

Generally the Streptococcus Group A beta hemolyticus infection can be caused by a number of infections by different kinds of the pathogenic mechanisms in general population ranging from, anywhere, directly from the involvement of streptococcal skin infections to the Rheumatic heart valve diseases. (8) up to the brain diseases such as eg PANDAS.

The immune system cross-reacts to start attacking our own heart thinking these are the "M proteins" of the body of the pathogen bacteria so that is what it how causes the rheumatic fever, pancarditis, and with its late sequelae are the fibrotic valve heart diseases, or rheumatic heart disease.

The same is the case with the brain diseases. As the antibodies against the "M" Protein of myelin sheath of the neuronal axonal processes causes the demyelinating type of damage in brain.

A diagnosis of paediatric autoimmune neuropsychiatric disorders associated with streptococcal infections (PANDAS) is made when neuropsychiatric disease is precipitated by streptococcal infection (1). Antistreptolysin-O titers are an important tool for diagnosing recent streptococcal infection in patients with Sydenham's chorea and PANDAS, since throat cultures are usually negative because of the latent onset of the neuropsychiatric disease. The upper limit for normal antistreptolysin-O titers is 200 IU/ml in children, but no normal upper limit exists for healthy adults. We propose that an antistreptolysin-O titer of 270 IU/ml is the significant upper limit for healthy adults. This finding will aid in the investigation and diagnosis of new cases of adult PANDAS.

Odds of ABGA seropositivity are increased fivefold in primary OCD compared with controls, but are comparable to those associated with disorders previously associated with ABGA, providing circumstantial evidence of autoimmunity in a subset of those with primary OCD. Further experimental studies are needed to ascertain whether this relationship is causal. Acute- and convalescent-phase serum specimens were collected from 50 patients with group A streptococcal pharyngitis. The anti-streptolysin O (ASO) titer for each serum specimen was determined by using both the standard neutralization assay and the latex agglutination (LA) test (Rheumagen ASO; Biokit Inc., New Britain, Conn.). When the ASO titers derived by the two methods were compared, the correlation coefficient was 0.93.(14)

When the ability of the LA test to demonstrate a significant ASO titer rise (.2 dilutions) was compared with that of the standard neutralization assay, the LA test had a sensitivity of 91%, a specificity of 86%, a positive predictive value of 83%, and a negative predictive value of 92%. Triplicate LA test determinations were performed on a subset of 31 serum specimens, and for 29 (94%), the repeated ASO titers were all within 1 dilution of each other; the width of the 95% confidence interval for the triplicate measurements of each serum specimen was ± 32.8 IU. We found the Rheumagen ASO to be a simple, rapid LA procedure for measuring ASO titers that produces results that are highly reproducible, show little lot-to-lot(15)

Microglia

Recent studies have shown that there is a relevance of microglia in the aetiology of PANDAS(7.)

The Microglia cells play a major role to mediate the immune reactions in the central nervous system. it also involved in the movement, behaviours and neuropsychiatric disorders in children. The GAS infection produces the anti-neuronal autoantibodies in CNS as dopamine receptor-mediated encephalitis within the basal ganglia, where they have been recognised four types of IgG autoantibodies against neuronal auto antigens in patient's sera are, for example, tubulin, lysoganglioside G_{M1} , and dopamine receptors D1 and D were recognized.(10).

It was shown that, the microglia were also involved in the brain development, the blood brain barrier homeostasis for highly selective filtrations, plasticity, and the adult neurogenesis. There is also as a ligand that binds to the transporter protein, where it expressed by activating the microglia. Further it has shown that an increase in microglial activity was found in striatal volume of the children with PANDAS (4). The childhood streptococcal infection has also shown an immunological reactions has the direct effect on Microglia cells, which plays a major role to mediate immune reactions in the central nervous system to play a role in some patients with causing in the Tourette syndrome (pandas) in adults.

The Obsessive compulsive symptoms (not the disorder, where the cause is unknown) has the repeated urge to a point that patient already recognise that these behaviours are excessive and irrational and they wished that they could get rid of the obsessions and compulsions thinking process.(8)This all is also known as pandas, or OCD spectrum disorder.(4)

Here is life becomes just a misery. Although it seems to be very difficult and labouring type of illnesses, but it has a very simple to treatment, as we learned from our knowledge, that these patients are very resistant to all psychiatric medicines, if treated alone with it. But if they are treated together with both the penicillin and the psychotropic medications, it will produce the drastic results.

Sydenham's chorea/ disease

The SD can vary from a patient to patient, ranging from slightly grimacing to involuntary movements that are frequent and severe to sever uncontrolled quasipurposive movement.

. This disease is also well known for its the emotional instability and caused by the same bacteria,ie the Streptococcus Group A beta hemolyticus infection antibodies, directed against the basil ganglia.(14)where it causes low levels of GABA leading to higher levels of dopaminergic activity which in turn causes the rapid, irregular and aimless involuntary, uncoordinated movements of the arms, legs, and the trunk muscles, results in the weakness stumbling and falling slurred speech difficulty in concentrating and difficulties in writings.(8)

For an OCD spectrum disorders such as tics, obsessive compulsive disorder symptoms (OCD) and its relationship to Sydenham chorea (SC), which is the neurologic manifestation of acute rheumatic fever.(or PANDAS), For which it is essential to have an history of the Streptococcus pyogens infection(group A streptococci).(9)

The SD is a neurological disorder of childhood,(4) resulting from the infection by a group A of beta haemolytic streptococcus bacterium. This bacterium resides in the throat, as described above, by causing the rheumatic fever. Then its antibodies acts against the neurons and neuronal coverings by the Virchow of cross reacting to their" M proteins resulting from childhood infection.(13)

3. Dyskinesias is also a psychiatric disorder, caused by the streptococcal infections (6)

4. PANDAS vs. PANS (2)

PANS, a Pediatric Acute-Onset of Neuropsychiatric Syndrome (6).while (PANS), is a condition characterized by

Sudden onset of OCD (6), tics or disturbed food intake along with various psychiatric distortions, which is similar to PANDAS. But unlike the PANDAS, the PANS syndrome does not always require previous GAS infection. (2)

Renal involvement

In this type previous the Streptococcus Group A beta hemolyticus infection, causes the most malignant end renal stage or In the kidneys failure, ie. Known as the rapidly progressive post-streptococcal glomerulo nephritis is the most rapidly and the most irreversibly damaging of all the kidney disease that leading to end renal disease and needs the renal transplantation.

Here the Pathogenesis of the post streptococcal glomerulonephritis is different than others in that here the antigens are from the pathogen and the antibodies are from us. These antigen antibodies combine with the complement system grow inside of the glomeruli where they form insoluble complexes causing local immune reactions and inflammation is known as type II hypersensitivity damage.

This condition is manifested in the form granular renal casts, malignant hypertension, mild to moderate protein urea, and oligo urea leading rapid unset of the chronic. Renal failure and uraemia.

Methodology.

Aims objectives

This study was carried out for about one year to collect the data from various psychiatric patients who have the history of low grade fever in the presence of with or without any obvious causes. After, excluding or after treating the obvious causes if found in the patients during their general physical and systemic examinations. After the close scrutiny, they were sent to laboratory for the presence of streptococcus Group A beta hemolyticus antibodies testing, the Anti-streptomycin's titter levels it is set at more than 200 is said to be positive.(16) (ASO titter)

Inclusion excluding criteria

All those patients were included in this study, who could have given their consent,

All those patients were excluded from this study, who all minors or mentally retarded patients who were not able to give the consent.

Although many patients who have had a history of low grades fever but at the time of study they had also another emergency which prompted to an urgent medical or psychiatric attention for which the history taking was risky, was also excluded from the study.

All those patients who were above 75 years old or because of their debilitating health,

Confidentiality.

The majority of the names in the spss data were not the real ones for the confidentiality/ security reasons. A number was allotted to a person with a fake name to it with all its information. (The original identity is with the patient and with the author).

If any one of the participants, requested for his original name to be included with his/her original data than they were included as such.

Investigations

All tests, including the ASO titer, were available in the government hospitals most of the time. If someone wanted it from outside, the private lab, (one lab was made available at subsidiary rates, there at rs150/ test in 2021). While others could carry it out from their own personal or choice lab.

RESULTS

Out of the 100 cases examined the 57%OCD case of found positive (means more than 200 iu is set for positive result.) For the presence of the streptococcal antibodies.(16) No sign cant p value relation/.while by others see below as

But of 311 individuals, 222 (71%) had evidence of group A streptococcal infection, which was associated with tics and/or OCD status (p=0.0087). Sera from individuals with tics and/or OCD (n=261) had evidence of elevated serum IgG antibodies against human D1R (p<0.0001) and lysoganglioside (p=0.0001), and higher serum activation of CaMKII activity (p<0.0001) in a human neuronal cell line compared with healthy controls (11) But my p. Value was more than...As seen in the table below

Surprisingly a few people or just 18% had already received specific treatment while they were visiting different consultants including the psychiatrists .Majority of them i.e. 82% had no tr

		ASO_titer			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Negative(<200)	43	43.0	43.0	43.0
	Positive(>200)	57	57.0	57.0	100.0
	Total	100	100.0	100.0	

ASO_titer * Family history Cross tabulation

		Family history		Total
		Yes	No	
ASO_titer	Count	13 _a	30 _a	43
	Expected Count	15.9	27.1	43.0
	% within ASO_titer	30.2%	69.8%	100.0%
	Negative(<200)			
	% within Family_history	35.1%	47.6%	43.0%
	% of Total	13.0%	30.0%	43.0%
	Residual	-2.9	2.9	
	Std. Residual	-.7	.6	
	Positive(>200)			
	Count	24 _a	33 _a	57
Expected Count	21.1	35.9	57.0	

Total	% within ASO_titer	42.1%	57.9%	100.0%
	% within Family_history	64.9%	52.4%	57.0%
	% of Total	24.0%	33.0%	57.0%
	Residual	2.9	-2.9	
	Std. Residual	.6	-.5	
	Count	37	63	100
	Expected Count	37.0	63.0	100.0
	% within ASO_titer	37.0%	63.0%	100.0%
	% within Family_history	100.0%	100.0%	100.0%
	% of Total	37.0%	63.0%	100.0%

Each subscript letter denotes a subset of Family history categories whose column proportions do not differ significantly from each other at the .05 level.

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	1.482 ^a	1	.223		
Continuity Correction ^b	1.017	1	.313		
Likelihood Ratio	1.497	1	.221		
Fisher's Exact Test				.296	.157
Linear-by-Linear Association	1.467	1	.226		
N of Valid Cases	100				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 15.91.

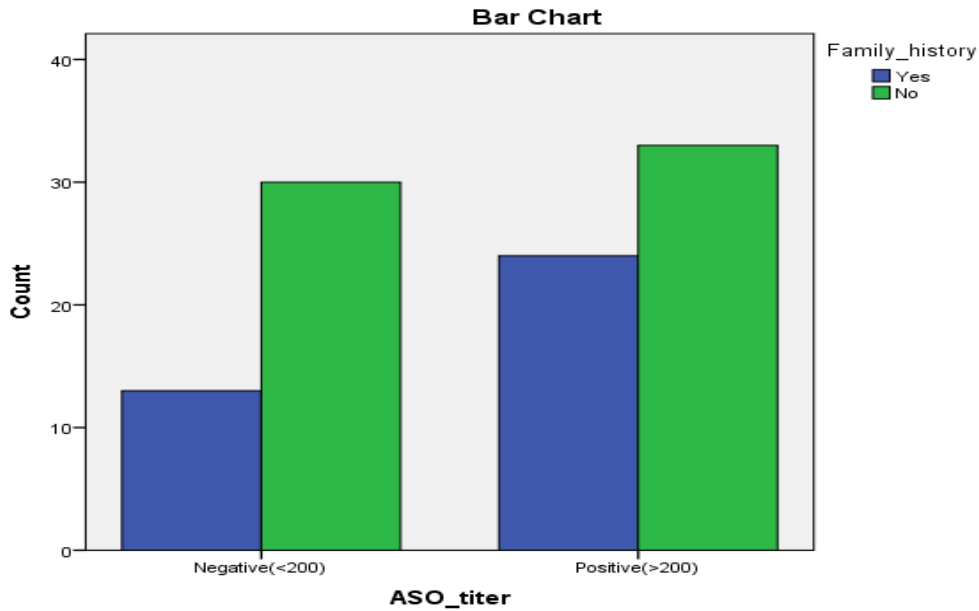
b. Computed only for a 2x2 table

Symmetric Measures

	Value	Approx. Sig.
Nominal by Nominal	Phi	-.122
	Cramer's V	.122
	Contingency Coefficient	.121
N of Valid Cases	100	.223

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.



ASO_titer * House type Cross tabulation

		House_type		Total	
		Katcha	Pakka		
ASO_titer	Count	25 _a	18 _a	43	
	Expected Count	21.5	21.5	43.0	
	% within ASO_titer	58.1%	41.9%	100.0%	
	Negative(<200)	% within House_type	50.0%	36.0%	43.0%
	% of Total	25.0%	18.0%	43.0%	
	Residual Std.	3.5	-3.5		
	Residual	.8	-.8		
	Count	25 _a	32 _a	57	
	Expected Count	28.5	28.5	57.0	
	Positive(>200)	% within ASO_titer	43.9%	56.1%	100.0%
% within House_type	50.0%	64.0%	57.0%		

Symmetric Measures

		Value	Approx. Sig.	%
Nominal by	Phi	.141	.157	
Nominal	Cramer's V	.141	.157	
Total	Count	50	50	100
	Expected Count	50.0	50.0	100.0
	% within ASO_titer	50.0%	50.0%	100.0%
	% within House_type	100.0%	100.0%	100.0%
	pe			
	% of Total	50.0%	50.0%	100.0%

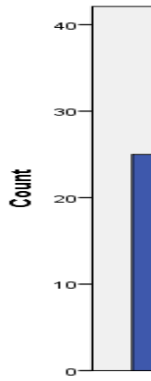
Each subscript letter denotes a subset of House_type categories whose column proportions do not differ significantly from each other at the .05 level.

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	1.999 ^a	1	.157		
Continuity Correction ^b	1.469	1	.226		
Likelihood Ratio	2.006	1	.157		
Fisher's Exact Test				.225	.113
Linear-by-Linear Association	1.979	1	.159		
N of Valid Cases	100				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 21.50.

b. Computed only for a 2x2 table



Contingency Coefficient	.140	.157
N of Valid Cases	100	

- a. Not assuming the null hypothesis.
- b. Using the asymptotic standard error assuming the null hypothesis.

ASO_titer * income_status Crosstabulation

	income_status		Total	
	middle class	Business class		
Count	30 _a	<5 _a	43	
Expected Count	28.8	5.6	43.0	
% within ASO_titer	69.8%	n<5	100.0%	
Negative(<200)	% within income_status	44.8%	n<5	43.0%
	% of Total	30.0%	n<5	43.0%
	Residual	1.2	n<5	
	Std. Residual	.2	n<5	

	Count	37 _a	9 _a	57
	Expected Count	38.2	7.4	57.0
	% within ASO_titer	64.9%	15.8%	100.0%
Positive(>20 0)	% within income_status	55.2%	69.2%	57.0%
	% of Total	37.0%	9.0%	57.0%
	Residual	-1.2	1.6	
	Std. Residual	-.2	.6	
Total	Count	67	13	100
	Expected Count	67.0	13.0	100.0
	% within ASO_titer	67.0%	13.0%	100.0%

% within income_status	100.0%	100.0%	100.0%
% of Total	67.0%	13.0%	100.0%

Each subscript letter denotes a subset of income_status categories whose column proportions do not differ significantly from each other at the .05 level.

Chi-Square Tests

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	.912 ^a	2	.634
Likelihood Ratio	.940	2	.625
Linear-by-Linear Association	.492	1	.483
N of Valid Cases	100		

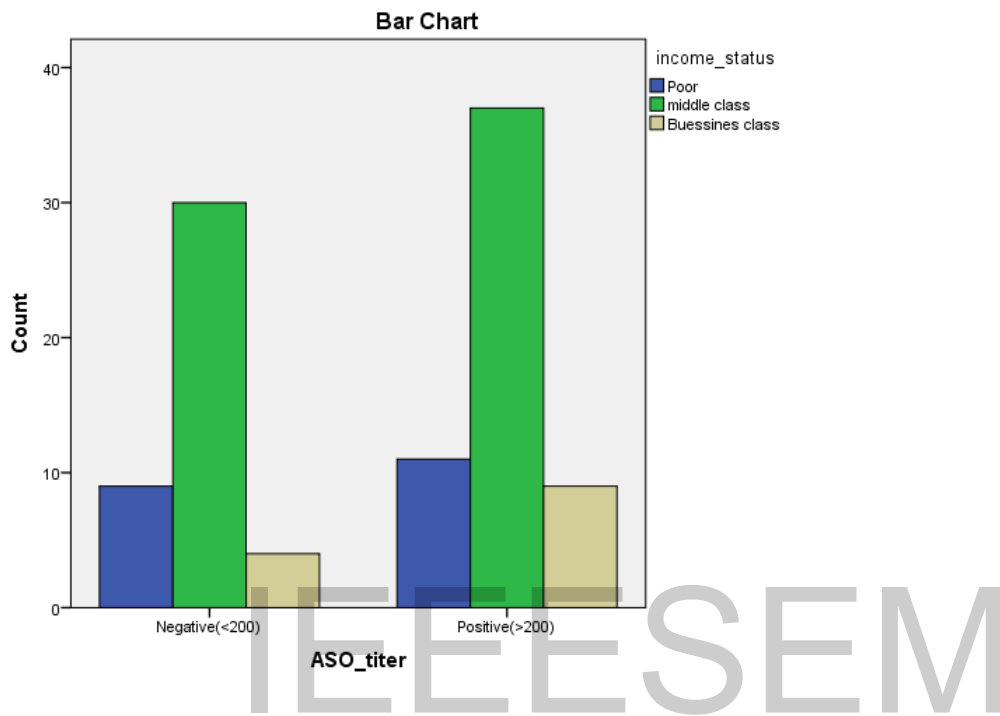
- a. 0 cells (0.0%) have expected count less than 5.
The minimum expected count is 5.59.

Symmetric Measures

		Value	Approx. Sig.
Nominal by Nominal	Phi	.096	.634
	Cramer's V	.096	.634
	Contingency Coefficient	.095	.634

N of Valid Cases	100
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- Not assuming the null hypothesis.
- Using the asymptotic standard error assuming the null hypothesis.



ASO_titer * sex Crosstabulation

		sex		Total
		Male	Female	
ASO_titer	Count	25 _a	18 _a	43
	Expected Count	27.1	15.9	43.0
	Negative(<200)	58.1%	41.9%	100.0%
	% within ASO_titer	39.7%	48.6%	43.0%
	% within sex	25.0%	18.0%	43.0%
	% of Total	-2.1	2.1	
	Residual	-.4	.5	
	Std. Residual	38 _a	19 _a	57
	Positive(>200)	35.9	21.1	57.0
	Count			

Total	% within ASO_titer	66.7%	33.3%	100.0%
	% within sex	60.3%	51.4%	57.0%
	% of Total	38.0%	19.0%	57.0%
	Residual	2.1	-2.1	
	Std. Residual	.3	-.5	
	Count	63	37	100
	Expected Count	63.0	37.0	100.0
	% within ASO_titer	63.0%	37.0%	100.0%
	% within sex	100.0%	100.0%	100.0%
	% of Total	63.0%	37.0%	100.0%

Each subscript letter denotes a subset of sex categories whose column proportions do not differ significantly from each other at the .05 level.

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.765 ^a	1	.382		
Continuity Correction ^b	.442	1	.506		
Likelihood Ratio	.762	1	.383		
Fisher's Exact Test				.409	.253
Linear-by-Linear Association	.757	1	.384		
N of Valid Cases	100				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 15.91.

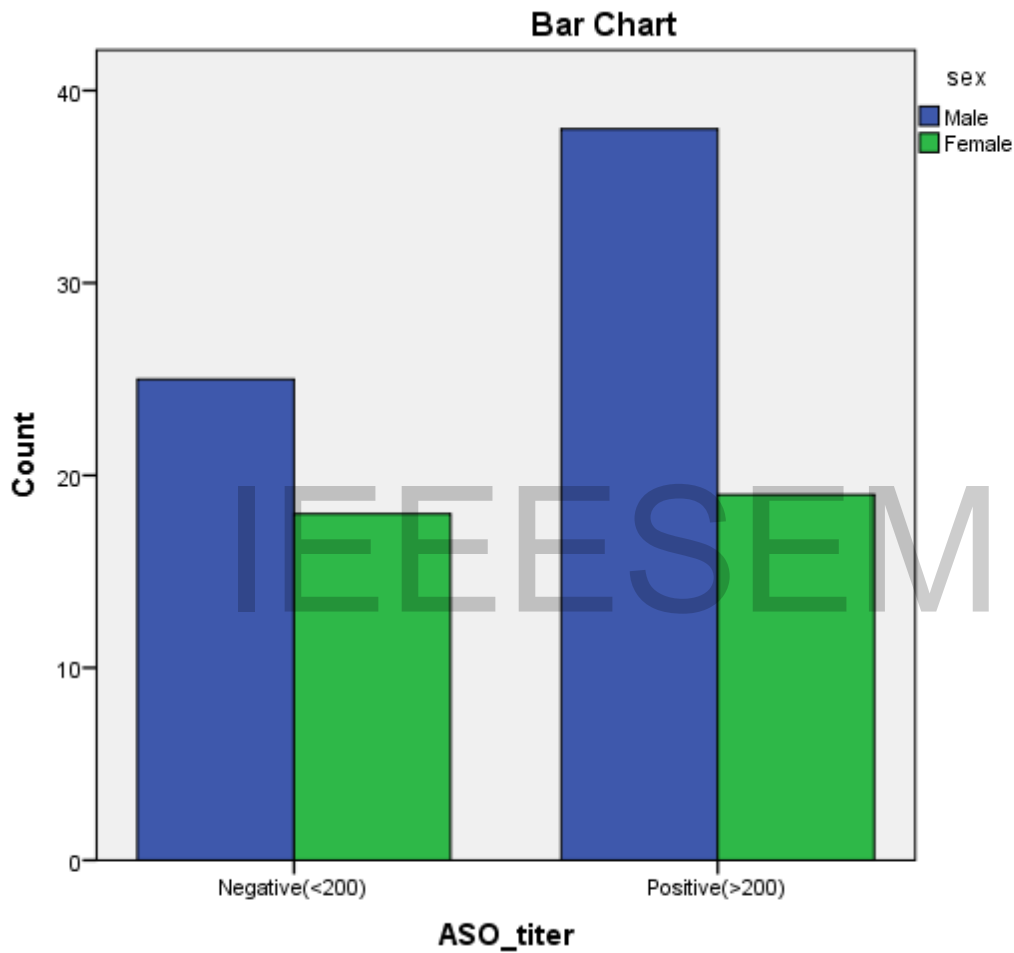
b. Computed only for a 2x2 table

Symmetric Measures

		Value	Approx. Sig.
Nominal by Nominal	Phi	-.087	.382
Nominal	Cramer's V	.087	.382

Contingency Coefficient	.087	.382
N of Valid Cases	100	

- a. Not assuming the null hypothesis.
- b. Using the asymptotic standard error assuming the null hypothesis.



ASO_titer * Marital_status Crosstabulation

		Marital_status				Total
		Maarie d	Single	wido w	Unknow n	
ASO_tit er	Negative(<20 0) Cou nt	23 _a	13 _a	<5 _a	5 _a	43

Positive(>200)	Expected Count	21.5	13.8	n<5	6.0	43.0
	% within ASO_titer	53.5%	30.2%	n<5	11.6%	100.0%
	% within Marital_status	46.0%	40.6%	n<5	35.7%	43.0%
	% of Total	23.0%	13.0%	n<5	5.0%	43.0%
	Residual	1.5	-.8	n<5	-1.0	
	Std. Residual	.3	-.2	n<5	-.4	
	Count	27 _a	19 _a	<5 _a	9 _a	57
	Expected Count	28.5	18.2	n<5	8.0	57.0
	% within ASO_titer	47.4%	33.3%	n<5	15.8%	100.0%
	% within Marital_status	54.0%	59.4%	n<5	64.3%	57.0%
	% of Total	27.0%	19.0%	n<5	9.0%	57.0%

Total	Residual	-1.5	.8	n<5	1.0	
	Std. Residual	-.3	.2	n<5	.4	
	Count	50	32	<5	14	100
	Expected Count	50.0	32.0	<5	14.0	100.0
	% within	50.0%	32.0%	n<5	14.0%	100.0%
	ASO_titer					
	% within	100.0%	100.0%	100.0%	100.0%	100.0%
	Marital_status					
% of Total	50.0%	32.0%	n<5	14.0%	100.0%	

Each subscript letter denotes a subset of Marital_status categories whose column proportions do not differ significantly from each other at the .05 level.

Chi-Square Tests

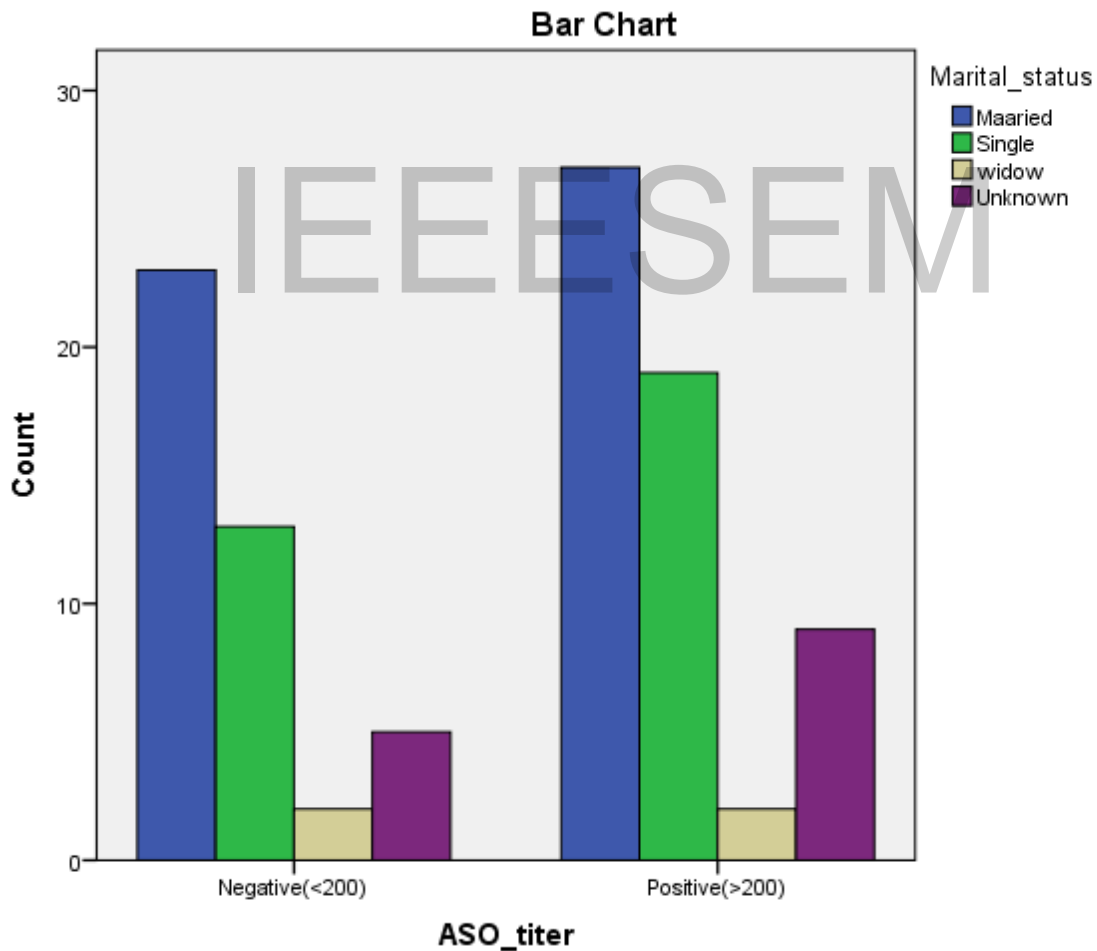
	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	.640 ^a	3	.887
Likelihood Ratio	.645	3	.886
Linear-by-Linear Association	.337	1	.562
N of Valid Cases	100		

a. 2 cells (25.0%) have expected count less than 5. The minimum expected count is 1.72.

Symmetric Measures

		Value	Approx. Sig.
Nominal by Nominal	Phi	.080	.887
	Cramer's V	.080	.887
	Contingency Coefficient	.080	.887
N of Valid Cases		100	

- a. Not assuming the null hypothesis.
- b. Using the asymptotic standard error assuming the null hypothesis.



ASO_titer * Comorbit_status Crosstabulation

		Comorbit_status		Total
		Absent	Present	
ASO_titer	Count	11 _a	40 _a	51
	Expected Count	12.8	38.3	51.0
	% within ASO_titer	21.6%	78.4%	100.0%
	Negative(<20 Comorbit_statuses)	44.0%	53.3%	51.0%
	% of Total	11.0%	40.0%	51.0%
	Residual	-1.8	1.8	
	Std. Residual	-.5	.3	
	Adjusted Residual	-.8	.8	
	Count	14 _a	35 _a	49
	Expected Count	12.3	36.8	49.0
	% within ASO_titer	28.6%	71.4%	100.0%
	Positive(>20 Comorbit_statuses)	56.0%	46.7%	49.0%
	% of Total	14.0%	35.0%	49.0%
	Residual	1.8	-1.8	
	Std. Residual	.5	-.3	
	Adjusted Residual	.8	-.8	
	Count	25	75	100
	Expected Count	25.0	75.0	100.0
	% within ASO_titer	25.0%	75.0%	100.0%
Total				

% within Comorbit_statuses	100.0%	100.0%	100.0%
% of Total	25.0%	75.0%	100.0%

Each subscript letter denotes a subset of Comorbit_status categories whose column proportions do not differ significantly from each other at the .05 level.

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.654 ^a	1	.419		
Continuity Correction ^b	.333	1	.564		
Likelihood Ratio	.654	1	.419		
Fisher's Exact Test				.492	.282
N of Valid Cases	100				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 12.25.

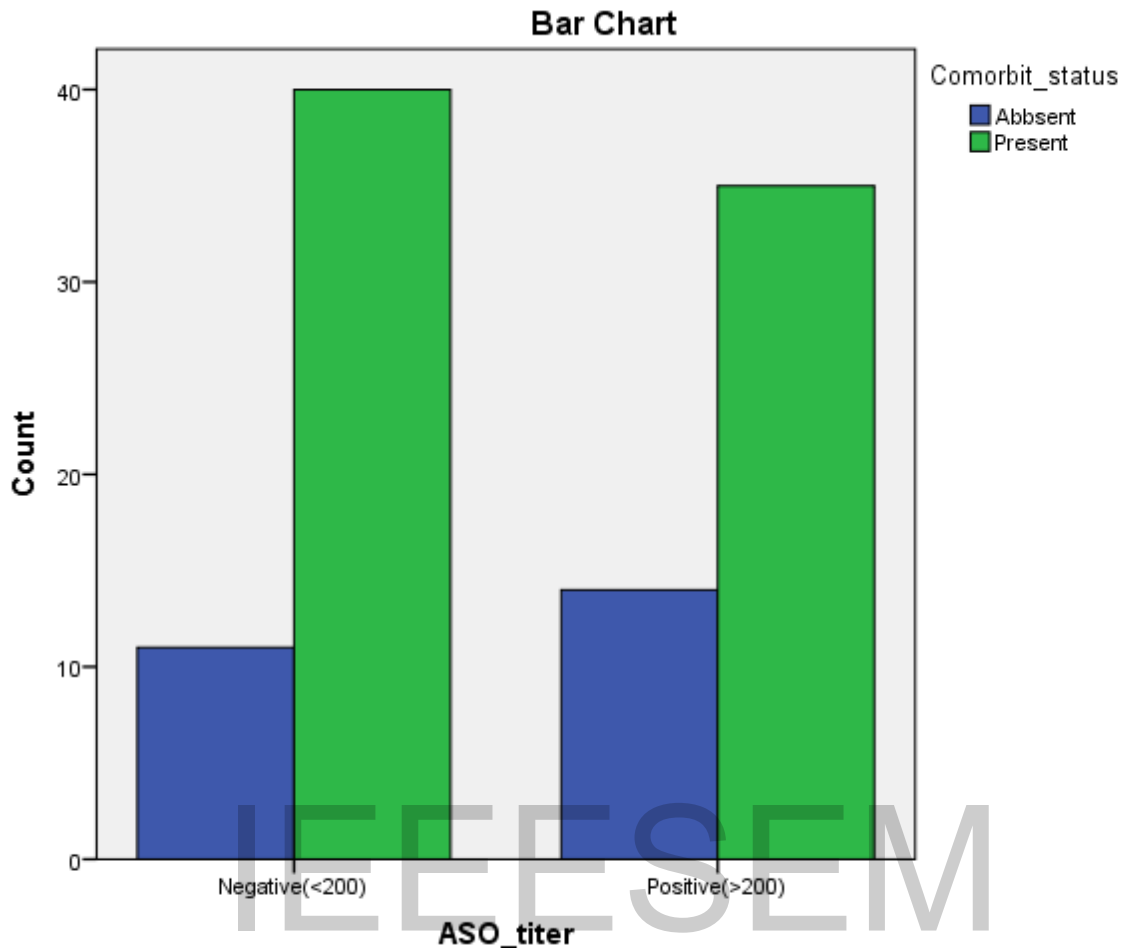
b. Computed only for a 2x2 table

Symmetric Measures

	Value	Approx. Sig.
Nominal by Nominal	Phi	-.081
	Cramer's V	.081
	Contingency Coefficient	.081
N of Valid Cases	100	.419

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.



DISCUSSION

We had mostly the older patients who have a repeated treatment history with no response, that's why they were referred from the different consultants, especially, among the physicians.

As these patients who had already visited a number of consultants, including the psychiatrists, were heavily investigated and even treated by the ECTs but with no response..

Those patients, whether treated heavily with an antipsychotic or with add on in low doses or high doses of serotonergic drugs, or both of which drugs found to be counterproductive. (It was the authors personal observation was that the either add on or the full doses treatment was counterproductive as we have seen in our many study cases. So add on therapy must always be avoided). Because by the adding of the antipsychotic drug worsens the OCD symptoms,(although the antipsychotic drugs in low doses are the only effective drugs used to treat the GAS infection movement disorders.)

Our study patients just needed a careful history, (if one doesn't ask) because most of the time patients think would think that psychiatrists don't need any lab. Investigations or tests, or they may think that if they're taking cardiac or anti tuberculosis drugs, for example, it have no need to be mentioned, or it has nothing to do with psychopharmacology. Other point is in the history of the patients is that, the history usually is taken by a junior colleague, such as an house offers or a medical officer (not in all cases) and not rechecked for the reasons of work overloads. Then that patient just has

labelled with their face value and treated with both serotonergic and antipsychotics drugs thinking that either would work in it. But unfortunately, none will work at all.

If a patient turns out to be a case of psychosis/schizophrenia or bipolar affective disorder, then the serotonergic/antiserotonergic drugs are counterproductive for both of the cases.

As recent evidence shows also that the antipsychotics drugs for the OCD patients and the one who are suffering from the post streptococcal infection /antibody damage against the neuronal cell damage are not given in larger doses.(4).Although the antipsychotic drugs in small doses are the main stay treatment for the movement disorders.(but not given alone.)

For our disease screening, the most of our patients didn't need any further laboratory (lab.) testing, because the majority of them, (sometimes, they had carried it out these tests several times,) have already carried it out from head to toe. The tests were eg. The MRI and CT scan, X-rays, ultrasounds etc, one can name it, So these patients did not have needed any further testing except if in case one has a grass infection found e.g. In the chest, (may have need referral) or the UTI, (send the urine examination, treat it with antibiotics.).

As expected, every one of them has carried almost all test results with them, including their ASO titer testing

In our study, the participants merely needed sometimes, only the ASO titer lab testing. (The lab testing was used the latex type anti-streptolysin)(15).

For the diagnosis we just had to complete history, general physical and systemic examination.

Here we have included many variables in order to target the specific population for a specific cause and to find a specific tailored treatment for it.

For that matter, we have included all those patients with OCD symptoms low grade fever, but in it (this study) included all out patients, inpatients and those patients/people who had carried out the lab. Testing by other consultants or psychiatrists who advised in past.

We interviewed, administered the disease specific scales (such as Yale Brown OCD, rating scale (1).

General interviews also had included the various variables to find out the prevalence or the presence of infection/antibodies in various subgroups or various types in particular types of, for example, segment of the population which has this kind of antibodies than those in order to target them with precise treatment.

As in another study, which was carried for more than 6 months follow-up, though their more than 80% patients of PANDAS symptoms improved, and serum autoantibody titers also significantly decreased. (10) These results were reported previously in published studies. That in their laboratory results suggest that the antibody biomarkers might be a useful adjunct to clinical diagnosis of, PANDAS, and related disorders and were the first known group of autoantibody detecting against the dopamine receptor-mediated encephalitis in children.(10)

But in our sporadic clinical cases, where we observed, that we could not find any detrimental levels in our clinical patient's that their anti-streptomycin's antibodies would remain for the years in the past in our when we checked beyond the 6 month period (though the disease symptoms disappeared rapidly after antibiotics treatment)

Another fact is that we learned from our study that the subclinical co-morbidities were the perpetuating factors for many types of psychiatric and medical illness.

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Evaluation of a New Latex Agglutination Test for Detection of Streptolysin O Antibodies

MICHAEL A. GERBER,* LOLITA S. CAPARAS, AND MARTIN F. RANDOLPH

Department of Pediatrics, University of Connecticut Health Center, Farmington, Connecticut 06032

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16.. ANDREW J. CHURCH, B.SC., and RUSSELL C. DALE, M.B.CH.B., M.R.C.P.,

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