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The preoperative testing at laboratories in Najaf are being performed on patients at the time of the surgery in order to do this evaluation of blood-borne viruses

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Abstract: Al-Sadir Teaching Hospital, Najaf, Iraq was the surrounding for this study that was done during the window of time from the 1st of January to the 1st of November of the same year. A descriptive, cross-sectional, hospital-based study of hospitals is investigated. The research was conducted during January, 1st 2023 and November 1, 2023 in the course of studies. The project evlaution was launched on 21st of January and finalized on 1st of November. The purpose of this researched was to determine proportion of patients who were infected with the blood borne diseases such as human immunodeficiency virus (HIV), hepatitis B virus (HBV), and hepatitis C virus (HCV). All of these viruses are transmitted because the blood carries them. The technique was considered necessary to establish the amount of viral infection in these patients. ELISA testing was among the components, of the pre- surgical virus therapy, which was received by the patient and it was performed on the blood samples collected from the patient.Eventually we came to the conclusion that the procedures were applied as implied in the system. In our investigations, we determined that the Human Papilloma Virus (HPV) is the one virus that had been identified to be infecting the people whose cases were detected by the examination process. The second most well-known virus after Human Virus (HCV) that is also categorized as one of the human viruses is the Human and Human Immune Globaly Viruses complex (HIV). I state emphatically discrimination or age bias was non existent during data collection at any point in time of the whole process. I got the data together in a process which of a ten months' duration and took place solely in this particular educational organization. A total of 125 individuals were tested positive out of which 64 were affected by HBV, 60 (60%) got affected by HCV, and 7 (70%) were affected by HIV. The isolation of the virus was only possible when it was passed on by all male who were tested. The girls had a unique and admirable quality: not a single one of them tested positive for the infection. It was evident among the people affected that about two thirds were male. Actually, only less than 1/3 (30%) of the females getting tested HIV positive, whereas 5 (43.4%) of them had HBV and even 5 (45%) of them showed the HCV result Thus, it is evident with the result seen that the number of cases of women from prevention to men who visited the health center was much lower. We look forward to having 19,925 folks at the donation drive having filled up the collection tubes with their blood. Via the study of a total of 1,330 Hepatitis B virus cases, the test was found positive in (145) of them, and negative only in the (1205) remaining cases. By which implies gives us 19925 which is definitely it is the quantity of blood to be collected.

Keywords: Descriptive study , Cross-sectional , Blood-borne viruses , Hepatitis B , Hepatitis C , HIV , ELISA, Prevalence.

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Introduction

An infections caused with a wide-range of microorganisms—such as bacteria, viruses, fungi and parasites - can be found everywhere but they're one of the serious health risks facing the whole world. They include The Hepatitis B virus (HBV), the Hepatitis C virus (HCV), the Human Immunodeficiency Virus (HIV) which results in AIDS disease, et al. that are prominent. Which factual evidence is that these viruses could live in the bloodstream without either showing any symptoms or transmitting them blood-to-blood contact which seriously jeopardize the public health. Research conducted by Polsky (2001) has suggested that the condition in this population range from being asymptomatic to some people developing severe, life-threatening conditions. Transmission patterns of HBV, HCV, and HIV potentially mirror each other since these viruses can spread through pathways such as the usage of unsterilized syringes, blood transfusions, or any means by which one can expose themselves to an infected body fluid. This clustering of infections in specific groups is an indicator of high rates of co-infections in some populations that are more vulnerable to this epidemiological interface, particularly intravenous drug users and individuals with high-risk sexual behaviors. Furthermore, HBV and HCV, both, assault the liver and produce hepatitis, which itself is inflammation of the liver; this too adds to the difficulties of clinical management of the affected individuals (Brendon, 1998). Another factor resulting from an unsafe environment in the healthcare industries arises due to occupational hazards which are faced by the healthcare workers when they regularly come across these viruses. The operating room and the other clinical situation cannot be neglected, with infected blood and body fluid, in which chance of disease transmission is increased, by the reuse of contaminated surgical instruments and blood products, in particular (Lynn & Kelly, 2002). On the other hand, the undervalued importance in prevention strategies and the inspection of the viral transmission in medical area have been underestimated. Against the intellectual background of this study he is aimed to investigate the point prevalence rates of HBV, HCV and HIV among people who planned for surgery in Al-Nijaf hospital. This will be achieved by the tests for blood samples which are done prior to operations and are part of an obizn's viral management protocols. This research does not only intend to elucidate the complex routes through which hospitals are prone to viral outbreaks but also provides valuable insight into how more stringent protocols can be employed to guard both patients and healthcare workers alike against the immense risks associated with the dissemination of these diseases..

Methods

Participants

This investigation involved 19,925 patients admitted to Al-Najaf's hospitals, which were all and only people who were planned to have surgical operations from January 1 to November 30 in 2023. The ages of the patients who agreed to take part varied between 16 and 63 years and they were included into that study according to the standard preoperative screening. The aim of this protocol is assuring that the most protected patient population is achieved by screening out all communicable diseases that may complicate surgical outcomes.

Serology

The serological part of the study was centered on measuring hepatitis B virus (HBsAg) and antibodies of hepatitis C virus (anti-HCV) and human immunodeficiency virus (HIV). Viral-specific markers screening was done by ELISA which has the features of high precision and accuracy hence the accuracy in predicting the infection incidence among the surgical candidates was assured.

Apparatus and Instruments

The laboratory equipment essential for the study included:The very basic laboratory equipment relevant to this research project comprises of:

• ELISA Plate Reader: This tool which I used (mainly) for determining the optical densities as well as the levels of viral antigens for precise results was the principle object that one may call (mainly) an instrument.

• Precision Micropipettes: This type of equipment the best choice mist part of the sites which have liquids that needed to be precisely dispensed, and in places where exchange of liquids and fluids such as samples and reagents is essential.

• Disposable Micropipette Tips: It acts as a quality assurance measure plus elimination of activities such as sample burdening to avoid corruption of the sample and the facilitation of communication between the different experiments.

Reagents

Reagents and diagnostic kits were carefully selected from reputable suppliers to ensure high-quality testing standards:Reagents and diagnostic kits were carefully selected from reputable suppliers to ensure high-quality testing standards:

• HBV Diagnostic Kit: Intec Products Inc facilitate the production of this product in China.

• HCV Diagnostic Kit: It's made by Qingdao Hightop Biotechnology from China.

• HIV Diagnostic Kit: Founded by AB Diagnostics Systems, located in Germany. These kits had all reagents needed for the assays, for example plates coated with antigens, enzyme-labeled reagents, washing buffers, reagent dilution liquids, color developing substrates, stop solutions, and calibrated control samples to confirm assays.

Sample Collection and Processing

Consistency of protocol use has been observed by all testing sites' staff during sample gathering and the procedure of further specifications so that the uniform quality of testing is demonstrated. Blood of all the involved participants was donated on tubes, 5 ml of venous blood each from all of them and then the serum was separated out using centrifugal machine which operated at the speed of 3000 rpm for 3 min. So at this stage little by little the antiserum was being

added to the Eppendorf tubes using a pipette, while the samples were stored at -20°C, but having their date and information about the contents clearly labeled.

Diagnostic Protocols

1. Addition of Controls and Patient Serum: The controls and patient sera were pipetted into the designated rows of the ELISA plate.

2. Enzyme Conjugate Addition and Incubation: For attaching the enzyme conjugate, the plate was incubated and to let the binding process to happen between the antibody and antigen.

3. Washing: Plates were wiped after material had been dislodge.

4. Substrate Addition and Incubation: The following step was to add reactants, which then the plate was incubated, and the colorimetric reaction was developed.

5. Reaction Termination: The reaction was stopped upon reaching the right time to avert the undesirable formation of excess products.

6. Optical Density Measurement: The 450nm optical density was assessed to gather data on the viral antigen presence in the samples.

Data Analysis

Visibly the ELISA test results were impeded and there up-loaded onto Canva for the data processing which is generally done on a cell phone. This happened as the artist was trying to animate the story and a bring it more to the audience. And at the end with this approach it was possible to carry the procedure of a data analysis that is not only useful but also open. Moreover, it was there to be used as seasoning for the violation to be demonstrated and to contribute to its improvement.

Statistical Study

The purpose of this study is to use the Chi-square test in order to study the kind of association between the personal characteristics (gender, age, etc.) and viral infections. These made an impact given that they helped in determining the epidemiological characteristics with in the community which are essential in healthcare and public health practices.

Results and Discussion

An observational study in the form of cross-sectional that was conducted at Al-Sadir Teaching Hospital, in Najaf, Iraq, between 1st of January 2023 and 1st of November 2023. Through this session blood samples were culled from 19,925 patients having pre-operative routine screening. These samples were examined for Hepatitis B surface antigen (HBsAg) together with antibodies to Hepatitis C (anti-HCV) using the same laboratory techniques.The findings revealed that out of the 225 patients who tested positive for blood-borne viruses, the distribution was as follows: There were 113 patients who were HBV positive, 102 cases for HCV and latest update to the sentence by us is

there were 10 patients who were HIV positive.Table 1:General Distribution of Blood Borne Viruses.

Category	Number	Percentage
Total Patients	19,925	100%
Positive	225	1.1%
Negative	19,700	98.9%

Table 2: Distribution of Blood Borne Viruses Among Positive Cases by Gender

Gender	HBV (113 Total)	HCV (102 Total)	HIV (10 Total)
Male	**64 (56.6%)**	**60 (55%)**	**7 (70%)**
Female	**49 (43.4%)**	**42 (45%)**	**3 (30%)**

Table 3: Prevalence Rates of Blood Borne Viruses Among Positive Cases

Virus	Prevalence Rate
HBV	50.2%
HCV	45.3%
HIV	4.5%

The findings of the present research shows the great spread of the Hepatitis B virus (50.2%), Hepatitis C virus (45.3%) and Human Immunodeficiency (HIV) virus (4.5%) among patients scheduled for surgical procedures at Al-Sadir Teaching Hospital in the city of Najaf, Iraq. Hepatitis B topped the charts, then Hepatitis C followed, and HIV was the least (among those who tested their cases). The high level of HBV among the lower prevalence of both HCV and HIV could be because of different risk behaviors being experienced. The individuals linking these kinds of practices are revealed in significant associations with practices such as needle piercing, tattooing (including hijama), direct contact with someone's blood as well as with the person having drug abuse or steroid injection related needles. These observations collectively could suggest a hypothetical mechanism about how transmission occurs and sustains in this particular community. Taking a closer look at these findings, they turn out to comply with the research data of other regions. For example, as recently reported in Saudi Arabia, a considerably higher prevalence rate was observed for HBV level compared to HCV level, and this is in line with the pattern seen in our research (Alashary, 2019).

The same study in Basra, Iraq, revealed similar HBV prevalence (2.3%) during the 12-month period. The study detected that gender differences in HBV infection rates were not of a significant factor (AL-Rubaye et al., 2013). Diyala in Iraq other researchers noted only 0.65 percent of samples were simultaneously infected by HBV and HCV and the prevalence was less than ours as the same study suggests (Al-Dulaimi and Al-Jiba'ri 2010). In the second line, the study done by Al-Hawaz et al. (2014) in Basra is also found to be applicable. It was discovered that males (59.7%) had a higher proportion of hepatitis infection than females (40%). This agrees with other countries like Syria and Egypt where it was also found out that males had more instances within HBV and HCV infections (Yazaji et al., 2016; (Mahmoud et al., 2016)). The data from our study confirm Thualfakar's (2020) findings, where mostly males aged 21-60 of Al-Najaf rank with highest rates of HBV and HCV infection. The rising tide of the old population and morbidity makes it clear about a health problem, on which specifically actions should be taken. This study itself could be the basis for future research by providing the favorable conditions for comparing the levels of IgG in general rather than Najaf. Every thik, it, however, misses the absence of patient historical arterial details concerning antecedent blood transfusions, dental extractions, previous surgeries, cupping, and tattoos. While future studies should consider including this variable as risk factors associated with virus transmission are quite complex, it may add a multidimensional analysis to the discussion. Through making this epidemiological knot more understandable health care workers and policymakers specialists can have a better opportunity to build up and implement the strategies that can reduce these infectious diseases rates as well as risks in surgical areas.

Conclusion

Najaf maintains a relatively low HIV, HBV and HCV prevalence for the communal disease compared with other regions. Nonetheless, we still face the trend that more new cases come in. With this hike, one will used to the analysis of how various parameters make contributions such as changes in marital status, sexual behavior as well as outcomes in the previously registered cases, whether the case is still alive or dead. These components reflect on the intricacy of health results versus socioeconomic attributes and in particular features that arise during viral transmissions. The continuous rise in new cases in Kut claims that underling factors, such as specific lifestyle choices in combination with the socioeconomic status, are responsible for the process of transmission of the flu virus to the human population. The types of relation may be affected by the marital status. Additionally, the social and intimate partnerships can become the ground for the spreading of these viruses. The spread of STD might also be influenced by any varieties of sexual behavior yet without care, which might increase the possibility to be infected by diseases. Ultimately, the current status of discharged patients could either show improvement relative to intervention methods or prove the resilience of the people's health in population. These patterns make it necessary to develop special policies and strategies that are carefully designed to ensure that the problems that come with such diseases are not worsened. Faced with these challenges, we should adapt multidisciplinary approach which involves intersections of health, social sciences, and healthcare economics to achieve not only prevention and management of HIV, HBV, and HCV but even effective response. This approach must cover widening people's outlook and information on safe practices with improving diagnosis

and treatment services, and which also involve addressing stigma and discrimination that could make disease control difficult. Furthermore, monitoring and hear t of the run go process are as well essential in knowing the waveform of emerging trends and then readjustment of health policies. It can be possible through the investigation and contemplation of those socio-behavioral factors like marital status or sexual behavior whose impact is on the spread of the disease, and as a consequence health official in Najaf will develop more accurate and effective public health interventions. Essentially, nowadays, the viral disease prevalence around Najaf is far lower than the areas that observe a rapid increase in the number of new diseases. However, the growing trend of these infections remains a primary public health predicament that requires a joint effort from all the sectors of the society. The joint step with producing and utilizing information strategies can help a lot to lessen the load of chronic diseases among the population and improve the health of Ur community of Najaf. This aggresive method will not only address the current cases but as well slow down the spread of the disease, in the long-term independent from the current cases we are sacrificing the future health of the community.

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