

## EDITORIAL

# Molecular and genetic aspects of oncology and infectology in Clinics

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The number of papers regarding the molecular and genetic aspects of a number of different pathological entities are on the rise in *Clinics*. This editorial selects some of the most outstanding contributions in oncology and infectology using continuously variable ratings (1) as the selection tool.

**Brito et al.** (2) report that hypoxia-inducible factor-1 $\alpha$  is associated with a poor prognosis and that vascular endothelial growth factor-C can be used as a predictive factor in locally advanced breast cancer patients with complete pathological responses after neoadjuvant chemotherapy. **Cabral et al.** (3) report that the overall alterations that were observed in the repetitive DNA of actinic keratosis and squamous cell carcinoma indicate the presence of a spectrum of malignant progression. **Cani et al.** (4) find evidence of beta-catenin gene overexpression in the majority of adamantinomatous craniopharyngioma cases and detected a nuclear beta-catenin staining pattern regardless of the presence of a beta-catenin gene mutation, which suggests that WNT signaling activation plays an important role in the pathogenesis of adamantinomatous craniopharyngioma. **Carvalho et al.** (5) claim that glucose transporter 1 is a valuable immunohistochemical marker for the malignant tumors of various cell types and can be used to identify patients with such tumors using positron emission tomography scanning.

**Cintra et al.** (6) provide evidence that CD34 microvessel density in chondrosarcoma can be helpful in predicting patient outcomes and may add to our understanding of chondrosarcoma pathogenesis.

**Costa et al.** (7) report on a first investigation of glucose-dependent insulinotropic peptide receptor expression in adrenocortical lesions without 11q13 loss of heterozygosity in MEN1 syndrome patients.

**Cunha et al.** (8) report that the inheritance of a G allele in the interleukin-10 G/A polymorphism at position -1082 may favor a concurrent thyroid autoimmunity in differentiated thyroid carcinoma patients and that this autoimmunity may provide a better prognosis for these patients. **El Moneim and Zaghloul** (9) report that the loss of E-cadherin and overexpression of N-cadherin and Snail in

breast carcinomas may play a central role in the development of invasive ductal breast carcinoma and may provide a valuable reference for studying invasive ductal carcinoma progression and characterizing the biological behavior of this tumor. **Estrozi and Bacchi** (10) report that the proportion of neuroendocrine tumor cases among the total number of surgical pathology cases at our institution over the past 12 years is increasing. **Florence et al.** (11) employ the Chalkley method to quantify the microvascular area by comparing panendothelial viability (CD34) with neoangiogenesis (CD105) immunohistochemical markers and find that skin carcinogenesis depended on angiogenesis. **Gerhard et al.** (12) report that thyroid carcinomas show increased immunohistochemical N-myc downstream-regulated gene 1 expression compared with normal and benign thyroid lesions and are correlated with more advanced tumor stages. **Levy et al.** (13) report that the H/R Fc $\gamma$ RIIIa-131 polymorphism has no impact on treatment outcomes, including the overall response rate, overall survival time and disease-free survival time, in a Brazilian population of DLBCL patients who were treated with R-CHOP. **Melotti et al.** (14) report that using the immunoglobulin heavy-chain FR3-trad and immunoglobulin light-chain kappa Biomed protocols for clonality analysis improved diagnostic accuracy. **Ozerhan et al.** (15) report that fascin is heterogeneously expressed in approximately one third of colorectal carcinomas and has a significant association with lymph node metastasis, tumor stage and location, which indicates that fascin may have a role in the lymph node metastasis of colorectal carcinomas.

**Reis et al.** (16) report that TGF-beta1 was underexpressed in prostate cancers; however, a higher expression was observed in tumors with higher Gleason scores, which suggests that TGF-beta1 expression may be a useful prognostic marker for prostate cancer.

**Rodrigues et al.** (17) report that the XRCC1 Arg194Trp variant of the tumor protein 53, which is positively associated with Elston grade III breast tumors, may influence breast cancer development and prognosis. **Samarghandian et al.** (18) report that honey has anti-proliferative effects on prostate cancer cells and that these effects are mainly caused by chrysin. Therefore, chrysin may be a potential compound for both cancer prevention and treatment. Further in vivo investigation is needed to support the use of chrysin in cancer therapy. **Toledo et al.** (19) present the first molecular analysis of non-pituitary tumors in AIP-mutated patients. The finding of AIP inactivation in adrenocortical tumors suggests that further investigation of the potential role of this recently identified tumor suppressor gene in non-pituitary tumors (particularly in tumors in

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which the cAMP and the 11q13 locus are implicated) may be worthwhile. **Uno et al.** (20) report that O6-methylguanine-DNA-methyltransferase promoter methylation status is a more reliable predictor of adjuvant therapy response and glioblastoma prognosis than MGMT protein or gene expression levels.

**Uno et al.** (21) establish the frequency of the IDH1 mutation in a Brazilian study on glioblastoma, thereby confirming the IDH1 mutation as a genetic marker for secondary GBM and providing complementary information to help predict glioblastoma patient outcomes.

**Yazbek et al.** (22) claim that Anti-Epstein-Barr nuclear antigen-1 antibodies did not increase the risk for rheumatoid arthritis and were not associated with the studied rheumatoid arthritis risk factors. Smoking and shared epitope alleles correlated with anti-cyclic citrullinated peptide-antibody-positive rheumatoid arthritis. Of the risk factors, only anticyclic citrullinated peptide antibodies were independently associated with rheumatoid arthritis.

**Zhang et al.** (23) report that tumor-associated macrophages in lung adenocarcinoma have an M2-polarized subtype and are associated with poor prognoses, which may result from accelerated lymphangiogenesis and lymph node metastasis. **Aikawa et al.** (24) document that microsporidiosis with intestinal mucosa disruption is frequent in patients undergoing concomitant anti-tumor necrosis factor/disease-modifying anti-rheumatic drug therapy. **Burns et al.** (25) report that although pneumonia had little influence on pulmonary gas exchange in immature female swine, it influenced cardiac output, urine output and survival compared with healthy swine, which may lead to a diminished physiologic reserve. The authors claim that this information may be relevant in patients with subclinical infection who are stressed by hemorrhage and may partially explain why some similarly injured patients require more resuscitation efforts than others. **Capelozzi et al.** (26) report that in cases of H1N1 and other pulmonary infections, viral-like particles can be successfully observed in lung tissue by ultrastructural examination without confirming the virus by RT-PCR in nasopharyngeal aspirates. The authors also claim that bronchioles and epithelium, rather than endothelium, are most likely the primary targets of infection. They also maintain that diffuse alveolar damage causes airway obliteration and innate immunity dysfunction, which suggests that treatment should be focused on epithelial repair. **Carrilho et al.** (27) report that the epidemiology, classification, and therapy selection for hepatocellular carcinoma varied among Brazilian regions, that hepatitis C infection was the most common etiology of liver cirrhosis and that chemoembolization was the most common therapy employed. **Carrillo et al.** (28) report that the characteristics of a population treated in the dentistry unit of the hematology-oncology service of a tertiary teaching hospital in São Paulo, Brazil were similar to those of the general Brazilian and global populations, particularly with regard to gender distributions and diagnoses.

**Contri et al.** (29) report that the use of protease inhibitors per se does not seem to significantly interfere with the anthropometric measures, body composition and food intake of HIV-infected children and adolescents. However, this antiretroviral therapy was associated with a significant increase in triglyceride and LDL-cholesterol levels in the subjects. **Costa et al.** (30) simultaneously monitored active cytomegalovirus and human herpesvirus 6 infections using

a nested polymerase chain reaction assay, along with clinical findings, and followed the outcomes of patients undergoing liver transplants. The authors find that few patients remain free of beta herpesviruses after liver transplantation and that nested polymerase chain reaction assays may be of limited value in monitoring cytomegalovirus and human herpesvirus 6. **Costa et al.** (31) report that the Pediatric Risk Of Mortality Score showed adequate discriminatory capacity and thus constitutes a useful tool for assessing the prognoses of pediatric patients who are admitted to tertiary pediatric intensive care units. **Crovella et al.** (32) search for the presence of HLA B\*5701 in 96 HIV-positive patients who were treated with abacavir and 243 healthy subjects from northeastern Brazil to verify the percentage of HLA B\*5701 allele carriers in HIV patients and in the general population. **Cursino et al.** (33) detect higher levels of anti-retina antibodies in uveitis patients and in a small fraction of asymptomatic patients with chronic toxoplasmosis. The presence of anti-retina antibodies in sera may be a marker of eye disease in asymptomatic patients, particularly when whole human retina extract is used in a solid-phase ELISA. **Franco et al.** (34) report that metallo-beta-lactamases among imipenem-resistant *Pseudomonas aeruginosa* were detected in 30.4% of the imipenem-resistant *Pseudomonas aeruginosa* isolates. This number may have been higher if other genes had been included. SPM-1 was the predominant enzyme found. Phenotypic tests with low kappa values could be misleading when testing for metallo-beta-lactamases, and polymerase chain reaction detection thus remains the gold standard.

**Gomes et al.** (35) compare three different control charts (traditional Shewhart control, cumulative sum, and exponentially weighted moving average charts) to monitor the nosocomial infection rate per 1,000 patient-days and report that the ability to detect nosocomial outbreaks improved by using the information provided by all three control charts. **Kebapcilar et al.** (36) find that *H. pylori* eradication reduces the levels of pro-inflammatory cytokines, such as migration inhibitory factor and hs-CRP, and also significantly increases anti-inflammatory markers, such as fetuin-A.

**Marchiori et al.** (37) characterize the neuroinfection profiles in a tertiary neurological ward and find that the results are similar to those observed in developed and developing countries. They claim that comparisons with the literature may be considered health assistance quality control. **Nascimento et al.** (38) report that the widespread use of molecular-based methods yields new insights into the etiology of the studied viral diseases, but the impact of viral etiologies on early outcomes is still unclear. **Nishiwaki-Dantas et al.** (39) report that the association between vernal keratoconjunctivitis and *Chlamydia trachomatis* infection was confirmed by positive direct fluorescent antibody assays in 49.4% of vernal keratoconjunctivitis patients and by positive polymerase chain reactions in 20% of these patients.

**Olandoski et al.** (40) report that patient referral to a pediatric nephrologist was late. A reduction in the number of urinary tract infections was observed with adequate treatment, but microalbuminuria and metabolic acidosis occurred frequently despite adequate management. **Pacheco et al.** (41) report that dermatology patients are colonized by community- and hospital-acquired *Staphylococcus aureus*. Half of the nosocomial *Staphylococcus aureus* isolates were SCCmec type IV. Despite the identification of the colonized patients, the subsequent implementation of contact precautions and

room placements, *Staphylococcus aureus* colonization continued to occur and colonization pressure increased. Pemphigus and other bullous diseases were associated with *Staphylococcus aureus*. **Souza et al.** (42) claim that resistance exercise safely increases the strength of older patients living with HIV and allows them to achieve the performance levels that are observed in otherwise healthy controls. These findings favor the recommendation of resistance exercise for elderly adults living with HIV-infected adults. **Souza et al.** (43) find that ozone therapy modulates the inflammatory response and acute lung injury in the cecal ligation/puncture infection rat model, although there is no improvement in the survival rates. **Tannuri et al.** (44) report that in newborns with gastroschisis, more aggressive attention to hyponatremia and hypoalbuminemia would improve patient outcomes.

**Teng et al.** (45) explore the characteristics and outcomes of myeloma patients with chronic hepatitis virus infection and claim that these patients may be a distinct subgroup and that close monitoring of adverse hepatic events should be mandatory. **Toufen et al.** (46) report on the long-term follow-up of patients with swine-origin influenza A virus infection that progressed to acute respiratory distress syndrome and claim that despite the marked severity of lung disease at admission, these patients present with a late but substantial recovery over six months of follow-up.

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