

Histopathological evaluation of cyclosporin gel on full thickness skin transplantation (Allograft) in the rat

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Nowadays, it is used to skin graft in spread. Cyclosporine is one of the most use and effective immunosuppressive drugs that it has side effect and toxicities on CNS, kidney and liver. In this research is tried to investigation of 0.5% cyclosporine gel effectiveness on allograft full thickness skin rejection in rat. In this experimental study is used to 45 wistar male adult rats as allograft recipient and 15 spiral hole (SD) male adult rats as allograft donor with age range between 14 to 15 week and mean weight: 200±10 gr. After general anesthesia, circles with 1.5 cm diameter containing epidermal and dermal layers had separated from SD donor rats with scalpel cutting and then these parts were grafted to shoulder center (midline) of wistar recipient rats. After transplantation, rats randomly divided to 3 groups with 15 rat (3groups of 5 each) (control, test and 0.5% cyclosporine gel) and then each of them was divided to 3 group with 5 rat (sampling groups in days: 3, 7 and 15). Any treatment is applied in control group. 10 mg/kg IP cyclosporine injected to test group, and in third group, 0.5% cyclosporine gel was applied in the graft place, daily. Then on days: 3, 7 and 15 after graft, it was done sampling from the graft location and applied histopathological studies on it. Then, Statistics data analyzed using kruskal wallis test with SPSS software. Investigations confirmed that cyclosporine gel using caused to significant reduce of vasculitis, folliculitis, dermatitis and dermal degeneration on 3 and 7 days after graft in comparison to control group (P<0.05) and single use of cyclosporine gel on day 15 after graft did not cause to skin graft rejection. By attention to this test challenges, cyclosporine gel has significant effects on Acceptance of skin grafts, but its single use did not cause to skin graft rejection. To more effect on skin graft acceptance can use to cyclosporine gel in combination with other immunosuppressive drugs.

Key words: *Cyclosporine gel, Full thickness allograft transplantation, Rat*

Molecular identification of *Staphylococcus aureus* enterotoxin genes isolated from human skin tissue rashes and ewes milk with subacute mastitis

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Staphylococcus aureus is a gram-positive coccal bacterium of the *micro cocaceae* family and by the release of toxins such as enterotoxins provides invasion to the host. The aim of this study was to identify enterotoxin genes of *Sea*, *Seb*, *Sec* and *Sed* in *Staphylococcus aureus* isolates of human skin infections and ewes with subacute mastitis. In this study 110 suspected *S. Aureus* isolates were collected from Chaharmahal and Bakhtiari province, the isolates were confirmed using microbiological standard methods. Then the PCR test was performed on 67 samples using specific primers to identify mentioned genes. The results showed that within 38 samples of human skin infections 19 cases were positive for *Seb* and *Sea* genes. 7 cases had *Seb* gene (18.42%). And 12 samples (31.58%) were positive for *Seagene*. Within 29 samples of ewe subacute mastitis 13 cases were positive for *Sea*, *Seb*, *Sec* and *Sed* genes. 5 samples had *Sea* gene (17.24%), 4 were positive for *Seb* (13.79%), 3 were positive for *Sec* (10.34%) and 1 had *Sed* gene (3.45%). Results were confirmed by sequencing and showed a high percentage of *Staphylococcus aureus* isolated from clinical specimens had enterotoxin genes. Given the importance of these toxins produced by pathogenic strains, if the expression of these genes occurs, early treatment of infection would be necessary.

Keywords: *Staphylococcus aureus*, Enterotoxin, Human skin infection, Ewe subacute mastitis

Effect *Fenugreek* seeds hydroethanolic extract on a full-thickness wound healing in Streptozotocin-induced diabetic mice

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Disturbance in wound healing process is considered to be one of the most serious complications of diabetes, because it significantly increases the susceptibility of patient wounds to be infected. Fenugreek is an annual plant which its leaves and seeds used extensively in foods and has advantages to human health. Due to prevalence rate and side effects of diabetes, Fenugreek seed extract is one of medicinal herb have been used more frequently. The present study was performed to investigate the effects of using fenugreek seed hydroethanolic extract on wound healing process in the 54 mice model of diabetes type 2. One single full-thickness excisional wound was created with 6-mm punch biopsy on back of each mice. All animal, accidentally, divided in three groups: Control group, 10% and 5% fenugreek seed hydroethanolic extract treatment groups. In terms of microscopic, the rate of tissue edema, neo-vascularization, fibroblast infiltration, collagen deposition and re- epithelialization were evaluated. Results revealed that the edema score significantly decreased ($P < 0.05$) in both treatment groups compared to the control group, whereas the neo-vascularization, fibroblast infiltration, collagen deposition and re- epithelialization significantly increased ($P < 0.05$) in both treatment groups compared to the control group. These results showed that topical administration of fenugreek seed hydroethanolic extract promote skin full-thickness excision wound healing process in diabetic animal model.

Keywords: *Fenugreek seed, Hydroethanolic extract, Excisional wound healing, Diabetic mice*

Evaluation of antifungal effect of *Lactobacillus plantarum* and inhibitory effect on the production of germ tube in isolates of *Candida albicans*

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Candida albicans is opportunistic yeast that may cause infection in predisposed individuals such as users of broad spectrum antibiotics. Increasing reports of *candida* strains resistance to common antifungal agents, has become a health concern. It is now clear that lactic acid bacteria can produce antimicrobial compounds with the ability to inhibit the growth of pathogenic microorganisms. The aim of this study was evaluation of antifungal effect of *Lactobacillus plantarum* and inhibitory effect on the production of germ tube in isolates of *Candida albicans*. In this study antifungal effect of acidic and neutral supernatant of *L. plantarum* were evaluated using agar dilution method. All isolates obtained from mycology research center of veterinary medicine of Tehran university. The effect of supernatant (acidic and neutral) on production of germ tube in *Candida albicans* fluconazole resistance isolates from oral, vaginal and nail lesion with a control (no treatment) were determined in broth medium after 1, 2 and 3 h of incubation. The average of germination of *Candida albicans* isolates nails, vagina and mouth treated with acidic supernatants were 3.48 ± 0.87 , 0 and 0 respectively. The germination of *Candida albicans* isolates treated with acidic supernatants significantly was reduced, compared with the control group (no treatment). Antifungal activity of acidic supernatant of *L. plantarum* against *Candida albicans* is very significant compared to neutral supernatant. Therefore, the use of *L. plantarum* is recommended for the prevention and treatment of infections caused by *Candida albicans*.

Keywords: *Candida albicans*, *Lactobacillus plantarum*, Antifungal activity, Germ tube

Histopathological survey of trichomoniasis lesions in the infected turkey and pigeons in Zabol district

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The present study was conducted to determine the prevalence and histopathological lesions comparison of trichomoniasis in the pigeons and turkeys. During this research (from March to August 2014) for detection of *Trichomonas gallinae*, a total of 300 wet swab samples were collected from pigeon's and turkey's crops. Of the 150 pigeons, 72.7% (n =109) and 150 turkeys, 0.7% (n =1) were infected with *T. gallinae*. Chi-square test showed a significant difference in the prevalence of the disease in turkeys and pigeons (P <0.001). At necropsy in 6 infected pigeons (5.5%) caseous necrosis and grayish–yellow diphtheritic membranes were characterized in the mouth, esophagus, crop and proventriculus. In the infected turkey, pendulous crop and stench mouth were macroscopically noticeable. The disease in pigeons was more prominent and contained severe macroscopic and microscopic lesions in the oral cavity, esophagus, crop, gizzard and liver but in the turkey microscopic lesions were confined in the esophagus, crop and liver. Histopathologically, oval eosinophilic structures with basophilic nuclei, recognized as trichomonads, were pathognomonic in the liver of infected turkey. Gross and histopathological study revealed a lower prevalence and milder lesions of trichomoniasis comparatively in turkeys than in the pigeons. It was also noted that the prevalence of the contamination in pigeons of Sistan region is more significant than many parts of Iran.

Keywords: Trichomoniasis, Prevalence, Histopathology, Pigeon, Turkey

Comparison of ELISA test with histopathology in the diagnosis of feline infectious peritonitis

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Samples from 25 cats suspected to be affected with feline infectious peritonitis (FIP) (16 cats with the signs of wet FIP and 9 cats with the signs of dry FIP) were collected from 8 clinics in the north-west Tehran from 2013 to 2015 to determine the specificity and sensitivity of the ELISA test compared to the histopathologic findings as the gold standard. ELISA test were performed on the serum and abdominal cavity samples. Statistical analyses were performed on the obtained data by ROC analysis, Youden index, Mann-Whitney U test using SPSS and R soft wares. Sensitivity, specificity, positive and negative predictive values were calculated as 100% in 13 cats with wet FIP and 7 cats with dry FIP. The area under curve (AUC) were calculated as 1, which shows the high diagnostic value of the ELISA test. The cut-off value for the ratio of ODs in the positive cats to the negative cats were determined as 3.375. Considering the acceptable sensitivity and specificity of the studied ELISA kit for the diagnosis of FIP, the kit can be used for the diagnosis of FIP alongside with the other diagnostic tests.

Keywords: *Cat, Feline infectious peritonitis (FIP), ELISA, Sensitivity, Specificity*

Effects of magnesium sulfate on atherogenic indices in cholestatic male rats using Bile duct ligation method

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Cholestasis is defined as a decrease in bile flow due to impaired secretion by hepatocytes or to obstruction of bile flow through intra or extrahepatic bile ducts that leads to retention of bile acids, bilirubin and cholesterol. Magnesium, the second most abundant intracellular cation, plays an essential physiological role in many functions of the body. The aim of this study was evaluating the effects of magnesium sulfate on atherogenic indices in cholestatic male Wistar rats. In this experimental study, 81 male Wistar rats were randomly allocated into 9 groups. Bile duct ligation was done by standard method. MgSO₄ (0.05, 0.1 and 0.2 g/kg bw) was administered intragastrically, once a day, for 28 consecutive days. Serum samples were collected and serum lipid profile was measured using standard methods. Then atherogenic indices were calculated. Cholestasis led to a significant increase in atherogenic indices and treatment of cholestatic rats with magnesium sulfate significantly reduced atherogenic indices. Magnesium sulfate may improve serum lipid profile and reduce atherogenic indices in cholestatic rats by reducing oxidative stress and increasing the activity of enzymes involved in the metabolism of lipoproteins.

Keywords: *Atherogenic indices, Bile duct ligation, Cholestasis, Lipid profile, Magnesium sulfate*

