



## DIAGNOSIS OF HUMAN PARVOVIRUS B19 ASSOCIATION RHEUMATOID ARTHRITIS BY RT-PCR

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<p><b>Received:</b> October 21<sup>st</sup> 2021 <b>Accepted:</b> November 20<sup>th</sup> 2021 <b>Published:</b> January 5<sup>th</sup> 2021</p>	<p>Human samples of human <i>Parvovirus</i> B19 were collected during October, 1st, 2020 to 15 of February 2021. Human <i>Parvovirus</i> B19 was including (25 - 68 years). The RT-PCR. method was detected of all samples , the results showed seventy (70%) while thirty (30%) negative cases. The Population groups studied samples subject groups were distribution into (4) groups including (25-35, 36-46 and 47-57 and 58-68) year, changed age too gender. The third groups (47-57 years ) were high cases of human infected (51.43%) in compare of aged groups then [36-46 (20%) ; 58-68 (18.57%) ; 25-35 (10%) years]. The percentage of females(70%) is higher than males (30%) .The samples were isolated from the hospitals including ( Al-Sadr , AL Hakeem , Middle of Euphrates). The first study in Iraq to diagnose of human <i>Parvovirus</i> B19 with rheumatoid arthritis.</p>

**Keywords:** *Parvovirus* B19 , Rheumatoid arthritis ,erythroid progenitor cells ,Real time PCR, Cytomegalovirus,

### INTRODUCTION

Parvovirus B19 "B19V", an single strand DNA virus in the family *Parvoviridae* [1], was a humanoid causing disease, generally flowing at populace, accountable used for sufficient variety the experimental indicators [2]. Relative to the genetic material was a 5.6 kb the whichever polarization, through a mutating selection involving a without protein, purposeful of virus reproduction DNA and accountable for the host cell apoptosis , including " two VP1 and VP2, establishing a T = 1, 22 nm icosahedral capsid" [3,4].

The distance of B19V was among "19 and 25 nm ", was a "bare" of virus lacking some packet. The contains of "double arrangement proteins: VP1 and the " VP2 one. VP2 was the main protein in the capsid with a measurement of around 95% of the capsid while 5% of the capsid consists of VP1" [5, 6]. The virus was considered by a discriminatory nevertheless not special necrosis of "erythroid progenitor cells (EPCs)" in bone marrow also a stringent requirement inside the cell mechanism also location used for repetition [7,8].

B19V was transferred primarily by respiratory excretions and was commonly a childhood septicity . It container as well be spread by "transfusion", as there is no explicit survey to recognize or irregular an infection in asymptomatic blood donors that can transmit the virus [9]. Administration of B19V corruptions was usually restricted to symptomatic

management, as there were presently no vaccines or antivirals [10].

RA was a chronic general provocative disease of nameless cause and considered through proportioned, damaging polyarthritis. As revealed earlier, the probable protagonist of B19 in RA was recommended by the statistic that B19 arthritis frequently chanced medical analytical principles for RA, can been erosive, was not rarely monitored by expansion of rheumatoid factor [11]. One of the respondents for such an agent was a virus as viral contaminations such as "Rubella, human Parvovirus B19 , Cytomegalovirus (CMV), human T cell leukemia virus 1, and HIV often".

### MATERIAL AND METHODS

#### Collect affected specimens of Human *Parvovirus* B19:

Samples were collected of *Parvovirus* B19 through a start interval 1 October 2020 up to 15 February 2021. Seventy positive cases including ( 49 (70 %) females and 21 (30%) males) with infected human patients of age ranged twenty five up to sixty eight years of specimens .

#### Real Time PCR Technique

This method was used to diagnose human *Parvovirus* B19, via (this primer was designed based on the NCBI which is about mixed gen (VP1+VP2)in the same primer), GoTaq®qPCR Master mix kit (Cat. Number: 0000414826, promega, USA). Viral DNA was



extracted by using Viral Nucleic Acid Extraction Kit (gSYNC™ DNA extraction kit)(Geneaid, Lot No.FA30411-GS,USA ). This technique was performed in the postgraduate laboratory of the Department of

Life Sciences at the faculty of Education for Girls and in faculty of Veterinary by using (Agilent technologies)\ Strata gene Mx3005p) device.

**Table(1): Vp1 + Vp2 gens of human *Parvovirus B19* depended to NCBI**

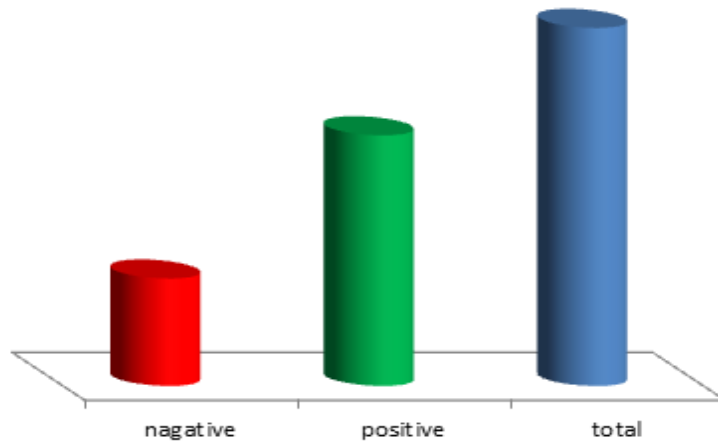
Primer\Name	Sequence	Bases	PCR product size
F sequence	5-GGACGGTAGCAGACGAAGAG-3	20	431
R sequence	5-CCACGGAGTAGAGTACCCCA-3	20	

**RESULTS:**

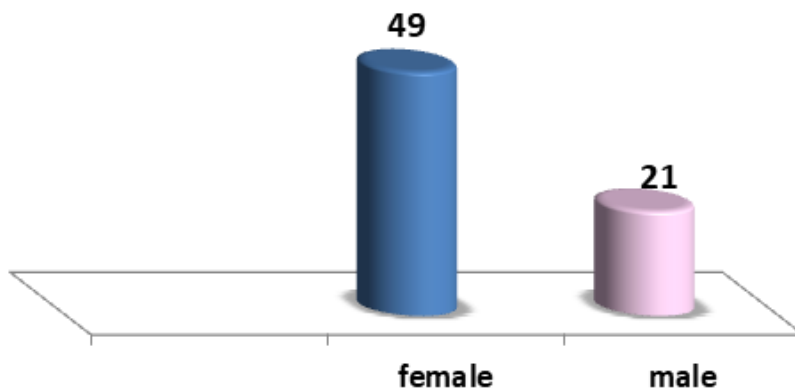
**Genetic analytic method for diagnosis of *Parvovirus B 19* through RT- PCR**

Seventy cases appear positive from 100 samples of collected RF<sup>+</sup> serum of different hospitals were

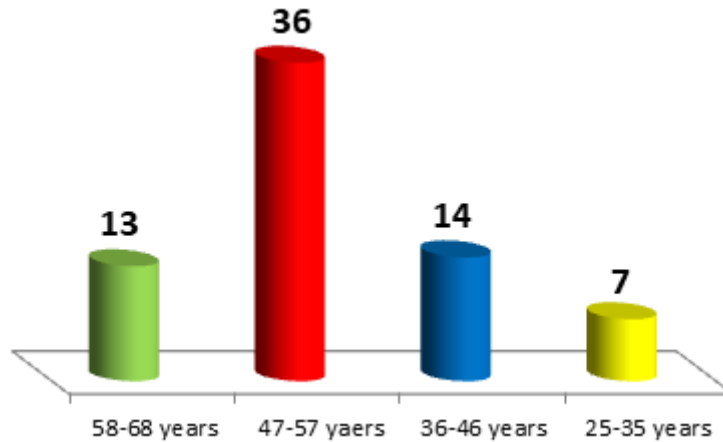
diagnosis by real-time PCR, while 30 cases were negative as show in figure (1) . Forty Nine cases of females infected consider the highest of twenty one males as in figure (2) . The age group (47-57 years ) compared to other totals in terms of age in fig. (3)



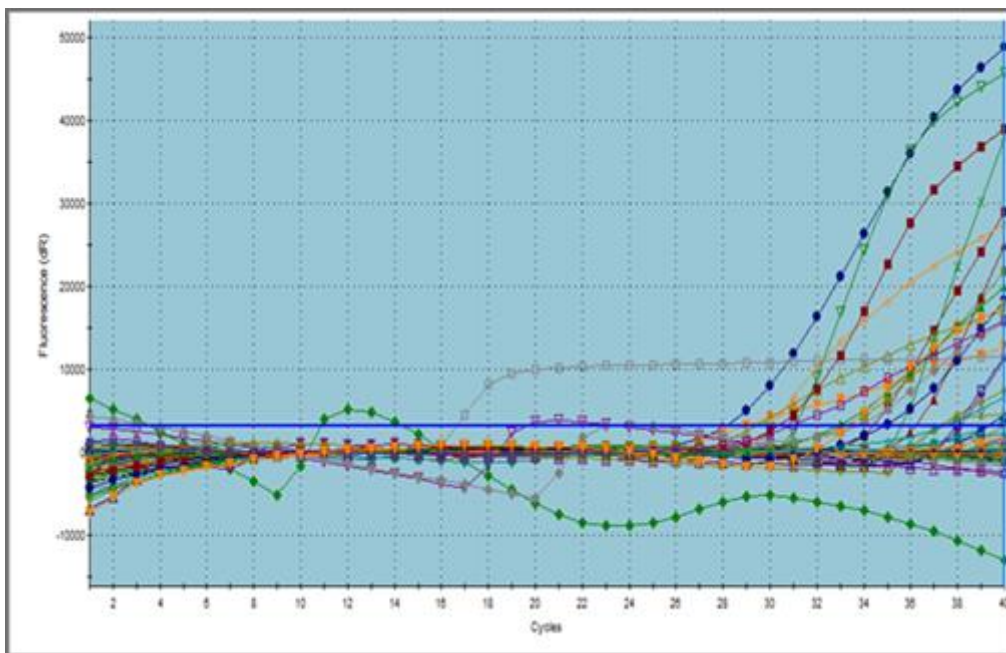
**Figure (1): Shows the numbers collected for all cases**



**Figure (2): Positive numbers cases human *Parvovirus B19* for both gender**



**Figure (3): The distribution of patients according to age groups**



**Figure (4): The figure shows the method for diagnosing of human *Parvovirus B19* through real time - PCR**

**DISCUSSION:**

Diagnosis of human *Parvovirus B19* with rheumatoid arthritis the study is considered in Najaf Governorate and at the level of Iraq as well by designing primers depending on the Location "NCBI" by RTPCR technicality which resembled with the Cassinti *et al.*,(1995) .In our study show that females are more susceptible to injury compared to males, and this study is agreement with study of Ronaldo *et al.*, (2002) . Our study also showed that the age group (47-57)is the largest percentage (51.43), and this does not correspond to a study of Ronaldo *et al.*,

(2002) that showed that the age group(11-20) is the most proportional.

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