ESTIMATION OF FAS LIGAND PROTEIN (FASL) IN PATIENTS WITH VARICELLA ZOSTER VIRUS IN HILLA/IRAQ

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ABSTRACT
Twenty-eight serum samples were collated from patients with Varicella zoster virus (VZV) infection who visited Marjan Hospital, Hilla, Iraq. Control groups represented by healthy individuals (22 people). The results of indirect immunofluorescence test to detect the presence of antibodies IgG and IgM in serum of patient show that 99% of the specimens gave positive reaction. The evaluation of fas ligand protein level in the serum showed highest concentration level with Mean ± S.E 84.50± 4.32pg/ml, while the level of protein in the control group revealed lower concentration 57.43± 1.63 pg/ml.

Key words: FasL; Varicella zoster; Immunofluorescence.

INTRODUCTION
One of herpes virus family is Varicella zoster virus (VZV) that infects humans and cause chickenpox (varicella), which consider as a disease affecting children and adolescents, while shingles infecting the elderly, shingles are not famous in children. Many names suggested for VZV, including small-pox virus, varicella virus, zoster virus, and type 3 human herpes virus (HHV-3). VZV duplicated in the lungs, causing a wide range of symptoms. After primary infection (chickenpox), the virus became dormant in the nerves, like cranial nerve nodes, involuntary contract dorsal root nodes and dorsal root nodes. Neurological conditions caused vzw after many years of patient recovery from chickenpox. (Nagel and Gilden, 2007; Steiner et al., 2007) The epidemiology of the virus can be described. In about 10-20% of cases take place annually, vzw re activates later in the last few years, resulting in a disease detection as shingles or herpes zoster, in the last 2013 the incidence of vzw recorded an infection rate of 1.02 cases per 100,000 people in Switzerland, and an annual infection rate of 1.8 cases per 100,000 population in Sweden. (Becerera et al., 2013)

The herpes simplex virus (HSV) is closely related, sharing a lot of genome symmetry. Their known envelope glycoproteins (gB, gE, gC, gH, gL, gK, gL) correspond to those found in HSV. However, there is no equivalent of HSV na.vzw also fails to produce LATs which play an important role in determining latency of (herpes simplex virus) (Davison and Scott, 1986; Nagel et al., 2008). The direct fluorescent antibody (DFA) test is an assay that can discover the existence of VZV antigen in patient sample by using pathogen-fluorescein-tagged antibodies. The sensitivity of this test is significantly more than that of the Tzanck smear test, mostly for VZV detection. The sensitivity of this test for detect VZV infection can over lab that of viral culture (Coffin and Hodinka, 1995; Zirn et al., 1995) CD95 (FAS) is a surface receptor that has the ability to provoked apoptosis stimulation in cancer cells. The stimulation of Apoptosis induced by, CD95 (FAS) employ a number of factors counting caspase-8 to develop the death-inducing signaling complex which induced by Fas ligand (CD95L). T cytotoxic and natural killer calluses CD95L as one machine to destroy virus infected cell or cancer cell. (Peter, et al., 2003)

MATERIALS AND METHODS
Serum blood samples (28) were collated from patient with VZV infection which visits Marjan Hospital, HILLA, Iraq. The control group represented by healthy individual (22 person). The disease was diagnosed by dermatologist and by used immunoflorescent test made by the company of VIRO-IMMUN Labor (Germany) (Tolaifeh et al., 2017). The immunological study was done by used ELISA kit to estimate FasLigant level at serum of patient with VZV and this kit made by Boster Biological Technology Company (USA).

Estimate Faslig and protein level at serum of patient with vzw infection:
The principle of the test: it was derived from sandwich enzyme linked immune sorbent test. Antibody derivative from mouse special for FASL has been captured on 96 well plates. (CHO, p143-L281) standard solutions and samples of patient (serum) are add-on the multi well plate, flowed by supplying of polyclonal antibody from goat specific for FASL in the second step after that whishing with PBS or TBS buffer.
RESULTS
The results of indirect immunofluorescence test to detect the presence of antibodies IgG/IgM anti varicella Zoster virus at serum of patient show: about 99% of the specimens give positive result. From table 1: the immunological study revealed that the measurement of falling and protein level at serum of patient with zoster virus show highest concentration level (Mean ± S.E) 84.50± 4.32 and low concentration of their level at serum of control group (Mean ± S.E) 57.43±1.63.

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Control (Mean ± S.E)</th>
<th>patients (Mean ± S.E)</th>
<th>P-value of groups</th>
</tr>
</thead>
<tbody>
<tr>
<td>FasL(CD95L) pg/ml</td>
<td>57.43±1.63</td>
<td>84.50±4.32</td>
<td>0.011 *</td>
</tr>
</tbody>
</table>

DISCUSSION
Clinical diagnosis is essential when the clinical presentations are uncertain, as in cases with individuals suffering from immune suppression systems which they have disseminated herpes zoster (known as existence of lesions exterior the primary or adjacent dermatomes). Direct fluorescent antibody of varicella-zoster virus (VZV) represented one of most important diagnostic test for VZV its sensitive technique even if the reposing for VZV diagnosis is only 50-100% of that of viral culture (Chan et al.,2001; Anderson et al.,2014) DFA testing has great specificity (~100%) to discover the existent of the herpes virus in the specimen. (Frisch and Guo, 2013) DFA testing procedure completed quickly in a few periods, after its accompanied with viral culture, it can help in the detection of VZV infection more than of testing skin tissue. (Brumbach et al.,1993; Algeciras-Schimnich et al., 2002) many searches reveled that the ligand (FasL) and caspase-8/-3 activation raised during vZV infection. (Tomicic et al., 2003) FASL (CD95L/APO-1) and its ligand have long been considered as a death receptor/death ligand system that triggers apoptosis process to keep immune homeostasis of the human body in a good condition. In addition, these proteins are significant in the immune exclusion of virus-infected cells and cancer cells. FASL was, considered to be helpful for cancer therapy. (Algeciras-Schimnich et al., 2002) apoptosis are different from necrosis (death result from extracellular damage) apoptosis lead to limit the spreading of virus during the infection (Muñoz-Pinedo, 2012). Cell death mechanism can take place via the extrinsic or intrinsic methods. In the extrinsic methods the surface protein Fas and many of the tumor necrosis family (TNF), connect to its related receptor. After binding of ligand-receptor, trimerization occurred of the cytosolic portion of the ligand receptor and induced the Fas-associated death domain (FADD) and next linked with the Fas ligand. The Fas/FADD complex separates' pro-caspase 8, to activate caspase 3. After the cleaved of caspase 3, it moves inside the nucleus and destroys cellular DNA. DNA degradation stimulates the activation of poly (ADP-ribose) polymer. PARP then leave the nucleus and inter mitochondria, resulting in the release of apoptosis-inducing factor (AIF) into the nucleus, mediate the concentration and fragmentation of DNA (Wang et al., 2009). Since, VZV becomes dormant in neurons, the question come up if apoptosis is terminated too early so that VZV does not kill neurons, or whether the apoptotic stream still begins. While VZV copies and proteins have been discovered in latently infected human ganglia, there is no morphological modification in neurons to indicate apoptosis (Kleinschmidt and Gilden, 2001). VZV ORF63 is the mainly dominant and abundant transcript exists in latently infected human ganglia (Cohrs and Gilden, 2007; Hamza and Rashid, 2017). The capacity of the host to activate apoptosis in infected cells is possibly the strongest tool by which viruses can be eliminated from the host organism, signifying that VZV IE63 protein supersedes apoptosis in these cultures (Hood et al., 2006)

Conclusion:
The role of FASL protein in the immunity against varicella zoster virus (VZV) has not been studied in Iraq until this time as their important activity in apoptosis process to eliminate the virus from the human body.

References
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