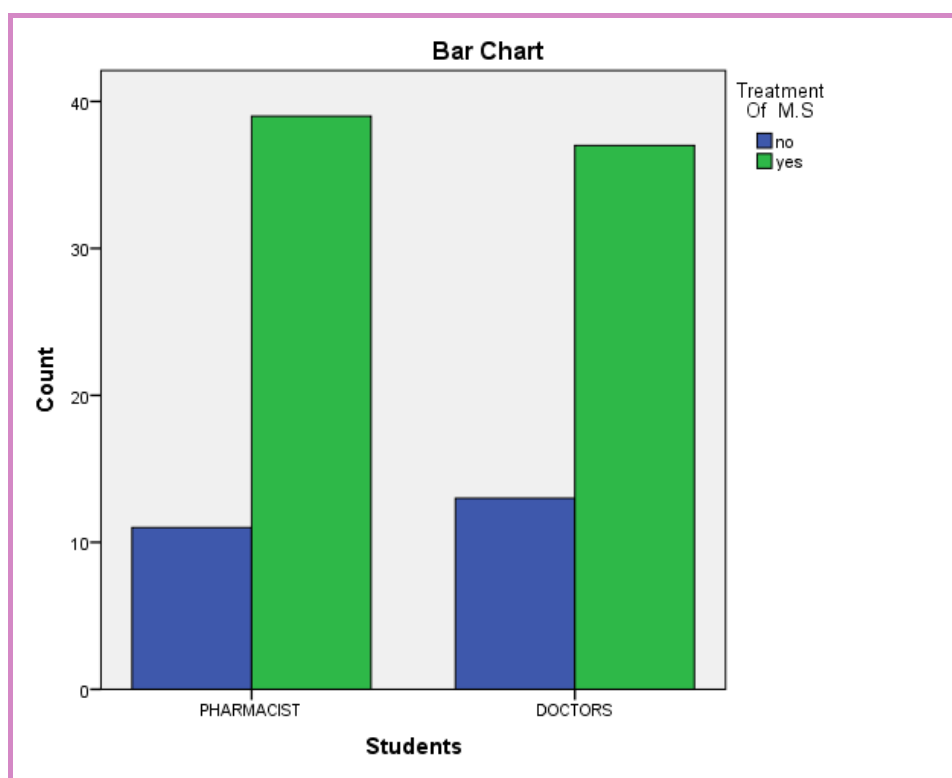
Students * Role of Histamine

According to our survey on the awareness of Multiple sclerosis (MS) among MBBS and Pharmacy undergraduates, 60% students have basic knowledge about the Role of Histamine in MS, while 40% students have no basic knowledge about the treatment of MS. In the pharmacy undergraduates, 26out of 50 have basic knowledge about the Role of Histamine in MS whereas 24out of 50 have no basic knowledge about the Role of Histamine. In MBBS undergraduates 34out of 50 have basic knowledge about the Role of Histamine whereas 16out of 50 have no basic knowledge about the Role of Histamine in Multiple Sclerosis.

Crosstab				
Count				
		Role of Histamine		Total
		no	yes	
Students	PHARMACIST	24	26	50
	DOCTORS	16	34	50
Total		40	60	100

Chi-Square Tests					
	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	2.667[a]	1	.102		
Continuity Correction[b]	2.042	1	.153		
Likelihood Ratio	2.681	1	.102		
Fisher's Exact Test				.153	.076
Linear-by-Linear Association	2.640	1	.104		
N of Valid Cases	100				
a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 20.00.					
b. Computed only for a 2x2 table					

Bar Chart
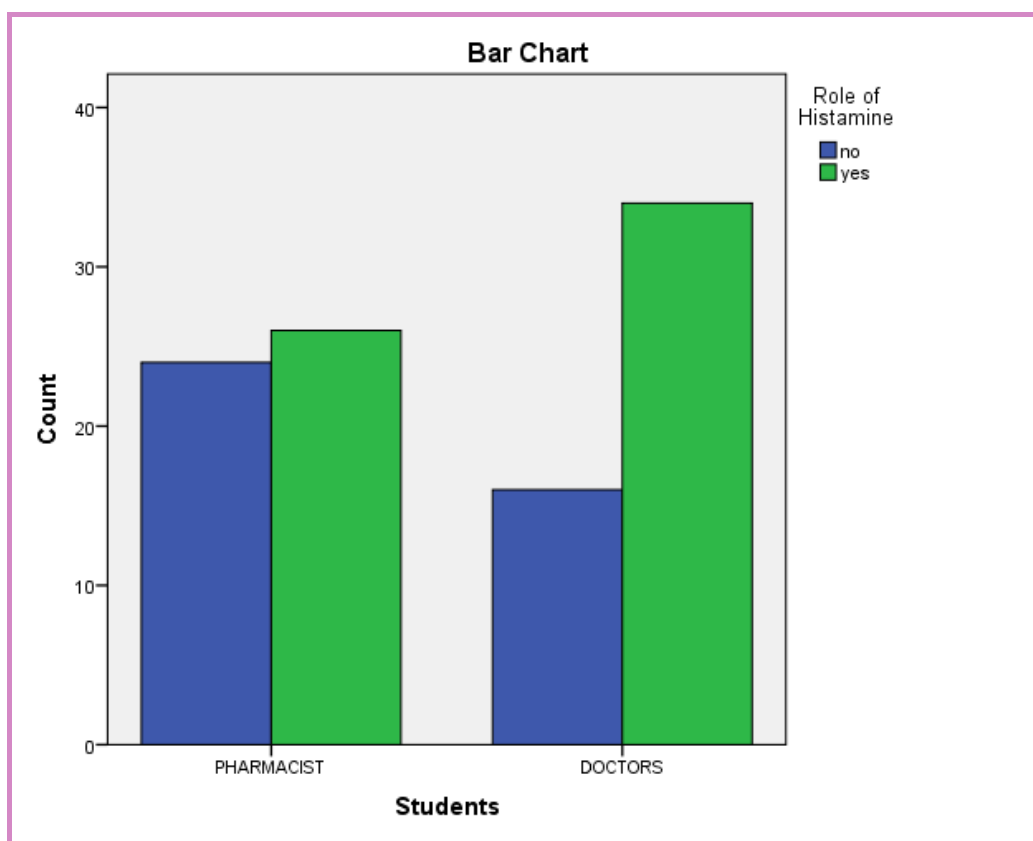
CONCLUSION:

In the light of our performed survey, we can highlight our conclusion on this note that MBBS and Pharmacy undergraduates in Karachi are much aware of the term multiple sclerosis. The overall awareness found to be as 75.4% among the undergraduates of MBBS and Pharmacy.

ACKNOWLEDGEMENT:

CONFLICT OF INTEREST:

There is no conflict of interest.

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