

Contents

□ Study of serum lipid and lipoprotein levels in patients with coronary artery disease and diabetes mellitus; A case-control study	3
H. Falsoleiman, T. Kazemi	
□ Study of patients with acute pulmonary edema in the cardiology department of Imam Reza Hospital	4
AA. Dadgar, M. Ebrahimi, M. Nikdoost	
□ Age changing patterns of hospitalized patients with acute myocardial infarction in Babol Shahid Beheshti Hospital (1992-2001)	5
K. Hadjian, F. Jalali	
□ The investigation of newborn septicemia in Valiy-e-aser Hospital of Birjand	6
A. Fesharaki Nia, MR. Miri	
□ Effect of electromagnetic field on ovary and sex hormones of female rat	7
M. Monsefi, A. Baha-al-dini, M. Pirooz, S. Haghighi	
□ Measurement of affinity constant of Anti-human IgG monoclonal antibodies with alkaline phosphatase enzyme by an ELISA-based method	8
M. Naseri, SM. Moazzen, AA. Pourfathollah, B. Mesbahzadeh	
□ Comparison of antimicrobial effect of Cichorium intybus L. with Gentamicin and Cephalexin	9
R. Ghaderi, M. Hassanpour, A. Saadatjoo	
□ Hepatitis B vaccination rates among nursing staff ...	10
AM. Izad Panah, HR. Mashreghy Moghaddam, M. Mogharrab, FS. Ebadyan, HR. Ghaffari	
□ A Comparative study of Ziehl- Neelsen and Auramine- Rhodamine staining methods for the detection of acid-fast bacilli	11
M. Ziaee, Gh. Azarkar, P. Maleki Nejad	
□ The changes in basement membrane and distribution of reticular fibers in benign hyperplasia and adenocarcinoma of prostate	12
T. Kermani, M. Zardast, AR. Sabzari, AR. Varasteh	
□ Pelvic Actinomycosis: a case report	13
M. Zangoii, N. Naseh, M. Zardast	

Study of serum lipid and lipoprotein levels in patients with coronary artery disease and diabetes mellitus

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Abstract

Background and Aim: Coronary artery disease (CAD) is the leading cause of death among diabetic patients. One of the risk factors for CAD is dyslipidemia. In regard to high prevalence of diabetes mellitus and CAD, we evaluated levels of serum lipid and lipoproteins in diabetic and non-diabetic patients with CAD.

Materials and Methods: In this case-control study, we compared serum lipid and lipoprotein of 100 patients with CAD and diabetes mellitus (case) with 100 patients with CAD without diabetes mellitus (control). Determination of serum lipids was performed on the first day of admission, following a 10 hour fasting. Data were analysed by SPSS and t-test at $\alpha=0.05$.

Results: Mean cholesterol (Chol) and triglyceride (TG) of patients with CAD and diabetes mellitus (the case) was significantly higher than patients with CAD without diabetes (the control). But the mean HDL and LDL did not represent a significant difference between the two groups. Prevalence of hypercholesterolemia (Chol>200 mg/dl), hypertriglyceridemia (TG>200 mg/dl) and low HDL (HDL<35 mg/dl) in the case group was higher than those in the control group. LDL was higher in the control group.

Conclusion: Because of high prevalence of dyslipidemia in diabetic patients with CAD, tight control of serum lipids in the group is necessary.

Key Words: Diabetes mellitus; Coronary artery disease; Dyslipidemia

Study of patients with acute pulmonary edema in the cardiology department of Imam Reza Hospital

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Abstract:

Background and Aim: Acute pulmonary edema is one of the most prevalent symptoms of heart deficiency and mitral stenosis. The aim of this study is the evaluation of the most common symptoms and signs, etiology and also the most common precipitating factors in patients with acute pulmonary edema.

Materials and Methods: This is a cross-sectional-prospective study in the Heart Emergency Department of Mashhad Imam Reza Hospital between April 2001 and April 2002. All patients with acute pulmonary edema admitted to the Emergency Department were studied. For every patient a questionnaire was filled out and the statistical evaluation was done by applying the chi-square test, with $P \leq 0.05$ as the minimum significant level.

Results: From 189 patients who were studied, 81(42.9%) were males and 108 (57.1%) were females. The average time of hospitalization was 4.1 days and the mortality rate during the period was 6.3%. There were no statistical significant differences between the two genders regarding mortality rate. The most common precipitating cause of acute pulmonary edema was reduction or discontinuity of medications by patients (56.1%) and the most common underlying disease was angina pectoris (48.1%).

Conclusion: Acute pulmonary edema is the relatively common and serious clinical symptom of cardiac disease. Paying more attention to its predisposing factors and early, appropriate management could reduce its morbidity and mortality.

Key Words: Cardiogenic acute pulmonary edema; Angina pectoris; Clinical symptoms

Age changing patterns of hospitalized patients with acute myocardial infarction in Babol Shahid Beheshti Hospital (1992-2001)

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Abstract:

Background and Aim: Acute myocardial infarction (AMI) is one of the most common diseases with a high mortality rate, disability, and complications, in developing countries, because in the recent decade, coronary diseases have been the major cause of death in Iran. Thus, this study aimed at investigating a 10-year period of age variation in patients with acute myocardial infarction.

Materials and Methods: This cross-sectional study was conducted based on the existing data in the medical charts of 1233 consecutive patients with MI who had been admitted to Babol Shahid Beheshti hospital between 1992 and 2001. Age, sex, history of MI, and year of the patients admission were extracted from hospital charts. For statistical analysis, we used SPSS software to analyze data applying t-test, Chi-square test, analysis of variance and F-test to assess the linear trend of change in the mean age of the patients and $P \leq 0.05$ was considered as significant.

Results: Of 1233 cases 62% were males and 38% were females; about 15.7% of the cases were aged less than 50 years, 40.6% of them 65 years or over. In general, the overall mean age of patients was 60.1 ± 1.2 years and the mean age of MI occurrence in females was significantly higher than males (61.5 vs 60.1 years, $P=0.03$). The linear trend of change in the mean age was not significant over 10 years ($P=0.63$). The mean age of patients with initial diagnosis of MI was 59.6 ± 11.4 years, the linear trend of which was not significant over 10 years either ($P=0.55$).

Conclusion: In order to increase the age occurrence of MI, a more educational program to increase the knowledge of cardiovascular risk factors, to control nutritional habits, to screen hypertension and a more serious coping with urban life styles are necessary.

Key Words: Acute myocardial infarction; Onset suffering age; Trend

The investigation of newborn septicemia in Valiy-e-Asr Hospital of Birjand

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Abstract

Background and Aim: Septicemia is one of the important and prevalent diseases of neonatal period with a high rate of complications and mortality. Diagnosis of maternal and newborn risk factors is very helpful in the prevention of the disease.

Materials and Method: This study was done on all the newborns suspected of having sepsis and admitted to the newborn ward and NICU of Valiy-e-Asr Hospital. Data were gathered through a structural questionnaire.

Results: The subjects were 49 boys and 51 girls. Early and late cases of septicemia were equal. Most of the newborns were pre-term or low birth weight (LBW). The most prevalent finding was poor breast-feeding (80%), 42% of them suffered temperature fluctuation (hypothermia and hyperthermia). Anemia, positive CRP, and high ESR were diagnosed in 14, 11 and 13 percents of the patients, respectively. From 67 blood culture done, 6 cases (8.9%) were positive; the most prevalent germ was staphilococcus coagulase negative. From 42 urine culture done, 6 cases (14.2%) were positive; the most common germ was E.coli. Mortality rate was 30%.

Conclusion: Both pre-term and LBW are both risk factors for newborn septicemia. Preventive measures to reduce the birth of such newborns and after birth intensive care therapies are recommended.

Key Words: Septicemia; Newborn; Blood culture; Urine culture

Effect of electromagnetic field on ovary and sex hormones of female rat

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Abstract

Background and Aim: Increased electrical tools, communicating systems and extending network of electrical power distribution has caused increased growth of electromagnetic field in today's life. Regarding reports indicating side-effects of electromagnetic fields on living organisms, in present research due to the lack of complete report the effect of these fields on the female reproductive system during estrus cycle was taken into account.

Materials and Methods: In this experimental study, 32 female rats were divided into 4 equal groups including: case group 1(MF1) to be located for a 5 day period in 43 gauges (4.3 mT) and 50 Hz frequency field, control group 1(C1) for a 5 day period in an off-field, case group 2(MF2) for a 10 day period in an electromagnetic field as case group 1, and control group 2 (C2) for a 10 day period in an off-field. All animals were in diestrus phase, when locating in the field. After the end of exposing time, rats were anesthetized, blood sample was collected from dorsal aorta, and the amount of FSH and LH were measured by a radioimmunoassay technique. Also, estrogen and progesterone concentrations were measured. Then ovaries were extracted and 5 micrometer longitudinal serial sections were prepared. Sections were stained with hematoxyline-eosin method. In each section, the highest diameter of follicles and corpus luteum were measured. Results were statistically analyzed by Mann-Whitney-U- test considering significant level at $P \leq 0.05$.

Results: There were no statistical significant differences between concentrations of estrogen, progesterone, FSH, LH and diameter of different ovarian follicles in the five and ten day control and experimental groups but the diameter of corpus luteum in MF1, and C1 and diameter of secondary follicles in the left ovary in MF1, compared with MF2, had decreased.

Conclusion: Exposure to electromagnetic field is not necessarily associated with negative effects in a living organism; and-with respect to biologic condition of the cell under study-tissue adduction, the radius of the surface through which the current is passing through can have an inhibitory or activating role.

Key Words: Electromagnetic field; Follicle; Corpus luteum; Sex hormones; Ovary

Measurement of affinity constant of Anti-human IgG Monoclonal antibodies with alkaline phosphatase enzyme by an ELISA-based method

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Abstract

Background and Aim: The affinity of an antibody with its antigen is a crucial parameter in its biological activity and carrying out immunologic tests such as radioimmunoassay (RIA) and immunohistochemistry. This study was done in our laboratory at Tarbiat Modarres University to measure the affinity constant of specific monoclonal antibodies/MAB (A₁G₈F₇) with alkaline phosphatase enzyme produced.

Material and Methods: Several Methods have been innovated to determine the affinity and avidity of antibodies. In all of them a serum is used in which antigen and antibody would reach balance and, without a change in the balance, free antigen and antigen associated with antibody are measured. Applying a rapid and simple ELISA-based method the affinity constant of specific MAB (A₁G₈F₇) against alkaline phosphatase was measured.

Results: Constant density of antibody for use in specific ELISA used to determine dissociation constant (K_d), applying klotz methodology-by means of a competitive ELISA proved to be $1\mu\text{g } K_d$ of A1G8F7 clone; through klotz fig, it was estimated to be 3.8×10^{-9}

Conclusion: considering that the K_d of natural antibodies in the body for most antigens ranges from 10^{-7} to 10^{-11} and that the less K_d the more affinity of the antibody, the antibody secreted by A₁G₈F₇ clone seems suitable. Practically, in immunocytochemistry for most immunologic measuring, histochemistry test done with mAb-ALP enzyme in three line-staining led to pretty good and comparable results with the similar trade sample of APAAP (Dako, Denmark).

Key Words: Monoclonal antibody; Affinity avidity; ELISA; Alkaline phosphatase

Comparison of antimicrobial effect of *Cichorium intybus* L. with Gentamicin and Cephalexin

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Abstract

Background and Aim: Although antibiotics are used in the treatment of infectious diseases, there are many problems such as adverse drug reactions and resistance to antibiotics. Plants, which may have less adverse reactions, can be a suitable substitute for chemical drugs. *Cichorium intybus* L. is one of the herbs that can be easily found in many areas of Iran. Since *Cichorium intybus* L. has antimicrobial effect we can use it in the treatment of infectious diseases.

Materials and Methods: This experimental study was carried out to determine the antimicrobial effect of *Cichorium intybus* L. on *Staphylococcus aureus*, *E.coli*, *Proteus*, *klebsiella* and *Pseudomonas*, compared with that of Gentamicin, and Cephalexin. *Staphylococcus aureus* was cultured on blood-agar medium and other microorganisms were cultured on Muller-Hilton medium. After providing the alcoholic extract of *Cichorium intybus* L., it was added to the culture medium of microorganisms. This process was made 15 times. Then Gentamicin and Cephalexin disks were set on the culture medium of microorganisms. This process was made 6 times. After that the inhibition zone of these microorganisms was measured. The data were analyzed by using Mann-Whitney and Kruskal-Wallis tests.

Results: *Cichorium intybus* L. had an antimicrobial effect on *Staphylococcus aureus* but the effect was less than that of Gentamicin and Cephalexin. Gentamicin had antimicrobial effect on *Staphylococcus aureus*, *Proteus*, *E.coli* and *klebsiella* but it had no effect on *pseudomonas*. Cephalexin had antimicrobial effect on *Staphylococcus aureus*, *Proteus*, *E.coli* and *Klebsiella* but it had no effect on *Pseudomonas*.

Conclusion: *Cichorium intybus* L. has antimicrobial effect on *Staphylococcus aureus*, which is a gram-positive bacterium. We conclude that perhaps *Cichorium intybus* L. has only antimicrobial effect on gram positive bacteria, an issue requiring more studies to prove.

Key Words: *Cichorium intybus* L; Antimicrobial effect; Gentamicin; Cephalexin; *Staphylococcus aureus*

Hepatitis B vaccination rates among nursing staff in Birjand University of Medical Sciences

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Abstract

Background and Aim: Hepatitis B is one of the most important contagious blood born diseases that can afflict health care workers (HCWs), and should be prevented only by vaccination. Nurses are the largest group of HCWs population at risk, who are infected with blood born diseases. This study was carried out to determine the rate of hepatitis B vaccination in the nursing staff of Birjand University of Medical Sciences.

Materials and Methods: In this cross sectional study, a questionnaire consisting of two sections, personal and health information section, was used by adequately trained health workers. Besides, live interview was also undertaken. The collected data were evaluated by applications of chi-square and variance statistical tests, with $P \leq 0.05$ as the significant level.

Results: Of the total 243 cases, 84% had the history of vaccination, and 16% had no history. 72.91% had terminated vaccination, 15.3% had received the vaccine once, and 11.8% twice. The data showed no significant difference with respect to age, occupation history, level of education.

Conclusion: The result of this study showed that 55 (%27.1) nursing staff had not completed hepatitis B vaccination that should be complete their vaccination.

Key Words: Vaccination; Hepatitis B; Prevention; Nursing staff

A comparison of Fluorescence microscopy with the Ziehl-Neelsen and technique for the detection of acid-fast bacilli

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Abstract

Background and Aim: Nowadays new methods are used to detect TB. But due to their costs and technological limitations for all, we compare two old staining methods, Ziehl-Neelsen (ZN) and fluorescence, and their diagnostic values in detection of TB.

Materials and Methods: This descriptive analytical study was done in two steps. First, 1430 patients of suspected having TB who were referred to central TB laboratory of Birjand and 3125 specimens were collected between April 1995 and April 2002. These specimens were stained by carbolfuchsin (Ziehl-Neelsen) and auramin – 0 (fluoro-chrom) to detect acid fast bacilli (AFB). In the second step 500 patients out of 1430 cases were studied applying ZN and FM methods. Among these, 30 cases of FM and 26 cases of ZN had positive smear. On the whole, 37 cases were positive, using either method. The gathered data were analyzed by means of kappa agreement multiplex statistical test.

Results: In this study 116 patients (8.1%) were smear positive with fluorescence microscopy (FM) and 41 patients of this group (2.9%) were also positive with ZN. ZN staining showed 35% sensitivity in positive FM specimens. When the first and second specimens, were simultaneously studied, sensitivity of ZN rose from 35% to 42%. The 500 patients were studied with both ZN and FM. 30 specimens were positive with FM, and 26 were positive with ZN, and in addition 37 specimens were positive with both techniques. Agreement multiplex kappa for these detective methods-ZN and FM- was 0.660 ($P < 0.001$). In this study by setting FM as a basement, ZN sensitivity was 77.3%, specificity was 98.5%, positive predictive value 85%, and negative predictive value 97.6%.

Conclusion: These results showed that due to high agreement between ZN and FM, both FM and ZN methods have detective value for the diagnosis of TB, but when only one specimen is available, FM is preferred. So, we suggest that, where possible, suspected specimens are first stained by FM [to improve velocity and sensitivity] then positive specimens be checked with ZN staining.

Key Words: Mycobacterium tuberculosis; Fluorescence microscopy; Ziehl-Neelsen; Acid fast bacilli

The changes in basement membrane and distribution of reticular fibers in benign hyperplasia and adenocarcinoma of prostate

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Abstract

Background and Aim: Prostate cancer is the second most prevalent malignancy in men, which affects health, economy, and social life. The ability to predict accurately, after prostatectomy, would increase optimization of disease management, because the presence or absence of basement membrane (BM) and reticular fibers are as important as cell lines in detecting of benignancy and malignancy of cancers. This study was designed to assess the condition of the BM and reticular fibers in stroma in benign prostatic hyperplasia (BPH) and adenocarcinoma of prostate.

Materials and Methods: In this experimental study, prostate tissue samples were obtained from pathology department of Emam Reza Hospital of Birjand University of Medical Sciences. On the whole, 8 cases with BPH and 6 cases with Adenocarcinoma of prostate were used in the research. The samples were sectioned to 5 μ thickness. One out of 10 per sections was stained with H-E in order to obtain histologic diagnosis, and the others stained with silver-methenamine to detect BM.

Results: The benign and malignant tissues showed different reaction patterns against Ag nitrate. In the malignant samples, BM and reticular fibers were not observed at newly formed periacinar and cell cords. In a few stroma between the acinars, continuous, arginophil, and thick membrane was formed. BM reticular fibers, in benign samples were thin and discontinuous expanding to stroma arginophil fibers.

Conclusion: The study showed that BM pattern is different in benign and malignant samples, a point that is important in detecting of doubtful cases. And probably newly formed periacinar BM would restrict the malignancy distribution. We suggest these available and special BM staining methods to detect benignancy and malignancy in various tumors and the presence of BM in periacinar and pericellular areas would also be used.

Key Words: Prostate; BPH; Adenocarcinoma; Basement membrane; Silver-methenamine stain

Pelvic actinomycosis: a case report

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Abstract

Pelvic actinomycosis is an uncommon chronic granulomatous disease that is caused by actinomycosis Israeli. The most risk factor is long-term use of IUD. In this article we dealt with a 42 year old woman, who referred to the hospital with a history of intrauterine device (IUD) use for 15 years, having nonspecific lower abdominal pain, low grade fever, and occasional chills for 2 months, On pelvic examination a mass was found. Clinical findings, sonography, CT scan and barium enema strongly suggested a pelvic malignancy. After laparotomy and histological examination, pelvic actinomycosis was diagnosed. The patient was given penicillin, for a long term. In patients with abdominopelvic pain, pelvic mass and adhesion, specially long-term IUD using, actinomycosis is probable; and by using secretions culture, pap smear, sonography and CT scan diagnosis is promoted before surgery to avoid an unnecessary action.

Key Words: IUD; Pelvic mass; Actinomycosis.