

## EDITORIAL

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Mauricio Rocha-e-Silva, Editor

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In this issue of CLINICS we may for the first time separate original research into the 2 categories – clinical research and basic science – because we have been receiving increasing numbers of good scientific reports on basic science.

The highlight report in this issue goes to **Higuchi et al** who, to the best of our knowledge produce the first description of apparently pathogenic archaea in human internal organ lesions. Archaea are anaerobic microbes which occupy the deepest and shortest branches of the universal phylogenetic tree. They are equipped with powerful anti-oxidative enzymes that allow detoxification of free radicals; their presence might favor the survival of aerobic microorganisms in hostile environments. **Higuchi et al** describe their findings in 29 tissue samples of vulnerable atherosclerotic plaques from 13 coronary arthrectomies studied through optical and electron microscopy. Six of the cases were submitted to polymerase chain reaction with archaeal primers. Archaeal-compatible structures were identified in all 13 specimens, and the PCR test was positive for archaeal DNA in 4 of the 6 studied fragments. Archaeal bodies correlated positively with the extent of the of myxoid matrix in the vulnerable plaques.

In the **Clinical Sciences Section** we publish 8 articles.

**Baptista et al** evaluated 20 cases of nonmetastatic sinovial sarcoma of the extremities treated between 1985 and 1998 regarding prognostic factors, to propose a histological grading system with prognostic significance. Diagnosed unfavorable prognostic factors regarding survival were high histological grade, tumors proximal to the knee or elbow, and spontaneous tumor necrosis over 25%. Local recurrence did not influence survival.

**Ribeiro and Azevedo** describe seroconversion of hepatitis B vaccine in children immunized according to the World Health Organization schedule during their 1<sup>st</sup> year, and its relationship to the mother's serostatus during pregnancy, as well as antibody waning 3 years after vaccination.

The serological study was carried out in São José dos Campos, a high income ½ million inhabitant city in southern Brazil. Blood samples from 224 pregnant women were assayed for hepatitis B marker serology, testing positive in 13.4% of cases. Seroconversion in 174 infants born to these women was determined 1 month after they were vaccinated with recombinant vaccine, and found absent in 10%, low or intermediary in 24% and adequate in 66% of cases. Serological testing in 101 children immunized 3 years previously revealed a significant proportion of non-seroconverters. Lack of seroconversion correlated with the absence of serological hepatitis B markers during pregnancy. They suggest that the immunization schedule for hepatitis B in low or moderate prevalence areas should be revised in order to optimize seroconversion.

**Lobo et al** determined the lengthening and resistance of the primary mitral valve chordae tendineae when submitted to traction in 8 dissected hearts, which yielded 132 primary human chordae tendineae. Their lengths and thicknesses were measured and traction under controlled conditions was applied to measure absolute resistance, resistance relative to thickness (relative resistance), and elongation. Resistance was associated with thickness and with elongation at the moment of rupture, but not with length. Elongation at the moment of rupture showed a relationship with relative resistance, and with the thickness of the primary chordae tendineae, but not with length.

**Duque et al** measured circulating levels of vascular endothelial growth factor in 80 patients with prostate cancer compared to 26 normal individuals, and found elevated levels in patients with metastatic disease compared to patients with localized disease and with healthy controls. Growth factor increase correlated positively with serum prostate-specific antigen > 20 ng/mL and showed a positive trend for a Gleason score 8 to 10. No relationship was found between plasma vascular endothelial growth factor and clinical staging, or between plasma vascular endothelial growth factor and prostate volume, in patients with localized prostate cancer.

**Ribeiro et al** investigated the use of nonsteroidal anti-inflammatory drugs (widely used in Brazil) among 533 in-

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interviewed patients (aged 17 or older) patients undergoing upper endoscopy in a large University Hospital in Belo Horizonte (population: 3 million). More than two thirds of the interviewed population reported the use of nonsteroidal anti-inflammatory drugs 1 month before the upper endoscopy (the most used drugs were acetylsalicylic acid and diclofenac); a clear association was shown between the use of these drugs and the occurrence of the studied lesions. The use of nonsteroidal anti-inflammatory drugs for a period greater than 15 days resulted in the occurrence of the gastric lesions, with a higher odds ratio than for the other comparisons. Authors strongly urge the need for further official study of this issue in Brazil.

**Matos et al** compared immunostaining quantification obtained by a digital computer-assisted method with the well-established semi quantitative analysis in 25 well-differentiated thyroid carcinoma. Three parameters were obtained: (1) percentage of labeled cells; (2) digital immunostaining intensity, and (3) digital expression index. The proposed method potentially allows numerical analysis of the immunostaining intensity. A strong correlation between the immunostaining intensity obtained by the two methods was observed. Authors claim (i) results obtained with the proposed digital computer-assisted method were concordant with the semi quantitative analysis; (ii) digital values can resolve disagreement among different observers about staining intensity because the digital method provides a numerical value for each individual case (iii) diagnostic and prognostic sensitivity of the immunohistochemical analysis is enhanced.

**Canzian et al** evaluated the effects of surgical lung biopsies on diagnostic accuracy, on changes in therapy and on survival of 63 patients with diffuse lung infiltrates, mostly presenting acute respiratory failure, who underwent biopsy over the period 1982 – 2003. Clinical versus histopathological diagnoses were compared. Laboratory and epidemiological data were evaluated, and their relationship to hospital survival was analyzed. All histological specimens exhibited abnormalities, mostly presenting benign/inflammatory etiologies. Fifteen patients had an etiologic factor determined in biopsy, most commonly *Mycobacterium tuberculosis*. The preoperative diagnosis was rectified in 37 patients. Autopsies obtained in 25 patients confirmed biopsy results in 72% of cases. Therapy was changed for 65% of patients based on biopsy results. Forty-nine percent of patients survived to be discharged from the hospital. Characteristics that differed significantly between survivors and nonsurvivors included sex, presence of comorbidity,  $SpO_2$  and presence of diffuse alveolar damage in the biopsy. Authors claim that surgical lung biopsy provides a specific, accurate etiologic diagnosis in many

patients with diffuse pulmonary infiltrates especially when clinical improvement does not follow standard treatment. Specific diagnoses requiring distinct treatment may be obtained, with a probable impact on mortality.

**Bahia et al** investigated the relationship occurring for adipokines, metabolic factors, inflammatory markers, and vascular reactivity in 19 obese subjects with metabolic syndrome and compared them to 8 lean voluntary controls. Vascular reactivity was assessed by venous occlusion pletysmography measuring brachial forearm blood flow and vascular resistance responses to intra-arterial infusions of endothelium-dependent (acetylcholine) and independent (sodium nitroprusside) vasodilators. C reactive protein, plasminogen activator inhibitor 1, fibrinogen, adiponectin, resistin, and lipid profile were evaluated from blood samples. Patients were classified with regard to insulin resistance through the HOMA-IR index. Authors report that the plasminogen activator inhibitor 1, C reactive protein and fibrinogen were higher, while adiponectin was lower in metabolic syndrome subjects compared to controls. Metabolic syndrome subjects had impaired vascular reactivity. They further demonstrate that adiponectin and plasminogen activator inhibitor 1 were associated with insulin, whereas HOMA-IR, triglycerides, HDLc, and resistin were associated with C reactive protein. Adiponectin was associated with vascular reactivity after acetylcholine treatment in the pooled group, but resistin was associated with D{forearm blood flow} after Ach in the metabolic syndrome group. Authors conclude that Metabolic syndrome subjects exhibited low levels of adiponectin and high levels of C reactive protein, fibrinogen, and plasminogen activator inhibitor 1. Adiponectin and plasminogen activator inhibitor 1 correlated with insulin resistance markers. Adiponectin and resistin correlated with vascular reactivity parameters. An adipocyte-endothelium interaction might be an important mechanism of inflammation and vascular dysfunction.

In the **Basic Research Section** we publish 5 articles.

**La Falce et al** conducted a quantitative investigation of the superficial external pudendal artery as the basis for skin grafts in 25 right and left sides of the inguinal region of male cadavers. The femoral vessels and the saphenofemoral junction were exposed, and the following aspects were then analyzed: (i) superficial external pudendal arteries were found in 46 of 50 sides; (ii) they originated from the femoral artery in 45 cases and from the deep femoral artery in only 1 case; (iii) the arteries were found duplicated in 21 cases (46%), as a common trunk in 11 cases (24%), and as a single artery in 14 cases (30%); (iv) the distance from the superficial external pudendal artery to the inguinal ligament ranged from 0.8 cm to 8.5 cm; from the

common trunk, it ranged from 3.5 cm to 6.7 cm; (v) the diameter of the superficial external pudendal artery ranged from 1.2 mm to 3.8 mm; and (vi) the diameter of the common trunk ranged from 1.35 mm to 5.15 mm. Most of the data showed no significant differences between the right and the left sides.

**Perin et al** studied the net effects of acute normovolemic hemodilution at different hemoglobin levels on splanchnic perfusion of 21 anesthetized dogs to test the hypothesis that during moderate or severe normovolemic hemodilution, systemic and splanchnic hemodynamic parameters, oxygen-derived variables, and biochemical markers of anaerobic metabolism do not reflect the adequacy of gastric mucosal perfusion. Moderate hemodilution (hematocrit  $15\% \pm 3\%$ ,  $n = 7$ ) and severe hemodilution (hematocrit  $15\% \pm 3\%$ ,  $n = 7$ ) induce increases in cardiac output and portal vein blood flow (compared to undiluted controls,  $n = 7$ ), while systemic and regional oxygen consumption remained stable in the diluted groups, largely due to increases in oxygen extraction rate. However, a significant increase in the  $\text{PCO}_2$ -gap value was observed in the severely hemodiluted animals. Authors note that a very low hematocrit induced gastric mucosal acidosis, even though global and regional hemodynamic stability was maintained, suggesting that gastric mucosal  $\text{CO}_2$  monitoring may be useful during major surgery or following trauma.

**Narazaki et al** investigated the action of neurotrophin-3, a novel neurotrophic factor, on medullary lesions induced in 33 rats by means of the New York University impactor, a standardized device for delivery of such injuries. Using the Basso, Beattie, and Bresnahan scale, authors found that the locomotor recovery curve for the neurotrophin-3 treated group was superior to that of the control group and that the administration of neurotrophin-3 was associated with the absence of deaths, while the control group showed a 28.5% mortality rate. Authors thus claim that a strong relationship exists between the use of neurotrophin-3 in rats

with medullary injury and better functional recovery.

**Rezende et al** compared the chondroprotective effect of diacerein and glucosamine regarding degenerative changes and articular stiffness in a murine model of arthritis. Medial meniscectomy on the right knee was performed in 20 rats, 10 animals receiving diacerein, and 10 glucosamine, from day 1 to day 90 after surgery. Operated knees showed limited extension values and more degenerative changes as compared to nonoperated contralateral sides. The degree of articular stiffness was significantly lower with diacerein, although degenerative changes were similar.

**Ferreira et al** evaluated (in 30 dissected shoulders of fresh cadavers) the amplitude of the subcoracoid space under maximum internal and external rotations of the humeral head and measured distances between the following anatomical structures: (i) between the apex of the coracoid process and point of entry of the musculocutaneous nerve and its branches into the coracobrachial muscles and into the short head of the biceps brachii muscle; this was found to be 49.2 mm (in all specimens a proximal branch of the nerve was identified 34.2 mm away from the apex of the coracoid process), with no difference between the sexes or body sides; (ii) between the apex of the coracoid process and the acromial artery, which was 12.4 mm, with no difference between the sexes or body sides; (iii) between the apex of the coracoid process and the lesser tubercle of the humerus, with the humeral head under internal rotation, which was 10.6 mm in men and 8.6 mm in women. It is noted that the smaller distance between the apex of the coracoid process and the lesser tubercle of the humerus in the arm at internal rotation suggests a higher chance of impingement between those bone structures among women.

We also publish a review article on the significant theme of sexual dimorphism in response to shock and sepsis, plus a case report.

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## NO FASCÍCULO DE OUTUBRO 2006 DE CLINICS

Neste número de Clinics pela primeira vez separamos sessões de pesquisa clínica e pesquisa básica, o que apenas se tornou possível por estarmos recebendo uma contribuição maior de pesquisa básica original de boa qualidade.

O destaque deste número vai para **Higuchi et al**, que demonstraram pela primeira vez, a presença de archaea aparentemente patogênica em lesões orgânicas humanas. Archaea são formas microbianas que ocupam a posição

mais elementar na árvore filogenética universal. São seres equipados com poderosas enzimas anti-oxidativos que permitem a detoxificação de radicais livres de tal modo que sua presença pode, em tese, favorecer a sobrevivência de microorganismos aeróbicos em ambientes hostis. **Higuchi et al** descrevem este achado em 29 amostras de placas ateroscleróticas vulneráveis obtidas de 13 produtos de aterotomia estudadas por microscopia óptica e eletrônica. Seis casos foram também submetidos à reação da