DOI : 10.35124/bca.2019.19.S1.2725

Biochem. Cell. Arch. Vol. 19, Supplement 1, pp. 2725-2726, 2019 | www.connectjournals.com/bca | *ISSN 0972-5075*

SECONDARY MIXED CRYOGLOBULINEMIA AMONG CHRONIC GINGINVITIS PATIENTS

Baha Hamdi Hakim Al-Amiedi

College of Dentistry, University of Babylon, Hilla, Iraq.
e-mail : dent.bahai.hamdiy@uobabylon.edu.iq

(Received 27 March 2019, Revised 2 June 2019, Accepted 9 June 2019)

ABSTRACT : The separated cryoprotein from the sera of chronic gingivitis patients were colloid, opaque crystalline or gelatineous precipitates at 4^0C for one to five days. These precipitates were dissolved at 37^0C and precipitates at 4^0C. Such characters were consistant with cryoglobulin. The cryocrit percentages were ranged from 1-12% with mean value of 5.35%. The cryoglobulin concentrations were ranged between 90 and 230 mg/L with mean value of 225.7 mg/L. Ten out of 23 patients were rheumatoid factor positive 10:23 (43.8). Immunofixation studies using single radial immunodiffusion Behring partigen types were showing secondary mixed cryoglobulinemia of IgG-IgM-IgA type. Rheumatiod factor positive cases have shown high cryoglabulin isotype concentration than that of negative cases.

Key words : Cryoglobulin, isotype, rheumatoid factor, secondarcry globulinemia.

INTRODUCTION

The stomium is a reservoir for a variety of endogenous bacterial antigens and the port of entry for several exogenous bacterial antigens into the alimentary and respiratory systems. In normal state these antigens do not cause disease and swallowed away with saliva into the distant part of gat (Samaranayake and Jones, 2002).

This stomial compartment is supported by efficient elements like; mucous membrane, tonsils, salivary glands, gingiva and peridotium (Orga, 1999). Gingival microbial in infections mediate antigens that stimulate both mucosal and system immune responses with characteristic, IgM primary immune response then class switched to IgA or IgG (Paul, 2003).

Human serum have several protein subfractions as prealbumin, albumin, alpha, beta and gamma globulins. Gamma globulins harbor the immunoglobulin fraction. Immunoglobulin behave to temperature as; normoglobulin, cryglobulin and pyroglobulin. Among which cryglobulin is associated with lymphoproliferative disorder and chronic infectious diseases (Lynch, 2006; Delgado *et al*, 2008). Secondary mixed cryoglobulinemia has been documented in tonsillitis patients in this area (Jassim, 2015). Cryoglobulin has been successfully used for probing herd immunity in pediatric patients (Shnawa and Jassim, 2015). The objective of the present work was at reporting secondary mixed cryoglobulinemia among chronic gingivitis patients.

MATERIALS AND METHODS

During the period October 2016 to Arpril 2017 twenty three gingivitis patients attending college of Dentistry clinic were diagnosed by specialized dentist and were the study patients. Blood samples were drone from each patient and sera were saved (Stevens, 2010).

Protein concentration were determined for the cryoglobulin fractions by Biuretmethod (Lynch, 2006). Cryocrit % and immunofixation were done in accordance with Bishops *et al* (1988). Biometric analysis were made as in Steel *et al* (1997).

RESULTS

1. Cryoprotein

The separated cryoproteins from the patient sera were colloid, opaque, crystallin or gelatineous, precipitated at 4^0C within one to five days, dissolved at 37^0C and reprecipitated at 4^0C.

2. Cryocrit

The cryocrit percentages of chronic gengivitis patients were ranged from 1-12% with mean value of 5.35% (Table 1).

3. Cryoglobulin concentrations

The concentration range of cryoglobulin preparations were 90-230 mg/L with mean value of 225.7 mg/L (Table 2).

Table 1 : Cryocrit % Biometry.

Statistical features	Patient Cryocrit %	Control Cryocrit %
Minimum value	1.0	1.0
Median value	6.0	2.0
Mean value	5.35	2.45
Maximum value	12	3.0
Range	1-12	1-2

Table 2 : Cryoglobulin concertation in gingivitis patients biometry.

Statistical features	Patient concentration (mg/L)	Control concentration (mg/L)
Minimum value	90	13
Median value	220	18
Mean value	225.7	2.3
Maximum value	230	2.8
Range	90-230	1.3-2.8

Table 3 : Biometry of Cryoglobulim Isotype in Gingivitis patients.

Statistical features	IgA concentration (mg/L)	IgG concentration (mg/L)	IgM concentration (mg/L)
Minimum value	23.73	98.20	19.0
Median value	54.74	136.22	24.86
Mean value	46.18	173.80	21.54
Maximum value	83.72	258.21	28.06
Range	23.73-83.72	98.20-258.21	19.0-28.06

Table 4 : Rheumatoid factor associated with secoundary mixed Cryoglobulinemia in gingivitis patients.

Feature		IgA(mg/L)	IgG(mg/L)	IgGM(mg/L)
Minimum	RF+	31.21	98.67	11.90
	RF-	23.73	91.25	11.90
Median	RF+	64.0	232.08	28.00
	RF-	61.172	236.28	24.84
Mean	RF+	61.172	206.664	22.917
	RF-	58.003	155.15	18.531
Maximum	RF+	83.73	258.21	20.60
	RF-	83.73	258.21	24.84
Range	RF+	31.21-83.73	98.67-258.21	11.90-20.6
	RF-	23.73-83.73	91.25-258.21	11.90-24.84

4. Rheumatoid Factor (RF)

Ten out of the 23 (43.48) patients were of positive rheumatoid factor (Tables 3, 4).

5. Immunofixation

The single radial immunodiffusion assay for the test sera were showing secondary mixed cryoglobulinemia of IgM-IgG-IgA type. The RF positive cases have shown higher cryoglobulim Isotype concentration than those RF negative cases (Tables 3, 4).

DISCUSSION

Cryoglobulin presence in sera of chronic gengivitis patients is being reported Tables 1-4. It is of secondary mixed nature IgG-IgA-IgM. Such finding was parallele to that noted in typhoid , tuberculosis and tonsilitis patients sera (Jassim, 2015; Shnawa and Al-Serhan, 2014; Shnawa and AI-Gebori, 2012). But, it seemed to be different from that of Brucelloses patients, which has been of two secondary mixed forms (Delgado *et al*, 2008; Shnawa and Jassim, 2014). Rheumatoid factor positive Cryoglobulinemai was higher in cryoglobluin isotype consternation than that RF negative cryoglobulin patients. This findingcame in agreement with that reported in tuberculosis, typhoid and brucella patient and tonsillitis patient (Shnawa and AI-Gebori, 2012; Shnawa and Al-Serhan, 2014; Jassim, 2015; Shnawa and Jassim, 2015; Jassim, 2015).

Reporting secondary mixed cryoglobulinemia in chronic gingivitis patients is being novel finding.

CONCLUSION

A cryoglobulin was separated, characterized, and immunofixed. It was found to be of secondary mixed, IgM=IgG-IgA type.

REFERENCES

Bishops M C (1988) Biurt test. In : *Clinical chemistry : principles, procedures and correlations*. The Murvay Printing company, philladelphia,1988.

Delgado S, Bravo F and Gutuzzoo E (2008) Mixed cryoglobulinemia due to brucellosis. *Clin. Infect. Dis*. **47**(3), 435-436.

Jassim Y A (2015) IgM-IgG-IgA secondary mixed cryoglobulinemia associated with pediatric tonsillitis. *Am. J. Biomed. Life Sci.* **3**(4-1), 10-12.

Lynch P L M (2006) Audit of Cryoglobulin Determination in Northern Ireland. Northern Ireland Regional Audit group Cryoglobulin subcommittee, Clinical Biochemistry Department, Altnagelvin Area hospital Londonderry.

Orga P L(ed) (1999) *Mucosal Immunology*. Academic press, U.S.A.

Paul W (2003) *Fundamentals Immunology.* 5th ed Lippincott Williams and Wilkins Pheladelphia.

Samaranayake L P and Jones B M (2002) *Essential Microbcology for Dentistry*. Churchill- Livingstone, London.

Shnawa I M S, ALGebori N R R (2012) Secretory and Circulatory secondary cryoglobulinemia in pulmonary tnberculosis patient. *Baby. Uni J. Pure and Appl*. **22**(1), 738-748.

Shnawa I M S and ALSerhan A J (2012) Mixed IgGIgM and IgA Cryoglobulin responses in Typhoid patients. *IOSRJ Pharm. Biol. Sci*. **4**(2), 26-29.

Shnawa I M S and Jassim Y A (2014) Mixed two variant types of gryoglobulinmia associated with brucellosis in human patients. *WJPR* **3**(4), 1883-1889.

Shnawa I M S and Jassim Y A (2015) Human tonsillitis associated cryoglobulin responses can probe herd immunity. *WJPR* **4**, 43-48.

Steel R C O, Torrie J H and Dickey D A (1997) Principles and Procedures of Statistics : A Biometrical Approach, 3rd ed. MacGraw- Hill Co. N.Y., 8-66.

Stevens C O (2010) Clinical Immunology And Serology : A laboratory Perspective **3rd** ed. F. A Davic company Philadelphia, 115-116.