WORLD JOURNAL OF PHARMACEUTICAL RESEARCH
SJIF Impact Factor 5.045
Volume 4, Issue 2, 43-48. Research Article ISSN 2277– 7105

HUMAN TOSILLITIS ASSOCIATED CRYGLOBULIN RESPONSES CAN PROBE HERD IMMUNITY

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Article Received on
02 Dec 2014,

Revised on 24 Dec 2014,
Accepted on 14 Jan 2015

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ABSTRACT

A human herd of 30 pediatric tonsillitis patients were elected for study of cryoglonulin responses using cryocrit percentages, cryprotein concentration and IgG cryglobulin isotyping. It was evident that there were three fractions of cryglobulin responsive individuals. These were as, low, moderate and high responsive. The observable and measurable variations were found as age, individual and population mediated which do affects the limits of cryglobulin responses. The herd cryglobulin response nature was found both of Gaussian and skwed distribution plots. Thus, cryocrit percentage, cryprotein concentration and IgG isotyping served as suitable probes for cryglobulin herd immunity in childhood tonsillitis.

KEY WORDS: Cryglobulin, herd immunity, isotype, responsive, tonsillitis.

INTRODUCTION

Human life span extreme may influence the events and/or the elements of the immune responses in different ways. Extreme childhood may be of weak immune system functions which could be attributed to an immature organs, tissues, cells, cell markers or due to an underdeveloped communication lymphatic vessels.[1] In the biological sense individual can be defined as single autonomous biological system that performs its biotic activities which make it viable with its own population or herd. It is either of uni or multi cellular setting organisms.[2] Herd may constitute individuals that may differ among each other both at molecular and cellular levels.[3] Logically, any aggregation of individuals living in certain area, affecting one another /or affecting their environment, actually they are composing a population or herd[4], Shnawa[5] has been showing four settings representing various forms of

human herd immunity. The objective of the present work was to map the; Age, individual and population mediated variations for the cryoglobulin responses in pediatric tonsillitis patients and checking the possibility of using such responses for probing herd immunity.

MATERIALS AND METHODS

Thirty clinically proven tonsillitis childhood patients, Table 1 whom showing; fever, headach, vomition with difficulty in swallowing food and drinks, tenderness, congestion and exudates in the oral tonsile region.[6] Acute phase protein C done for these patients as an immune marker for inflammation.[7] Fifteen normal mouth hygiene subjects were elected as controls matching the age grouping of the patients. Serum cryoglobulin responses were investigated in accordance with Lynch et at 2006.[8] The inclusion criteria were; Reversable precipitability at 4C, dissolving at 37 or 45C and formation of gelatinous or crystalline precipitates. Immunofixation was done using ready made specific immunoglobulin partigens.[9]

RESULTS

1-Cryglobulin herd responsiveness: The thirty patients were found as; Low responders in a concentration limits of 20-27, moderate responders in a concentration limits of28-36 and high responders with a concentration limits of 40-55 mg/ml. The number of patients were; 7.14, and 9 for the categories low, moderate and high respectively Table 3.

2-Herd Plots; The normal Gaussian distribution curves were evident through, IgG cryglobulin and cryocrit plots. While skwed distribution plots was noted in the cryoprotein concentrations Figures 1, 2, 3.

3-Individual Variations: The tonsillitis patients have shown a lower limits for cryocrit percentages were,1.2, 5.2 and8.2% and higher limits were, 8, 4, 11.2, 17.5 % to the age groups 6, 9 and 12 years. While ,their lower limits for cryprotein concentrations were,20.0,28.3,and 34 mg/ml.in comparison to higher limits were as, 44.6, 48.4, and 55.6 mg/ml. to the age groups of 6, 9, 12years old. Their cryglobulin IgG, however were showing lower limits of, 0.448, 14.293, and 19.977 mg/ml .as well as higher limits of, 16.420, 23.542, and 28.049 mg/ml., to the age grouping of, 6, 9, and 12 years old patients respectively.

4-Age mediated variations; There were a gradual *increase* of the cryocrit percentages as, 3.97, 7.97, and 12.18 % for the age groups, 6, 9, and 12 years respectively Table 4. Likewise, the cryoprtein concentrations were, 26.65, 35.39, and 42.65 mg/ml. to the age groups of 6, 9,

and 12 years old accordingly Table 5.In contrast there were gradual decrease in titres and concentrations of the acute phase protein C. However the cryglobulin concentrations of the isotype IgM, IgG, and Ig A were increasing as the age increased up to 12 years old patients Table 6.

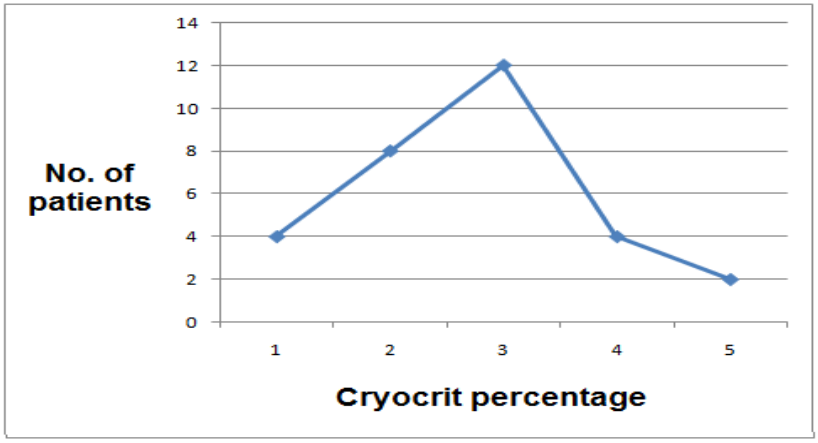

Figure 1:The cryocrit percentages as a probe of childhood tonsillitis herd immunity

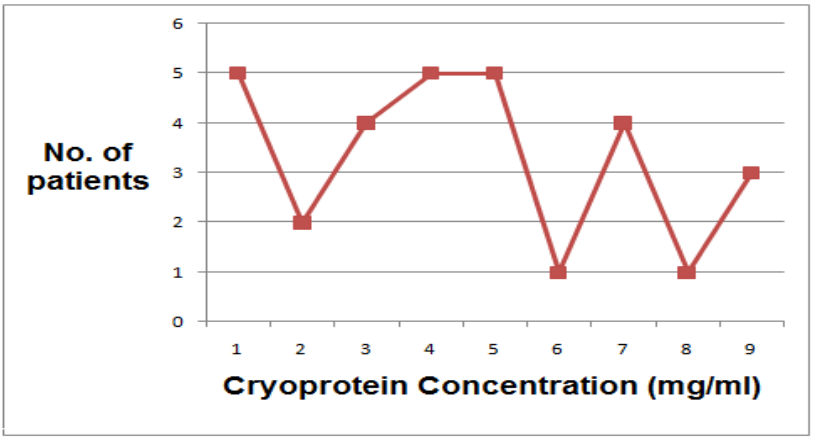

Figure 2:The cryoprotein concentration as a marker for childhood tonsillitis herd immunity.

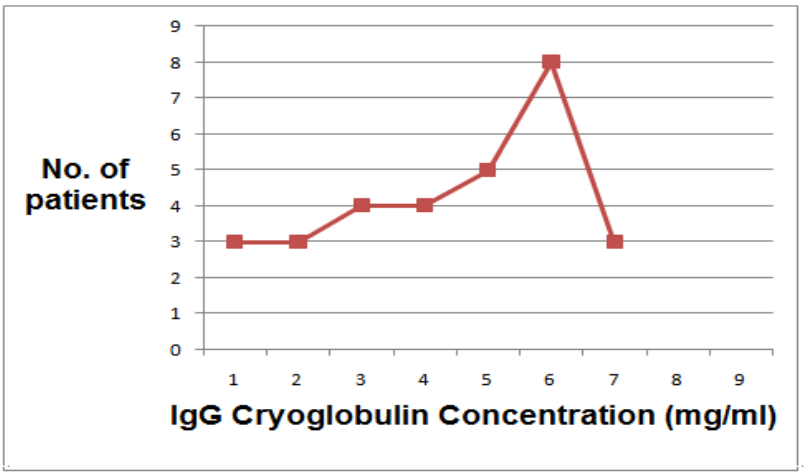

Figure 3: IgG cryoglobulin as a probe for childhood tonsillitis her immunity.

Table 1: The study Patients and controls

Age group	Number of Patients	Number of control
6	10	5
9	10	5
12	10	5

Table 2: Acute Phase protein C among childhood tonsillitis patients

Age/year	Concentration mg/ml.	Titre
6	45.4	7.6
9	43.4	7.4
12	33.0	5.7
Normal value	6.0	

Table 3: Cryoglobulin herd responders in terms of concentration ranges

Categories	Number of patients	Concentration range-mg/ml.
Low responders	7	20 -27
Moderate responders	14	28 -39
High responders	9	40 -55

Table 4: Cryocrit percentages for the childhood tonsillitis

Age group/year	Mean%	Low limits %	Higher limits%
6	3.97	1.2	8.4
9	7.97	5.2	11.2
12	12.97	8.2	17.5

Table 5: Cryoprotein concentration in childhood tonsillitis(*)

Age group/year	Mean mg/ml.	Low limits mg/ml.	Higher limits mg/ml.
6	26.65	0.448	44.6
9	35.39	14.293	48.4
12	42.65	19.977	55.6

=Controls showed negative cryglobulin response (*)

Table 6: The cryglobulin isotypes in childhood tonsillitis, an age wise approach

Age Group / year	Immunoglobulin concentration in mg /ml.		
	IgM	IgG	IgA
6	L 0.357	0.448	0.334
	M 1.467	5.698	2.226
	H 3.789	10.830	4.623
9	L 1.401	11.977	2.015
	M 2.046	19.541	2.816
	H 3.166	23.542	3.798
12	L 1.401	11.977	2.339
	M 2.979	20.973	3.548
	H 3.977	28.049	4.764
Normal value	Normal subject=0.08	’Mixed cryo I=5	Mixed cryo II= 1.0

L=Low limits M = Mean H = Higher limits

DISCUSSION

In the present work we try to assess the possibility of using pediatric tonsillitis associated cryoglobulin responses as a probe for human herd immunity, since the author has published a work an analogus situations.[5,11] Herd immunity, however, have investigated by several other workers abroad.[2,3,4,10] Cryoglobulin responders were classified into; Low, moderate and high responders.[3,5] The markers: Cryocrit %, Cryoprotein concentrations as well as IgG cryoglobulin responses were found as fairly reliable probes for tonsillitis herd immunity in childhood ages.[5,11] Thus, in summing up a conclusion one may state;

1. There were three levels of cryoglobulin responders in childhood tonsillitis
2. Cryocrit %,cryprotein concentrations and I gG cryglobulin responses were concstituting as valid markers for herd immunity in this case.
3. The herd immunity plots were of normal and skwed types.[3]
4. Age may influence the herd cryoglobulin responses.

ACKNOWLEDGMENTS

The authors wish to express their thanks to clinicians whom diagnose the tonsillitis patients in Jebellah district, Babylon Governerate /IRAQ.

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