

Study of Diclofenac Effects on Neuromuscular Transmission by In vitro and In vivo Methods

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Background: Within the non steroidal anti-inflammatory drugs, the Diclofenac sodium ampoule, has already been used as an anti-pyretic and analgesic drug in Iran. A number of reports from clinical using of Diclofenac ampoule were received by ministry of health of Iran, showed that Diclofenac produces profound adverse effects ranging from myonecrotic, severe pain and fascia infection to sustained inability of muscle-nerve at the site of injection occasionally led to irreversible localized paralysis. Therefore, its utilization was banned for these reasons from 1999. However, its etiology is still unknown and various factors have been proposed to have a role in its development.

Materials and Methods: In the current study, the directly effects of Diclofenac on the neuromuscular transmission by the twitch tension technique using the chick biventer cervicis (CBC) preparation *in vitro* and the Tibialis muscle of mice *in vivo* at different concentrations were investigated.

Results: 0.02-0.2mg/ml of Diclofenac did not produce a significant effect on nerve-mediated twitch and contracture of the CBC preparation. But at more concentrations 2-20mg/ml in response to indirect stimulation, the twitches were increased concentration dependently first and abolished consequently led to reversible complete blockage.

In order to determination of post or presynaptic effects, the effects of the different Diclofenac concentrations (0.02, 0.2, 2, 20mg/ml) on contractile response of CBC to submaximal concentration of exogenous acetylcholine, carbachol and potassium chloride were obtained and compared to initial response without Diclofenac addition. The inhibitory effects of higher concentrations of Diclofenac on neuromuscular transmission are likely to be due to postsynaptic that affect muscle in CBC muscle preparation. However, its presynaptic effects can not be ruled out.

Conclusions: Our obtained results from the *in vitro* study suggest that Diclofenac directly affect neuromuscular transmission in origin as evidenced by the counteraction in motor coordination of the Tibialis muscle of mice from the *in vivo* study. While, Diclofenac (with and without excipient) has same manner inhibitory effects on neuromuscular transmission, Therefore, Diclofenac neuromuscular adverse effects, as proposed earlier, are attributed to the drug and not associated to the other material or pharmaceutical process used for its formulation.

Key words: Diclofenac sodium, Nerve, Muscle, Paralysis, Side effects

Neuroprotective Effect of Vitamin E Supplementation in Patients Treated with Paclitaxel- Base Chemotherapy

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Background: The increasing use of Paclitaxel in cancer patients have faced them and physicians with increasing rate of paclitaxel induced neuropathy. There is an increasing concern about protection of this type of neuropathy by some neuroprotective agents like Vitamin E.

Materials and Methods: Thirty six patients with different types of cancer mainly breast, ovary and lung cancers were enrolled in a randomized clinical trial. Patients with diabetes mellitus, uremia, SLE, AIDS and underlying neuropathy were excluded from the trial. All patients were treated with four cycles of single agent paclitaxel or paclitaxel-base (175mg/m²) combination chemotherapy, infused over 3 hrs, every 3 weeks, with or without Vit E (alpha-tocopherol) supplementation 400IU/day, started before chemotherapy and was continued during and two months after the end of fourth cycle of chemotherapy. Patients were followed for at least two months and the effect of Vit-E on paclitaxel neuropathy was defined based on Chaudry et al. The results was judged by Fisher Exact Test.

Results: Seven patients were not followed for different reasons (4 in experimental and 3 in control group). Fourteen patients in experimental and 15 patients in control group were followed. Moderate and severe neuropathy was observed in 53.3 percent out of patients in control group compared with 14.3 percent in experimental group (P<0/000).

Conclusions: It seems that Vit E supplementation during Paclitaxel base chemotherapy is effective in prevention of moderate and severe neuropathy. Considering the limitation of this trial and limited studies in this area further investigations is recommended.

Keywords: *Vitamin E, Paclitaxel, Neuropathy, Chemotherapy*

Effects of Prostatic Irradiation on Production of Prostate Specific Antigen (PSA) in Patients with Non Prostatic Malignancies

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Background: To determine the effect of prostatic irradiation on the production of prostate specific antigen (PSA).

Materials and Methods: Serum PSA levels were measured in 50 men who received pelvic irradiation (45 to 65 Gy) for nonprostatic malignancies and compared with those of a control group consisting of 64 men of comparable age without prostate cancer or prior pelvic irradiation.

Results: The median PSA level was lower in the irradiated group than in the control group (0.87 ng/ml versus 1.32 ng/ml, P-value=0.0091).

Conclusions: Our study suggests that incidental exposure of prostate gland to ionizing radiation results in a permanent decrease in PSA production by the prostate gland but not to undetectable levels. So after radiation therapy for prostate cancer, PSA levels about 0.87 ng/ml can still reflect a disease free state in the gland, levels of ≤ 0.2 ng/ml are not necessarily required to indicate the absence of disease. Also due to permanent decrease in PSA levels, prostate cancer screening with PSA in patients who are long-term survivors after pelvic radiotherapy for nonprostatic pelvic malignancies should be done with PSA levels different from normal population.

Keywords: Prostatic Specific Antigen, Prostate Cancer, Irradiation, PSA

Formulation and Production of Low Fat Sausage Using Modified Corn Starch

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Background: According to the increasing trend of the consumption of fat, fat-induced diseases, presence of the articles addressed in literature about fat replacing using modified corn (maize) starch and to formulation and possibility production of low fat sausage, this research was performed in National Nutrition and Food Technology Research Institute and Gooshtiran company in 2005.

Materials and Methods: This study was done on the first to formulation of low fat sausages by explorer method and secondary to comparison six low fat formulas with control formula (high fat) by experimental method. Formulas 1, 3 and 5 were produced by replacing different levels of fat with starch/water combination at 1:3 ratio and formulas 2, 4 and 6 were produced by replacing wheat flour and different levels of fat with starch/water combination at 1:3 ratio. The treatments were produced in three replicates totally twenty one formulas. Quality characteristics of all treatments as characteristics chemical, technological, microbial and sensorial were evaluated and were compared statistically.

Results: Low fat formula 5 was the best compare to all treatments ($P < 0.05$) and when the fat level were reduced from $14.7 \pm 0.35\%$ (control formula) to $6.26 \pm 0.08\%$ (low fat formula 5) decreases in fat content was found to be 57.4% ($P < 0.05$).

Conclusions: There is production possibility of low fat sausage using modified corn starch. Regarding the presence of variety of fat replaces, application of its combination Should be studied in future researches.

Keywords: *Low fat, Sausage, Modified corn starch, sensory evaluation*

Association between Aggression and Severity in Patients with Post Traumatic Stress Disorder (PTSD) Referred to Baqyatallah Psychiatric Clinic in 2005

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Background: Aggression is common among patients with Post Traumatic Stress Disorder (PTSD). The aim of the study was to evaluate the association between aggression and severity of PTSD.

Materials and Methods: 120 out of patients with PTSD referring to Psychiatric Clinic of Baqyatallah Hospital were evaluated by two questionnaires for aggression and PTSD severity (Through Impact of Event Scale Questionnaire).

Results: Mean age of patients was 35.9 ± 10.1 . 76.7 percent were male and 23.3 percent were female. 72.5 percent out of patients had aggression. Although, 72.5 percent of non-aggressive patients had sub-clinical PTSD and 24.1 percent of aggressive subjects had severe aggression. We found a significant statistical correlation between PTSD severity and aggression ($P=0.001$).

Conclusions: Through timely treatment of PTSD and prevention of more severe stages, aggression may be prevented successfully.

Keywords: *Aggression, PTSD, Anxiety*

Comparison of Nutritional Status among Children under 5 Years Old in the Villages of Gorgan Districts during 1999 and 2004.

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Background: Nutrition is an important factor for national development of countries. Physical growth is an optimal criteria for assessment of nutritional status. This study was carried out for comparison of nutritional status among children under 5 years in the villages of Gorgan districts during 1999 (stage 1) and 2004 (stage 2).

Materials and Methods: Villages were chosen by using cluster and simple sampling. Twenty persons completed the questionnaires and weight and height measured. The frequency of cases was 5498 in males and females (stage 1= 2639 cases and stage 2= 2859 cases). Height and weight were measured and registered through the questionnaire. Records of stages 1 and 2 were added in a file and analyzed by SPSS softwar. NCHS standard used for comparison.

Results: The prevalence of malnutrition on base of standing, wasting and standing+wasting was 14.3, 4.3 and 2.9 percent respectively at stage 2, and same criteria in stage 1 was 30.2, 5.7 and 3.82 percent respectively. Statistical difference was significant between two stages on base of standing ($p=0.0001$) and wasting ($p=0.01$). Physical growth improvements in males was better than the females.

Conclusions: On the whole, nutritional status improved during 1999 to 2004. Height improvement is better than the weight. Other study is necessary for detection of trace element in children's food in Gorgan area.

Key words: *Height, Weight, Malnutrition, Children Village, Gorgan*

Prevalence of Hypochromia and Microcytosis without Definitive Cause in Patients Referred to Mofid Children's Hospital in 2004

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Background: Carriers of β thalassemia syndrome maybe diagnosed with CBC and hemoglobin electrophoresis, but silent carrier forms of disease with heterozygous gene defects and alpha thalassemia maybe presented with normal hemoglobin A₂ level and have a diagnostic challenge. Their diseases may be approved with special complementary evaluation such as DNA analysis and globin chain assay. At the present study, incidence of hypochromia and microcytosis without definitive cause in children referred to hematology clinic of Mofid children hospital assessed to indicate the necessity of complementary laboratory tests performance.

Materials and Methods: This is a cross sectional – analytic study performed on 150 patients with hypochromia and microcytosis referred to Mofid children hospital hematology clinic during 2003-2004. CBC, serum ferritin and hemoglobin electrophoresis checked on arrival in all patients, then 3 mg/kg/day ferrous sulfate therapy for 3 months prescribed for patients with low serum ferritin and normal electrophoresis. Reevaluation with mentioned laboratory tests was done after completion of therapy. According to these tests, patients classified in to 3 groups which include: minor thalssemia, treated iron deficiency anemia and undefinitive cause of hypochromia and microcytosis. Parent's evaluation with CBC, hemoglobin electrophoresis and mother's serum ferritin level carried out in children with low MCVs, normal electrophoresis and normal serum ferritin levels (undefinitive cause).

Results: 150 children with microcytosis and hypochromia evaluated in Mofid children hospital hematology clinic during 1-year period of study with their age range of 4-168 months and median age of 92±59 months. 96 cases (64%) were male and the remaining 54 patients (36%) were female. Beta thalassemia minor detected in 33 percent (49 patients), iron deficiency in 29 percent (43 patients) and combined iron deficiency and minor thalassemia in 5 percent (8 patients). In addition, major and intermediate forms of thalassemia detected in 4 percent (6 patients). In 31 cases or 20% of our patients definitive cause of microcytosis and hypochromia didn't detected. From 31 cases with undefinitive cause of microcytosis and hypochromia, 20 cases (65%) were also anemic who 3 out of them (10%) had also iron deficiency anemia that in spite of 3 mg/kg/day of ferrus sulfate therapy for 3 months didn't show any increase in their hemoglobin A₂ level. RBC indices in minor thalassemic and undefinitive causes of microcytosis and hypochromia groups revealed significant differences in various hemoglobin values such as Hb ($p<0.001$), MCV ($p<0.01$), Hb A₂ ($p<0.01$), MCH ($p<0.01$) and Hb F (0.01), but patients' ages, serum ferritin and RBC mass showed no significant difference.

Conclusions: Presence of 20 percent of our cases with undefinitive hypochromia and microcytosis in this study needs more attention to perform complementary laboratory tests such as hemoglobin chain assay and DNA analytic methods for exact diagnosis of carrier forms of thalassemia in Iran and to decrease new cases of major and intermediate thalassemiias.

Key words: *Hypochromia, Microcytosis, β major thalassemia, Globin chain synthesis*

Educational Ranking of Pharmacy Schools of Iran: A Strategy to Identify the Strengths and Weaknesses

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Background: To evaluate the quality of educational services in pharmacy schools, we designed a set of more than 60 criteria and indicators.

Materials and Methods: Their weights were defined through consensus developing methods. We devised scoring instructions for every criterion and indicator and a questionnaire for data gathering. All the 10 pharmacy schools introduced a representative who gathered the data and completed the questionnaires after participating in a workshop. In the next step the project's representatives visited the schools and verified and confirmed the data. Eventually data retrieval was performed and verified at the project's office and a special computer software was exploited to perform the final analysis. The schools were ranked based on their overall scores and also individual scores in each indicator.

Results: Tehran and Isfahan Pharmacy School gained the first rank, with the scores of 64.51 and 64.36 out of 100 respectively; Tabriz Pharmacy School was the second with the score of 63.79 and Ahvaz, Shaheed Beheshti and Mashhad Pharmacy School gained the third rank with the scores of 53.87, 53.54 and 53.07 respectively.

Conclusions: Ranking of the schools demonstrates their strengths and weaknesses in each part of the educational services and produces practical strategies for their qualitative and quantitative improvement.

Kew words: *Education, Pharmacy, Iran, Rankings, Stratification, School*

Pattern of Antibiotic Resistance in Gram Negative Microorganisms Nosocomial Infections During 2000 – 2004.

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Background: Resistance to Antibiotics is a prevalent problem all over the world. Recognition of resistance pattern and sensitivity of microorganisms, especially gram-negative bacteria, against Antibiotic agents have a very effective role in appropriate choosing of antibiotics and in controlling infections such as hospital infections. This research was conducted to determine the pattern of resistance of different types of isolated Gram-Negatives Microorganisms in Khatam hospital during the years 2000 – 2004.

Materials and Methods: The research was done Microorganisms of all the wards of the hospital. This has been a cross-sectional study and by using Disk Diffusion method, resistance to antibiotics has been measured.

Results: 38905 samples have been studied in four years and among all 1906 samples (min 381/3 per year) had a positive culture. Totally 52 percent of positive samples were for female and 48 percent of them for Males. The pattern of E.coli resistance for Aminoglycosides was fluctuated from 18 to 31 percent in a way that the maximum registration was in the last years. 4 percent of total isolated E.coli was resistant to Ceftizoxim. This amount was reached to 25 percent in the last year. In the last year of study 29 percent of E.coli species isolated from blood culture showed resistance to Ceftriaxone and 43% to Ciprofloxacin. Resistance of Klebsiella isolated from Urine culture to Gentamycin reached from 4 percent to 36 percent. About Urine culture, the E.coli resistance for Ceftizoxime increased from 4 percent to 31 percent and for Ceftazidime from 10 percent to 41 percent. The utmost resistance of E.coli in Blood culture to Gentamycin in the last years was reported about 80 percent. E.coli resistance to Ampicillin and first generation of Cephalosporine such as Cephazoline and Cefalexine in other cultures was up to 100 percent. Pseudomonas isolated from Sputum culture showed resistance to Ciprofloxacin, Ceftizoxime, Gentamycin, and Co-trimoxazole respectively 0, 0, 83, and 33 percent that reached to 30, 77, 53, 100 percent in the last years. During these years isolated Pseudomonas from sputum culture was constantly resistant to Ceftazidime and Cefazoline. The resistance of Klebsiella species isolated from sputum culture to the Co-trimoxazole, Gentamycin, Ciprofloxacin, Ceftizoxime, and Ceftazidime changed respectively from 25, 62, 0, 25, and 0 to 89, 67, 0, 85, & 100 percent.

Conclusions: Choosing these Antibiotics seems quite illogical due to high resistance of the first generation of Cephalosporines. Ceftazidime as an effective antibiotic on intestinal gram-negatives microorganisms is useless. Quinolones are still approximately useful and they must be limited in order to avoid much more resistance to antibiotics.

Key words: *Sensitivity, Resistance, Entrobacteriace, Pseudomonas, Microbial Culture*

Treatment of Wide Scar Contracture of Antecubital Fossa with Bipedicle Flap from Scar Tissue

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Background: There are many surgical techniques for reconstructions of burn scar contracture of antecubital fossa such as Z plasty, VY plasty, lateral arm flap, medial arm flap and etc. Other option is direct releasing of scar contracture and skin graft of the defect area, but skin graft needs splinting for long time and there is also the risk of failing of skin graft and in the areas that we have exposed tendons or vessels we can not use skin graft. Recurrence of contracture remains another drawback of this treatment. In this article we present a new, simple alternative method for treatment of these cases.

Materials and Methods: In this clinical trial we introduce a new technique of bipedicle flap from scar tissue for coverage of antecubital fossa with skin graft on the proximal and distal part of this bipedicle flap. From 2002 till 2005 we used this flap in 12 patients and efficacy and versatility of this flap studied.

Results: Seven patients were female and 5 were male with mean age of 23.7 years. The mean time between burn and our reconstructive operation was 3.2 years. The mean surface area of antecubital burn scar tissue was 77.5 percent. Mean extension lag before operation was 66.5 degree, mean extension lag during operation was 4.5 degree and after operation was 5.4 degree. Complication was seen in two cases with necrosis of flap margin. Mean follow up period was 17 months and the appearance of operated site in antecubital fossa was acceptable in all patients.

Conclusions: Advantages of this bipedicle flap is its simple surgical technique and the risk of flap necrosis is small and it is a reliable flap. Splinting time with this flap is short and the risk of recurrence with this technique is low.

Keywords: *Bipedicle flap, Scar tissue, Contracture*