

Ovitrap; a Global Device for Monitoring and Control of Dengue Fever, Chikungunya Yellow Fever and Zika

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Abstract

Background and objective: The report of numerous outbreaks of dengue fever, Zika , yellow fever and chikungunya from various regions of the world, as well as expansion of their vectors in recent decades, emphasize the importance of monitoring and control of these arboviruses vectors . Ovitrap is used as the most common tool for monitoring of the vectors population. This review was conducted to introduce the important of this device.

Materials and methods: In this study, 77 English articles indexed in different databases such as Pubmed, Web of Sciences, Scopus, Science direct and Google scholar were exploited.

Results: Sixteen Ovitrap in 6 different groups were studied, from which the simplest was CDC Ovitrap and the most advanced were In2 trap and Improved Autocidal Gravid Ovitrap. In addition to the dengue vectors, today ovitrap can be used in the monitoring and control of malaria vectors such as Ovi-ART gravid trap. Ease of use, long life, easy maintenance and environmentally friendly is considered as the advantages of ovitraps. Ovitrap structure, function, settings and its indexes were also explored.

Conclusions: Generally, ovitrap includes vectors of the important diseases like dengue fever, yellow fever, West Nile fever, equine encephalitis and so on. It can play on research, monitoring and control for these major diseases. This study can raise the awareness of health workers in this issue especially in the areas with the possibility of vector existence. These devise also could be employed for control of vector using larvicides and attractants in it.

Keywords: *Ovitrap, Ovitrap Index, Dengue Fever, Chikungunya, Zika, vectors of Arboviruses*

Symptoms and Signs in Patients with Brucellosis in Iran: a Systematic Review

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Abstract

Background and objective: Despite progress in health and medical sciences in the recent decades, human brucellosis (Malta fever) is still an important endemic disease in IR of Iran. Various signs and symptoms of the disease in patients makes the diagnosis of the disease difficult. Knowing the frequency of these signs and symptoms in the patients through the country can improve the level of awareness of the them and give a measure of the overall assessment of the disease.

Materials and methods: This study was a systematic review on studies conducted in IR of Iran and reported the frequency of signs and symptoms of brucellosis. Finding the studies was done by using the broad keywords in the intended database such as Cochrane, Campbell Collaboration, Pubmed, Scencedirect, SID, and Magiran.

Results: Defining the principles of inclusion and exclusion criteria through 881 found articles, 23 articles were analyzed. The most common signs and symptoms were fever (67.46%), arthralgia (59.22%), sweating (56.96%), fatigue or weakness (54.03%) and back pain (51.21%).

Conclusion: Brucellosis is a disease with a Thousand Faces and can cause various kinds of clinical signs and symptoms in patients. Recognizing these signs and symptoms and awareness of diversity and frequency of each of them can make diagnostic process shorter and easier.

Key Words: *Brucellosis, Malta Fever, Iran, Meta-Analysis, Signs, Symptoms*

Frequency of Hepatitis D Virus Infection in Chronic Hepatitis B Patients in Arak

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Background: Hepatitis D virus (HDV) is a defective RNA virus that depends on the hepatitis B surface antigen (HBsAg) for its replication. Infection with hepatitis D virus in hepatitis B virus chronic carriers causes accelerated progression to chronic active hepatitis, cirrhosis and hepatic carcinoma. In studies conducted in Iran and different countries, different prevalence of HDV had been reported. The aim of this study was to determine the frequency of hepatitis D virus infection in chronic hepatitis B patients in Arak city.

Patients and Methods: This cross-sectional study was conducted on 95 chronic hepatitis B patients in Arak city. Demographic characteristics and risk factors for HDV transmission were recorded. Hepatitis D antibody (Anti-HDV) was determined by ELISA in the serums of patients.

Results: In this study 95 chronic hepatitis B patients were enrolled. 61% of cases were male and 39% were female. Anti-HDV was detected in 2 (2.1%) of chronic hepatitis B patients. There was no significant association between HBV/HDV co-infection and sex, age, education level and occupation (P values: 0.74, 0.52, 0.95 and 0.65 respectively). There was no history of injection drug use, unprotected sexual contacts, tattooing and history of familial contact in hepatitis D infected patients.

Conclusion: Our results showed that Arak is an area of low HDV infection in Iran.

Key Words: *Hepatitis B Virus (HBV); Hepatitis D Virus (HDV); Arak*

Anticancer Effect of Isolated Fraction from *Hemiscorpius lepturus* Venom on Brain Cancer Glioblastoma Cells

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Abstract

Background and objective: Cancer is a complex disease characterized by uncontrolled cell proliferation. It is a main global public health problem. Chemotherapy is the dominant method in the treatment of cancer and patients often show tumors that become resistant to the drug, leading to serious side effects and death. Brain cancer is about 31% of all cancers detected among children. Scorpion venoms are a source of useful biologically active compounds with anti-tumor effects. The purpose of this research, was purification of the fractions from the venom of Iranian scorpion, *Hemiscorpius lepturus* by gel filtration chromatography and evaluation of its anticancer activity on brain cancer cell line .

Materials and methods: Scorpion venom was prepared and after concentration determination, the venom fractions were purified by gel filtration chromatography using sephadex G50 and deried in a freeze dryer system. The molecular weight ranges of the fractions were detected in SDS-PAGE. The anticancer effect of each fraction was examined using different protein concentrations on U-87 MG cell line.

Results: According to data obtained from gel filtration, seven FPLC fractions were collected. As the fraction No.4 was contained peptide fraction used for evaluation of anticancer activity. The anticancer effect of the peptide fraction on brain cancer cells was 47% in 0.31µg. No toxicity was observed on with fibroblast cells at this concentration.

Conclusion: Iranian scorpion venom had significant activity on brain cancer cell lines and no toxicity was shown on control cells. The use of natural compounds as potential anti-cancer agents that are derived from venomous animals could be assisted to fighting against cancer. This study is the first report regarding to existence of an anticancer fraction that is effective on glioblastoma cancer cell line derived from the venom of Iranian scorpion, *H. lepturus*.

Keywords: *Venom, Iranian scorpion, MTT assay, Brain cancer, U-87 MG cell line.*

Frequency of *rhlR*, *rhlI* and *lasR* Genes in *Pseudomonas aeruginosa* Isolated from Urinary Tract Infections. Tehran, 2016

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Abstract

Background and objective: *Pseudomonas aeruginosa* is the most common bacterial of Urinary tract infection that is important for appropriate treatment. This bacteria has two complete system quorum sensing that are activated pathogenic genes. In this study was isolated antibiotic resistant *Pseudomonas aeruginosa* from Urinary Tract Infection. Then by molecular analysis detected *rhlR*, *rhlI* and *lasR* genes as genetic marker for identification of *Pseudomonas aeruginosa*.

Materials and methods- 150 urine samples were collected. *Pseudomonas aeruginosa* was isolated from urine by biochemical tests. Antibiogram was performed by disk diffusion method. DNA was extracted from resistant isolates. Then *rhlR*, *rhlI* and *lasR* genes were found by PCR.

Results- 23 strains of *Pseudomonas aeruginosa* were isolated from urine samples. The most strains of *Pseudomonas aeruginosa* were resistant to ceftazidime and meropenem, while the least resistance were observed for ciprofloxacin and piperacillin-tazobactam. Frequency of *rhlR*, *rhlI* and *rhlR* genes were in 11, 2 and 15 strains, respectively.

Conclusion- Results showed that *rhlR*, *rhlI* and *lasR* genes were existed in resistant *Pseudomonas aeruginosa*. The defectives of quorum sensing genes reduces the susceptibility to antibiotics. In this study just *rhlR*, *rhlI* and *lasR* genes were analyzed and for correlation determining require a full genetic panel.

Keyword: *Urinary Tract Infection, Pseudomonas aeruginosa, rhlR, rhlI and lasR genes, Quorum sensing.*

Chest X-ray Findings among Patients with Smear Positive Tuberculosis

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Abstract

Background and objective: Changes of pulmonary tuberculosis on chest radiographs varies. According to recent studies, the incidence of unusual radiological findings has increased, but a comparison in relation to the changes before and after the treatment has been done. This study evaluates the diversity of radiographic views in pulmonary tuberculosis patients before and after treatment.

Materials and methods: In this study, the chest radiographs of 85 patients with smear-positive TB were evaluated before and after treatment. The type and extent of parenchymal and mediastinal abnormalities was reported by a radiologist and data were analyzed with software spss 21.

Results: The most common radiologic pattern was infiltration, 75 cases (88.2%) before treatment and 43 cases (50.5%) after treatment. Most Abnormalities were seen in the right lung. The most lobes was the left upper lobe The frequency of collapse and calcification pre-treatment and infiltration after treatment showed significant correlation with increasing age. The risk of calcification was higher in older age.

Conclusion: Although the disorder CXR TB patients varied, but two lesions infiltration and Hillary lymphadenopathy include the highest frequency. However chest rdiographic lesions showed no consistent pattern in patients with PTB but the radiographic findings in addition clinical findings are helpful in the preliminary assessment and response to treatment .

Key words : *pulmonary tubercluisis ,positive smear, chest X Ray*

Screening of Anti-Hepatitis B Titers in Staffs of Hashtroud Imam Hossein Hospital, Iran. 2015

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Abstract

Background and objective: Infection with Hepatitis B virus has been spreading worldwide and it has different prevalence rate in different countries. Nowadays, over 350 million people are carriers of surface antigen of hepatitis B in worldwide. On the other hand, health care worker take place in high risk in infection and carriage of virus. Therefore, the present study has been conducted to demonstrate the immune level of individual among personnel of Hashtroud Imam Khomeini hospital.

Materials and methods: This study is descriptive one that carried out upon 130 medical staff personnel of our hospital who injected hepatitis B vaccine for 3 times. Antibody titration was done by ELISA method. The results, based on antibody levels, were divided into 3 groups of ≤ 10 , 11-100, and > 100 (mlu/ml). Sampling process was simple (available method). Demographic and infectious diseases background was collected and finally, the data was processed by SPSS software.

Results: Seven % of cases had less than 10mIu/ml antibody titer, 50 % in 11-100mIu/ml, and 43% had more than 100mIu/ml. The results of static analysis showed that immunization level had not significant relationship with demographic data and type of infectious disease.

Conclusion: Regarding to high risk for infection by hepatitis B virus among personnel of medical staffs, it is necessary to identify unimmunized personnel in order to control hospital infections.

Key words: *antibody titer, hepatitis B, hospital personnel.*

Survey of Antibiotic Resistance and Biofilm Formation in *Pseudomonas aeruginosa* Isolated from Patients with Urinary Tract Infection

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Abstract

Background and objective: *Pseudomonas aeruginosa* as a major threat in the hospital environment is the most frequently isolated Gram-negative organism in wound infections, pneumonia, urogenital sepsis, and severe burns. One of the most worrying characteristics of this bacterium is its low antibiotic susceptibility. Additionally, *P. aeruginosa* has an innate ability to adhere to surface and form biofilms particularly difficult to eradicate. Biofilm formation is an important bacterial survival strategy. In humans, biofilms are responsible for numerous pathologies usually associated with use of medical devices and antimicrobial activity. Current study is aimed to evaluate the biofilm formation potency and antimicrobial activity among *P. aeruginosa* isolated from patients with urinary tract infection (UTI).

Materials and methods: Urine related isolates detected by biochemical tests such as OF, SIM, TSI and Oxidase. Susceptibility test done based on Kirby Bauer method and antibiotics were selected based on CLSI. Biofilm formation assay done by Microplate method and finally read at 495 n.m. Results analyzed by t-student method on SPSS-software version19.

Results: 81 *P.aeruginosa* isolates collected form UTI samples. Resistance pattern for Tobramycin (Tob), Imipenem (Imp), Gentamicin (GM), Piperacillin (Pip), Ceftazidime (Caz), Cefoxitin (CF), Ciprofloxacin (Cip) were 23.45%, 6.17%, 24.69%, 11.11%, 21%, 75.3% and 23.45%. Additionally, 25.93% isolates had no potential to form biofilm but 5.185%, 17.6% and 16.06% were +1(Weakness), +2(Moderate) and +3 potency (Strength).

Conclusion: Our finding indicates 74.08% isolates had ability to form biofilm and 16.06% isolates form biofilm straightly. Most antimicrobial resistance were observed against GM and CF. Moreover, In addition to the genetic elements, biofilm formation can be considered one of the main reasons for resistance to antibiotics.

Keywords: *P.aeruginosa*, Antibiotic resistance, Biofilm and UTI.