

The Human Arthropathy Inflammatory and Immune Herd Plots

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ABSTRACT

The herd responses [HR] of human arthropathy patients were being assessed. Arthropathies can broadly be subdivided into; immune mediated and non-immune mediated. The immune mediated were of rheumatic and rheumatoid types. HR responses were of three main basic fractions. The low, the moderate and the high responders for the inflammatory, natural cellular immune and rheumatic herd responses. The nature of the inflammatory herd plot[Erythrocyte sedimentation rates] was of skewed plot type. While the natural cellular immune and the rheumatic response plots were of normal Gaussian distribution plot types. It is to be noted that these immune herd plots are being a novel finding in arthropathy patients

Keywords: Arthropathy, Cellular, herd, immune, Rheumatic, Rheumatoid.

Introduction

A joint is an area of human body where two different bones meet. It functions to move the body parts connected its bones. Arthropathies are a group of human joint disorders featured by inflammatory, normal or overreacted immune responses. There are over-hundred types of human arthropathies. The main manifestation of these disease conditions are; joint pain, stiffness, swelling and tenderness. Their most common types are; osteoarthritis, rheumatic, rheumatoid and septic^[1-5]. The aim of the present work was to report on the inflammatory and herd immunity plots for the arthropathy patients.

Materials and Method

Blood samples were collected[6] from the brachial vein of 60 arthropathy patients referred by the rheumatologists to microbiology laboratory, Department of basic sciences, College of dentistry, University of Babylon and microbiology laboratory, Department of Biotechnology, College of Biotechnology, University of Qasim as a test group and 10 apparently normal subjects as a control during the year 2018. The collected samples were divided into two portions one with anticoagulant for

erythrocyte sedimentation rate[7], total leukocyte counts^[7] and the other portion without anticoagulant for saving sera to investigate; acute Protein[6], ASOT, Rheumatoid factor[6] and serum uric acid^[8]. Raw data were made in continuous class intervals to build up herd plots^[9].

Results

I. Herd Responses: The nature of the human herd responses for the human arthropathy patients were found to be of three main responder types, as low medium and high. These herd response fraction types were noted in the inflammatory, the immune and the rheumatic responses, Table 1.

Table 1: Human arthropathy herd responder types*

Response nature	Units	Low*	Moderate*	High*
Inflammatory-ESR	Mm/hrs	20-39	60-99	100-140
Inflammatory-Serum uric acid	Mg/dl.	5-6.9	7-7.9	8-9.9
Natural cellular immune response	Cell/ml.	4000-6.900	7000-9000	11000-15000
Rheumatic response ASOT	Todd units/ml	300-399	400-599	600-1600

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II. Herd Immunity: These arthropathy test patients were broadly divided into immune mediated and non-immune mediated types groups I to V, Table 2. The dual use of total leukocyte count, acute phase protein, rheumatoid factor and the anti-streptolysin O as a diagnostic battery and as herd immunity probes in arthropathy patients was proved to be valid for the immune mediated types group III and IV, Table 2.

Table 2: The Immune profiles of Arthropathy Patients

Patients code	Patients numbers	CRP	RF	ASO titre, Todd U/ml.	WBCS count cell/ml.
I	23	+	-	-	8000-14500
II	11	-	-	-	8000-11000
III	12	+	+	-	8000-14-500
IV	9	+	-[1+]	400-1600	8400-14.500
V	5	-	+	-	8000=10000

III. Herd Inflammatory Plots: The outstanding sign of the inflammatory responses is ESR. The ESR values of the test patients were ranging from 20 to 140. The herd plot of these inflammatory responses was of skewed plot type, Figure 1. While the uric acid herd serum values were ranging from 5 to 9, and the herd plot was of normal Gaussian distribution curve, Figure 2.

IV. Herd Immunity Plots

Natural Cellular Immune herd Plot: The nonspecific cellular immune responses of the herd is represented by the total leukocyte counts of the arthropathy patients was ranging between 8000-14.500 cell/ml. for both sexes. The herd plot was of normal Gaussian distribution curve type, Figure 3.

Rheumatic herd Plot: The ASO titre represents the rheumatic response in arthropathy patient herd. The ASO titer was ranged from 300-1600 Todd U/ml. The herd plot type was of normal Gaussian distribution curve type, Figure 4.

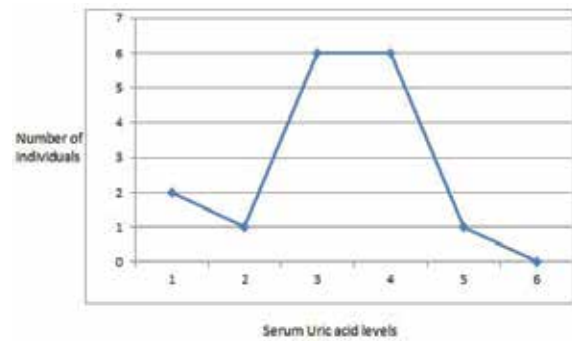


Figure 2 : Herd plot of serum uric acid in arthropathy patients

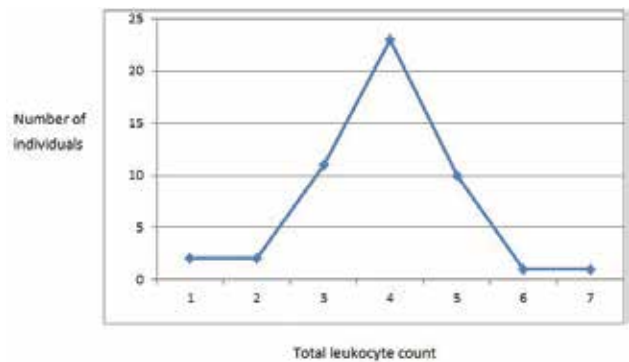


Figure 3 : herd plot of natural cellular immune response in arthropathy patients

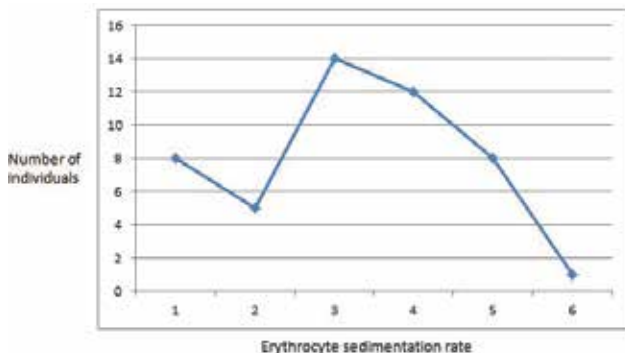


Figure 1 : inflammatory herd plot in arthropathy patients

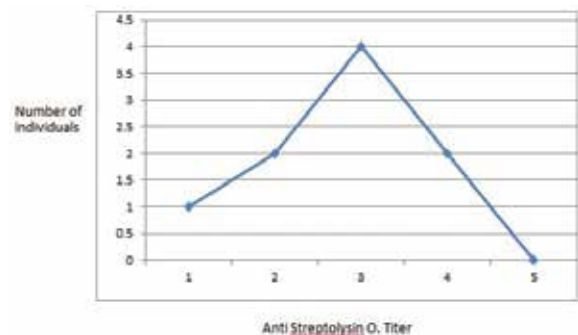


Figure 4 : herd plot of rheumatic response in arthropathy patients

Discussion

Herd is a group of human individuals live at certain ecologic niche and showing mutual interplay with its biotic a abiotic components. Herd immunity is a collective rather than confined term to the common sense of immunity^[10,11]. In the mere immunologic sense; carriers, past -infected, past -vaccinee and pre-immunity are the major elements of herd immunity^[12]. The individuals forming the human herd expressed three responder types towards infection, vaccine and inflammation. Herd responses and herd immune probes, Table 3. have been found operative in; Typhoid, tonsillitis, periodontitis^[10,13-15].

Table 3: Herd Immunity Plots Comparative view

Plot Nature	Reference
Salmonella typhi antibody	10
St.pyogenes antibody, cryoglobulin	13
C3 and C4	14
Periodontitis cryoglobulin	15
Rheumatic antibody, Natural immune cellular	This study

In the present communication herd immunity plots are being reported in arthropathy patients using leukocyte counts, and ASOT as well as erythrocyte sedimentation and serum uric acid as probes. They were proved to be valid probes for herd immunity of arthropathy patients, Tables 1-3.

Molecular mimicry between Streptococcus pyogenes antigens and synovial antigens induce an autoimmune rheumatic arthropathy ^[16]. Positive acute phase protein response, positive rheumatoid factor, high erythrocyte sedimentation rates and high total leukocyte counts may indicate acute rheumatoid arthropathy^[17,18].

Conclusion

Three herd responder types were evident among arthropathy patients. Three Gaussian distribution and one skewed plot types were determined. Leukocyte count and antistreptolysin O and rheumatoid factor were found good probes for the immune mediate arthropathy. The adopted diagnostic battery seemed to be valid for the test patients. Herd immunity plots seemed to be a novel finding in arthropathy patients.

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Conflict of Interest: Non-conflict

Source of Funding: Self

Ethical Clearance: The research project is formally registered in both affiliated departments. Clinical samples were taken from the patients with complete their own satisfaction.

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