

REVIEW

A survey of recently published cardiovascular, hematological and pneumological original articles in the Brazilian scientific press

Kavita Kirankumar Patel, Bruno Caramelli, Ariane Gomes

Hospital das Clínicas, Faculdade de Medicina, Universidade de São Paulo/SP, Brazil.

Recent original scientific contributions published in selected Brazilian periodicals and classifiable under cardiovascular and pulmonary subject categories cover a wide range of sub specialties, both clinical and experimental. Because they appear in journals with only recently enhanced visibility, we have decided to highlight a number of specific items appeared in four Brazilian journals, because we understand that this is an important subsidy to keep our readership adequately informed. These papers cover extensive sub-areas in both fields.

KEYWORDS: Cardiovascular; Pneumology; Clinical science; Basic research.

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E-mail: bcaramel@usp.br

Tel.: 55 11 2661-5376

INTRODUCTION

Recent original scientific contributions published in selected Brazilian periodicals and classifiable under Cardiovascular, Hematological and Pulmonary subject categories cover a wide range of sub specialties, both clinical and experimental. Journals in which they appeared (*Arquivos Brasileiros de Cardiologia*, *Jornal Brasileiro de Pneumologia*, *Revista Brasileira de Cirurgia Cardiovascular*, *Revista da Associação Médica Brasileira*) have only recently acquired an enhanced level of visibility. Hence we understand that is appropriate and necessary to highlight a number of specific items appeared in these four Brazilian journals, because we understand that this is an important subsidy to keep our readership adequately informed. These 113 papers (49 Cardiovascular, 3 Hematological, 64 Pneumological, 4 of which are interdisciplinary) cover extensive sub-areas in both fields. Selection of papers to be highlighted was directed towards giving not only information about the research but also to show the range of distribution of this work. Most (but not all) of it stems from Brazilian based work. Tables 1 and 2 specify how they are distributed between the sub-specialties of the three major biomedical areas of knowledge.

Table 1 displays relative distribution frequencies of 52 selected papers papers on Cardiology. Thirty six papers are surgical, sixteen clinical. Within the surgical papers, Coronary Artery bypass surgery reports, not surprisingly

were our most frequent hits. Within this category 5 articles covered the themes of scores and risks. Magedanz et al.¹ constructed a score risk model for use in daily practice to predict the risk of mediastinitis for patients undergoing coronary artery bypass grafting. The score includes routinely collected variables and is simple to use. Cadore et al.² develop a score system capable to predict mortality in patients submitted to myocardial revascularization surgery, using clinical variables easy to obtain, which showed capability to predict mortality in patients submitted to myocardial revascularization surgery in our Hospital. Three papers focused on EuroSCORE: de Carvalho et al.³ critically analyzed the EuroSCORE logistic model application in 2,692 patients undergoing Coronary Artery Bypass Grafting in four public hospitals in the Rio de Janeiro and claim that the differences in the prevalence rates for the risk factors associated with its low power of discrimination, hamper recommendation for its use in Brazil, without essential adjustments. Sa et al.⁴ evaluated EuroSCORE applicability in patients undergoing coronary artery bypass graft surgery at the Division of Cardiovascular Surgery of Pernambuco Cardiologic Emergency Medical Services and found it to be a simple and objective index, revealing a satisfactory discriminator of postoperative evolution in patients undergoing CABG surgery at their institution. Nery et al.⁵ compared the Cleveland Clinical Score and EuroSCORE when evaluating patients submitted to elective coronary artery bypass grafting in Rio Grande do Sul and found both to be effective to evaluate risk of death in patients electively submitted to CABGS.

Two papers looked at the interaction of exercise with Coronary Artery bypass surgery: Botega et al.⁶ assessed the behavior of cardiovascular variables during an in-hospital cardiovascular rehabilitation program in patients after myocardial revascularization surgery and conclude that

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Table 1 - Distribution of highlighted Cardiology, Hematology articles by subject categories.

General subjects	Sub-categories	# of hits	reference
surgical	Coronary Artery Bypass Surgery	11	1-11
	Valve	9	12-20
	Congenital Heart pathology	4	21-24
	Transplant	3	25-27
	Other	8	28-36
	clinical	Hypertension	4
Exercise		2	40-41
Congestive Heart Failure		3	42-44
other		8	45-52
Hematology	General	3	53-55
Renal	Cardiovascular related	2	56,57

the exercises proposed proved to be safe with the change in key physiologic variables throughout the experiment below recommended values for the hospitalization phase. Furthermore, the RPE scale appears to have a correlation with some hemodynamic variables and thus may be a useful tool for this group of patients. Martini and Barbisan⁷ investigated the effect of physical activity in leisure time on the prognosis of patients two years after coronary artery bypass grafting and found that such activity does not modify the late prognosis but that the bypass graft itself promotes physical activity and improves long-term functional capacity.

Pulmonary function interested two cardiac surgery research groups: Guizilini et al.⁸ evaluated early postoperative pulmonary function in patients submitted to off-pump coronary artery bypass grafting, comparing the conventional midsternotomy with the ministernotomy approach and found that ministernotomy led to better preservation and recovery of pulmonary function. Barros et al.⁹ evaluated respiratory muscle training, performed after the revascularization surgery and found that it may increase ventilatory capacity.

Saphenous harvesting was studied by Hijazi¹⁰, who compared the difference in wound complication and infection rates between two saphenous vein harvesting techniques, long incision versus multiple short interrupted incisions (tunneling) for coronary artery bypass grafting at King Abdullah University Hospital – Jordan and found that veins harvested using saphenous vein tunneling were associated with fewer wound complications than the traditional longitudinal method.

Gabriel et al.¹¹ assessed whether the main pulmonary artery controlled perfusion over cardiopulmonary bypass modifies brain natriuretic peptide levels expressed by the ventricular myocardium and found that main pulmonary artery controlled perfusion for 30 minutes did not yield substantial modifications in brain natriuretic peptide expression or in the histological pattern of the right ventricular myocardium.

Valve surgery was the object of nine papers, four on mitral valve surgery, three on the aortic valve and two general. Lins et al.¹² studied aims to evaluate the surgical treatment of atrial fibrillation with ultrasound ablation concomitant to mitral surgery in patients with permanent atrial fibrillation and claim that patients who received treatment for atrial fibrillation simultaneously with valvar surgery had advantages related to the control group.

Table 2 - General distribution of highlighted themes in Pneumology broken down into subject specialties.

General themes	hits	reference
asthma	13	58-70
Mechanics and Ventilation	11	8,9,33, 71-78
Lung Infections	10	79-88
COPD	5	89-93
Oncology	5	94-98
Other	11	99-113

Benfatti et al.¹³ analyzed the influence of using of epsilon aminocaproic acid in the bleeding and in red-cell transfusion requirement in the first twenty-four hours postoperative of mitral valve surgery. They conclude that the epsilon aminocaproic acid was able to reduce the bleeding volume and the red-cell transfusion requirement in the immediate postoperative of patients submitted to mitral valve surgery. Guedes et al.¹⁴ describe a technique and results of mitral valve treatment by right anterolateral thoracotomy using aortic cannulation for cardiac pulmonary bypass and claim it is a simple, safe, and reproducible technique. Guedes et al.¹⁵ also analyzed cardiac morphology and function using real time tridimensional echocardiography in individuals submitted to mitral valve repair with Double Teflon technique. They describe a left atrial and ventricle reverse remodeling associated with an improvement in left atrial function during the study. Gaia et al.¹⁶ developed a catheter-mounted aortic bioprosthesis for aortic implant and conclude that transapical implantation of catheter-mounted bioprosthesis is a feasible procedure. do Amaral et al.¹⁷ stress the need for replacement of the valve, ascending aorta and aortic with coronary reimplantation in patients where anti-coagulation is undesirable, is increasing. They evaluated the hemodynamic performance of an aortic valved conduit made with glutaraldehyde treated bovine pericardium (AVCP) in animals and find that hemodynamic outcomes found are similar to physiological parameters. Dias et al.¹⁸ analyzed early and late results of aortic root reconstruction with aortic valve sparing operations and the composite mechanical valve conduit replacement. And claim that this has a low early and late mortality, a high survival free of complications and low need for reoperation. Lavitola et al.¹⁹ compared the effectiveness of Aspirin vs. Warfarin in thromboembolism prevention in patients with Atrial fibrillation and claim that in patients presenting fibrillation for less than a year and no previous embolism, aspirin is little effective. However, in patients with lower-risk mitral valvulopathy (mitral regurgitation and mitral biological prosthesis), especially in cases presenting contraindication to or low adherence to warfarin, aspirin use can present some benefit in thromboembolism prevention. de Campos et al.²⁰ To evaluate the occurrence of complications in patients with mechanical heart valve prostheses undergoing anticoagulant therapy optimized through specialized clinics. And find that the period of time in which patients remain within the desired anticoagulation interval directly relates with occurrence of complications.

Congenital heart pathology was studied in four selected papers. Maluf et al.²¹ studied patients with complex congenital heart disease, characterized by right ventricle hypoplasia, had a palliative surgical option with one and a half ventricular repair and claim that surgical treatment

of the congenital cardiac anomalies in the presence of a hypoplastic right ventricle by means of one and a half ventricle repair has the advantages of reducing the surgical risk of biventricular repair compared to the Fontan circulation. da Rocha et al.²² assessed the morbidity and mortality after Jatene's operation using lactate as the main marker and claim that morbidity and mortality can be assessed with the serum lactate levels, suggesting increased values in the third hour is suggestive of a worse prognosis. de Souza et al.²³ studied the mortality rate of children undergoing to Fontan operation and determined whether the hypoplastic left heart syndrome is not a risk factor for hospital mortality. Rosa et al.²⁴ checked on the frequency and types of congenital heart defects in a sample of patients with oculo-auriculovertebral spectrum, in an effort to correlate presence of these defects with other clinical characteristics and evolution. They find that cardiac malformations, mainly conotruncal and septal defects, are frequent among such patients. Frequency found in our study was statistically similar to the majority of works described in literature where it ranged from 18 to 58%.

Cardiac Transplants. Coronel et al.²⁵ described and compared pre-and postoperative physical and pulmonary capacity of patients who underwent heart transplantation and conclude that changes in ventilatory function of subjects undergoing cardiac transplantation are predictable: respiratory muscle strength and lung capacity recover within two weeks and a good strategy is to aim at an improvement of functional capacity above pre-operative levels. Yoshimori et al.²⁶ studied cardiovascular behavior and safety regarding a low-intensity exercise program for heart transplant candidates with severe heart failure and find that it proved to be safe and well tolerated, but requires monitoring. Dinkhuysen et al.²⁷ evaluated pulmonary artery pressure with sodium nitroprusside before transplanting and claim that the procedure may allow conversion to orthotopic technique.

Nine papers on cardiac surgery fall under various categories. Abreu-Silva et al.²⁸ evaluated the association between plaque volume before the stenting through angiography and clinical outcomes and conclude that the volume of atheromatous plaques before stenting was higher in patients with MACE on clinical follow-up in one year, regardless of other predictors of events. Moriel et al.²⁹ endeavored to associate clinical variables with Quality of Life scores in patients with stable coronary artery disease before percutaneous coronary intervention and with unfavorable outcomes, 12 months after the procedure. In the presence of coronary artery disease, patients with comorbidities present a higher degree of Quality of Life impairment. Duarte et al.³⁰ determined the reliability of central atrial venous blood gasometry data as estimates of cardiac index in patients who underwent cardiac surgery and found that SvO₂ and the C(a-v)O₂ correlated with low cardiac output. Silva et al.³¹ proposed and developed a risk index to predict Atrial fibrillation after cardiac surgery.

Because of concern about adverse hemodynamic effects of closure of the pericardium most heart surgeons prefer to avoid the procedure even though it may reduce the risk of cardiac injury during chest re opening, especially to the right ventricle, aorta and coronary bypass grafts. Within this context, Dantas et al.³² propose a simple method to facilitate re-sternotomy during subsequent re-operative procedures. Riedi et al.³³ determined the strength of respiratory muscle

in cardiac surgery and its relationship with the post-operative pulmonary complications but found that pre-operative respiratory strength couldn't be a predictor of postoperative pulmonary complication. Leal et al.³⁴ report on a method of removing intravascular foreign bodies, catheters with the use of various endovascular techniques and procedures. Conclusion Percutaneous retrieval of intravascular foreign bodies is considered gold standard treatment because it is a minimally invasive, relatively simple, safe procedure, with low complication rates compared to conventional surgical treatment. Laizo et al.³⁵ analyzed the complications that increase the permanence of the patients submitted to cardiac surgery at intensive care unit and conclude that they are related to respiratory function, chronic obstructive pulmonary disease, tabagism, pulmonary congestion, time of permanence under MV, diabetes, infections, renal insufficiency, stroke and hemodynamic instability. Sa et al.³⁶ studied clinical features, complications and in-hospital outcomes of patients operated for postinfarction ventricular septal rupture and claim that the need for vasoactive drugs, hemodynamic instability and cardiogenic shock were associated with higher rates of mortality. Patients who had adverse outcomes had less ventricular function and higher score in the EuroSCORE.

Of the twenty papers selected on Clinical Cardiology, hypertension was the most frequent hit. Ferreira et al.³⁷ investigated the prevalence of cardiovascular risk factors among the elderly treated by SUS in the city of Goiania, state of Goias, Brazil and found that factors occur simultaneously in more than half of the elderly individuals, and the most prevalent ones were: arterial hypertension, central obesity and sedentary lifestyle. Arruda et al.³⁸ estimated the prevalence of hypertension and describe the characteristics of patients with hypertension infected by HIV/AIDS. They conclude that a high frequency of uncontrolled hypertensive patients and cardiovascular risks in HIV-infected patients point out to the need for preventive and therapeutic measures against hypertension in this group. Queiroz et al.³⁹ evaluate the prevalence of high blood pressure in schoolchildren from public schools and its association with anthropometric indicators. They identified an association between excess weight with high blood pressure levels, which emphasizes the need for intervention and for nutritional status control measures, such as dietary education programs aimed at the prevention and treatment of obesity as a risk factor for cardiovascular diseases in the pediatric and older age ranges. Monteiro et al.⁴⁰ analyzed the effect of a 13-week aerobic training program on blood pressure, body mass index and glycemic levels in elderly women with type-2 diabetes mellitus and found that the program was enough to promote significant decrease in the diastolic blood pressure and glycemic levels.

Exercise in itself was examined by Camara et al.⁴¹ who compared the cardiovascular responses recorded during the assessment of muscle strength and endurance for two exercises commonly used in patients with intermittent claudication and conclude that isokinetic strength and endurance testing in such patients results in elevation of heart rate, systolic blood pressure and double product values during the exercises. These increases are higher during the muscle endurance exercises and in those involving greater muscle mass, suggesting that strength testing of small muscle groups causes less cardiovascular overload in these patients.

Heart Failure is highlighted in three articles. Ribeiro et al.⁴² evaluated the cost-effectiveness of Implantable Cardioverter Defibrillators in congestive heart failure patients under two perspectives in Brazil: public and supplementary health systems. They conclude that the incremental cost-effectiveness ratio of Implantable Cardioverter Defibrillators is elevated in the general heart failure population, in either the public or private perspective. A more favorable result occurs in patients with a high sudden death risk. De Aguiar et al.⁴³ To evaluate the predictors of morbidity and mortality in acute coronary syndrome in the long term. And conclude that heart failure upon admission, creatinine, age and HR were independent predictors of mortality. They also claim that heart failure patients treated before 2002 had a worse survival when compared with that seen after 2002 and the that change in therapy was responsible for the improvement. Aguiar et al.⁴⁴ evaluated the role of severe depression in the outcome of patients with decompensated heart failure. And conclude that patients with severe depression showed a higher degree of neurohormonal stimulation despite their lower degree of ventricular dysfunction. The pathophysiological changes related to depression, leading to increased neurohormonal stimulation and cytokines, probably contributed to this more intense clinical manifestation even in the presence of less cardiac damage.

Under a general category of sundry themes, Alves et al.⁴⁵ evaluated whether the chronic and regular use of statins, for a period of six months, prevents atrial fibrillation after elective cardiac surgery and claim the the strategy reduced the incidence of atrial fibrillation after elective cardiac surgery. Da Silva et al.⁴⁶ evaluated the effects of nandrolone decanoate on the electrocardiographic profile, glycogen content and total-protein profile of skeletal and cardiac muscles, as well as the plasma albumin concentrations in rats, concluding that major cardiac changes are triggered at an early stage, which indicates a hierarchy in the sequence of changes that compromise the homeostasis of the body. Diogo et al.⁴⁷ evaluated the possible association between NSAIDs and Contrast-Induced Nephropathies and conclude that there was no association. Fagundes and Castro⁴⁸ endeavored to determine the predictive value of resting heart rate before exercise stress testing for cardiovascular and all-cause mortality, concluding that it is an independent predictor of cardiovascular and all-cause mortality. Feliciano-Alfonso et al.⁴⁹ estimated prevalence and distribution of cardiovascular risk factors and Metabolic Syndrome in young individuals admitted to the National University of Colombia in Bogota and encountered a prevalence of modifiable cardiovascular risk factors which justifies promotion of therapeutic lifestyle changes among this age group in Colombia. Kalil et al.⁵⁰ tested the safety, feasibility and early myocardial angiogenic effects of transthoracic intramyocardial phVEGF165 administration for refractory angina in no option patients. They claim that the procedure resulted feasible and safe. Early clinical and scintillographic data are presented which showed improvements in symptoms and myocardial perfusion, with regression of ischemia severity in treated areas.

Myocardial contractility alterations of isolated hearts of rats, submitted to ischemia and reperfusion with and without administration of the omeprazole was evaluated by Gomes et al.⁵¹ who concluded that omeprazole administration before ischemia induction significantly protected

the myocardium function recovery. Minicucci et al.⁵² analyzed the presence of different patterns of remodeling in a murine model and its functional implications and found that animals that underwent coronary occlusion showed two different patterns of remodeling, neither of which constitute a predictor of ventricular dysfunction.

Three Hematology studies are highlighted. Azambuja and Garrafa⁵³ studied the extent of knowledge and acceptance of hemocomponents and hemoderivatives, fresh and stored, by Jehovah's Witnesses and proposed bioethical tools for any ethical and moral conflicts identified in their relationship with physicians and dentists. They conclude that Jehovah's Witnesses are seen by their "moral outsiders" (i.e., physicians and dentists) as the religious group that simply "does not use blood". Although, several blood treatments are nowadays permitted it does not deprive them from a free conviction to refuse blood treatments. Ammirati et al.⁵⁴ used epoetin to correct anemia and found a decrease in morbidity and increases survival and quality of life in end-stage renal disease. Macedo et al.⁵⁵ evaluated the adequacy of anticoagulation therapy in patients with atrial fibrillation followed in a private clinic specialized in cardiology, in accordance with the American and European societies of cardiology guidelines/2006 and with the Brazilian Guidelines/2003. They conclude that anticoagulant therapy has been adequately prescribed for the majority of patients, although still far from ideal, especially in a cardiology clinic.

Two papers are highlighted in the field of interaction of renal and cardiovascular pathophysiology. Correia et al.⁵⁶ evaluated whether moderate renal dysfunction is associated with cTnT elevation in patients with acute coronary syndrome and found that moderate renal dysfunction is not associated with cTnT elevation in these patients. Carvalho et al.⁵⁷ evaluated the frequency and type of cardiovascular and renal/collecting system abnormalities seen in a sample of patients with Turner Syndrome and found that the frequency of such abnormalities was similar to that of previous studies, but most were found in routine exams after Turner Syndrome diagnosis.

In the field of Pneumology, we highlight 59 articles, the most frequent theme being asthma, with 13 hits. Roxo et al.⁵⁸ developed and validated a Portuguese-language version of the Asthma Control Test (ACT) for use in Brazil. Santos et al.⁵⁹ evaluated treatment compliance and use of inhaled medications of patients with asthma receiving complementary pharmaceutical care. and found that counseling provided by the pharmacist to the patient was important to assist in the implementation of the appropriate inhalation technique. Sarinho et al.⁶⁰ compared BCG vaccination involving a single intradermal dose and that involving multiple doses, and claim that the prevalence of asthma among individuals having received multiple doses of the BCG vaccine was no different than that observed among those having received a single dose. Sarria et al.⁶¹ assessed the psychometric properties of the official Brazilian Portuguese-language version of the Paediatric Asthma Quality of Life Questionnaire (PAQLQ) in a representative group of Brazilian children and adolescents with asthma. and conclude that the Brazilian Portuguese-language version of the PAQLQ showed good psychometric performance, confirming its cultural adequacy for use in Brazil. Razi and Moosavi⁶² determined whether serum total IgE levels and total eosinophil counts have any relationship

with the response to routine pharmacological treatment in patients with acute asthma and conclude that serum total IgE levels, peripheral white blood cell counts and eosinophil counts cannot predict the response to the pharmacological treatment of patients with acute asthma. Reck et al.⁶³ determined the proportion of asthma patients with a poor perception of dyspnea, correlating the level of that perception with the severity of acute bronchoconstriction, bronchial hyper-responsiveness, use of maintenance medication, and asthma control. Their results suggest that a significant proportion of asthma patients have a poor perception of dyspnea. Melo et al.⁶⁴ evaluated whether the exhaled breath temperature, measured by a noninvasive method, is an effective means of monitoring patients with uncontrolled asthma and conclude that uncontrolled asthma, especially during exacerbations, is followed by an increase in exhaled breath temperature, which decreases after appropriate asthma control. Lima et al.⁶⁵ endeavored to determine whether children and adolescents are able to perceive acute exercise-induced bronchoconstriction (EIB), as well as to measure the discriminatory power of a word labeled visual analog dyspnea scale in relation to the intensity of the FM. They note that among children and adolescents with asthma, the accuracy of this dyspnea scale improves as the post-exercise percentage fall in FEV(1) increases. However, the predictive value of the scale is suboptimal when the percentage fall in FEV(1) is lower. Dela Bianca et al.⁶⁶ determined the prevalence and severity of wheezing in infants, using the standardized protocol devised for the "Estudio Internacional de Sibilancias en Lactantes" (EISL, International Study of Wheezing in Infants), as well as to determine the relationship between such wheezing and physician-diagnosed asthma, in the first year of life. They conclude that the prevalence of wheezing episodes among infants in their first year of life was high and had an early onset. The proportion of infants diagnosed with and treated for asthma was low. de Castro et al.⁶⁷ determined the prevalence of symptoms of asthma, rhinitis and atopic eczema among students between 6 and 7 years of age in the city of Londrina, Brazil. and found that the prevalence of symptoms of asthma, rhinitis and atopic eczema in our sample was within the range found at the facilities that participated in phases 1 and 111 of the ISAAC in Brazil. The low prevalence of physician-diagnosed asthma suggests that asthma continues to be under-diagnosed. Brandao et al.⁶⁸ examined the clinical characteristics and the predictors of hospital admission due to asthma among children and adolescents with asthma under treatment at a referral center. and found that the principal predictor of hospital admission was greater asthma severity, calls for special attention being given to the care of these patients. Borges et al.⁶⁹ developed and validated an asthma knowledge questionnaire for use in adult asthma patients in Brazil. Almeida et al.⁷⁰ endeavored to describe socio-economic and behavioral aspects of pregnant women with asthma and to analyze the effects of maternal asthma on certain perinatal parameters in a birth cohort. They found that socioeconomic level appears to be a risk factor for asthma.

Pulmonary mechanics and ventilation contribute 11 papers to this review. As reported above, Guizilini et al.⁸ evaluated early postoperative pulmonary function in patients submitted to off-pump coronary artery bypass grafting, comparing the conventional midsternotomy with the ministernotomy approach. They conclude that ministernotomy

leads to better preservation and recovery of pulmonary function. Barros et al.⁹ evaluated respiratory muscle training, performed after the revascularization surgery and found that it may increase ventilatory capacity. Riedi et al.³³ checked respiratory muscle strength in cardiac surgery and the relationship with the postoperative pulmonary complications and conclude that preoperative respiratory strength is not a predictor of postoperative pulmonary complication. Fonseca et al.⁷¹ compared two respiratory muscle training programs for improving the functional autonomy of institutionalized elderly and found that the trained groups improved functional autonomy. Silva et al.⁷² assessed the relationship between clinical and preoperative pulmonary functional evaluation and occurrence of postoperative pulmonary complications. They claim that the most important factors associated with postoperative pulmonary complications were surgical site, time of anesthesia, and ASA classification. Costa et al.⁷³ compared mean inspiratory and expiratory pressures in healthy subjects with those predicted using the equations proposed in previous studies and claim that previously proposed equations were unable to predict the pressures for all of the subjects in their sample. They conclude that the results of their study can facilitate the prediction of respiratory muscle strength in healthy adult subjects in Brazil. D'Aquino et al.⁷⁴ used clinical and spirometric findings in order to distinguish between the restrictive and nonspecific patterns of pulmonary function test results in patients with low FVC and a normal or elevated FEV(1)/FVC ratio. They found that in many patients with reduced FEV(1), reduced FVC, and a normal FEV(1)/FVC ratio, the restrictive pattern can be identified with confidence through the use of an algorithm that takes the clinical diagnosis and certain spirometry measurements into account. Logrado et al.⁷⁵ endeavored to determine the impact of positive reinforcement during spirometry on the measurement of VC in healthy volunteers. They claim their results indicate the importance of using the behavioral strategy in combination with traditional practice in order to obtain better results. The use of positive reinforcement during the determination of VC is described as an effective, simple and easily applied strategy. Rodrigues et al.⁷⁶ evaluated the contribution of a new coefficient, the FEF(50%)/0.5FVC ratio, obtained from the maximal expiratory flow-volume curve, to the diagnosis of obstructive lung disease and to test this coefficient in differentiating among patients considered normal, those with obstructive lung disease and those with restrictive lung disease. They conclude that the FEF(50%)/0.5FVC ratio is a potentially useful parameter in the differential diagnosis of OLD and correlates positively with the FEV(1)/FVC ratio. Silveira et al.⁷⁷ endeavored to determine whether inspiratory muscle training can increase strength and endurance of these muscles in quadriplegic patients and found that quadriplegic patients can benefit from training at low loads (30% of MIP), which can improve inspiratory muscle strength, FVC and expiratory muscle performance. Felix et al.⁷⁸ compared the influence of two different ventilation strategies-volume-controlled ventilation (VCV) and pressure-controlled ventilation (PCV)-on the functional performance of lung grafts in a canine model of unilateral left lung transplantation using donor lungs harvested after three hours of normothermic cardiocirculatory arrest under mechanical ventilation. Their data indicate that in this model of lung transplantation showed that the functional performance of lung grafts was not influenced by

the ventilation strategy employed during the first six hours after reperfusion.

Pulmonary and mediastinal infection contributes nine papers to this study, five of which on tuberculosis. Goncalves et al.⁷⁹ described the epidemiological monitoring of exposure to tuberculosis in a hospital environment and to analyze the profile of the disease in a general teaching hospital and suggest that the proposed indicators can potentially help standardize epidemiological monitoring procedures for nosocomial tuberculosis. Gupta et al.⁸⁰ In developing countries, sputum smear microscopy is the main tool for pulmonary tuberculosis case finding. The objective of the present study was to evaluate the diagnostic efficacy of Gabbett's staining (GS) and modified cold staining (MCS), both of which are two-step methods, in comparison with that of fluorescent staining (FS), which is a three-step method, for the detection of AFB in sputum smears. Conclusions: Although MCS and GS were found to be less sensitive than was FS, which is evaluated under fluorescence microscopy, the first two are promising methods for the diagnosis of tuberculosis. Lundgren et al.⁸¹ determined the main causes of hemoptysis and endeavored to classify this symptom, in terms of the amount of blood expectorated, in patients hospitalized at a referral hospital for pulmonology. They suggest that all patients who present with hemoptysis should be investigated for tuberculosis and other possible infectious agents. Maciel et al.⁸² determined the principal adverse effects of the tuberculosis treatment regimen recommended by the Brazilian Ministry of Health and find that the overall incidence of adverse effects related to the new treatment regimen recommended by the Brazilian Ministry of Health was high, even though none of those effects demanded a change in the regimen, which was effective in the patients evaluated. Marques et al.⁸³ determined the drug resistance profile of *Mycobacterium tuberculosis* in the state of Mato Grosso do Sul, Brazil, between 2000 and 2006. and found high levels of resistance which undermine the efforts for tuberculosis control in Mato Grosso do Sul. Pedrozo et al.⁸⁴ evaluated the efficacy of the scoring system, recommended by the Brazilian National Ministry of Health (NMH), for the diagnosis of pulmonary tuberculosis (TB) in children and adolescents, regardless of their HIV status. They conclude that the NMH system scores were significantly higher in the TB and TB/HIV groups than in the other two groups. Therefore, this scoring system was valid for the diagnosis of pulmonary TB in this population, regardless of HIV status. Away from tuberculosis, three other papers deal with pulmonary and mediastinal infections. Martinelli et al.⁸⁵ determined the prevalence of nosocomial pneumonia in autopsies at a public university hospital in an attempt to identify the risk factors for nosocomial pneumonia and the potential prognostic factors associated with fatal nosocomial pneumonia and with fatal aspiration pneumonia and to determine whether patho-anatomical findings correlate with nosocomial pneumonia or aspiration pneumonia. They found a high prevalence of nosocomial pneumonia, which was responsible for almost 25% of all of the deaths. Smoking-related structural lesions and bilateral pneumonia all favored mortality. These findings corroborate the results of various clinical studies on nosocomial pneumonia. Mattiello et al.⁸⁶ describe pulmonary function in children and adolescents with post-infectious bronchiolitis obliterans and evaluate

potential risk factors for severe impairment of pulmonary function. They claim that such patients had a common pattern of severe pulmonary function impairment, characterized by marked airway obstruction and pronounced increases in RV and sRaw. The combination of spirometric and plethysmographic measurements is described as more useful for assessing functional damage, as well as in the follow-up of these patients, than are either of these techniques used in isolation. Known risk factors for respiratory diseases do not seem to be associated with severely impaired pulmonary function in PIBO. Senturk et al.⁸⁷ determined the incidence of local and systemic infection in a sample of patients catheterized with thoracic catheters (TCs) and identified the prognostic factors for catheter-related infection. They claim that risk factors, such as advanced age, prolonged catheterization, comorbidities, and inoperable malignancy, increase the risk of catheter-related infection. Melo et al.⁸⁸ report a case series of patients with descending necrotizing mediastinitis (DNM) who were treated with minimally invasive thoracic surgery. Conclusions: We conclude that video-assisted thoracoscopy is an effective technique for mediastinal drainage in the treatment of DNM, with the benefits common to minimally invasive surgery: less postoperative pain, lower production of inflammatory factors, earlier return to activities of daily living, and better aesthetic results.

Chronic Obstructive Pulmonary Disease is the subject of four articles. Fernandes et al.⁸⁹ evaluated the short-term impact of tiotropium in patients with severe or very severe COPD who complain of dyspnea despite being currently treated with other bronchodilators and claim that the introduction of tiotropium into the treatment of such patients using long-acting beta(2) agonists improves pulmonary function and provides symptomatic relief, as perceived by patients in the short term. They claim that these results, obtained under real life treatment conditions, support the use of the salmeterol+tiotropium combination in specific treatment protocols for these patients. Ferrari et al.⁹⁰ evaluated the health status (HS) of COPD patients and identified the main predictors of HS in these patients according to gender and claim that their results show an association between gender and HS in COPD patients. Age and dyspnea are determinants of HS in both genders. Araujo and Holanda⁹¹ determined whether Body mass index, airway Obstruction, Dyspnea, and Exercise capacity (BODE) index correlates with health-related quality of life in patients with COPD. and found that the BODE index score correlated with the scores of all of the mSGRQ domains in COPD patients with FEV(1) <50%. Therefore, COPD patients with FEV(1) <50% die sooner and have a poorer quality of life. Camargo and Pereira⁹² determined the correlations among various dyspnea scales, spirometric data, exercise tolerance data, and the Body mass index, airway Obstruction, Dyspnea, and Exercise capacity (BODE) index in patients with COPD. They suggest that multi-dimensional dyspnea scales should be applied in the evaluation of COPD patients. Chatkin et al.⁹³ measured exhaled carbon monoxide (COex) levels in smokers with and without COPD. which did not differ significantly between smokers with COPD and those without, suggesting that there seems to be no major contraindications to their use in smokers with COPD.

Lung Cancer is the subject of five articles. Machado et al.⁹⁴ evaluated the effect of chemotherapy on the physical condition of patients with advanced lung cancer and observed a beneficial effect on the performance status of the patients. No significant changes in BMI or 6MWD were found during the study period, which might suggest the maintenance of the physical condition of the patients. Franceschini et al.⁹⁵ assessed the quality of life of lung cancer patients, through the Treatment of Cancer Core Quality of Life Questionnaire (EORTC QLQ-C30) in conjunction with its supplemental 13-item lung cancer-specific module (QLQ-LC13). The objective of this study was to assess the reproducibility of the Brazilian Portuguese version of these questionnaires and findings show that these instruments were reproducible in this sample of patients with lung cancer in Brazil. Rodrigues et al.⁹⁶ analyzed the association between paracoccidioidomycosis (Pcm) and cancer in a series of 25 cases and to review the literature on this topic and claim that a diagnosis of Pcm appears to increase the risk of lung cancer. Marchi et al.⁹⁷ evaluated how pleurodesis is performed in South and Central America and found considerable variation among the countries evaluated in terms of the indications for pleurodesis, techniques used, and outcomes. Talc slurry is the agent most commonly used, and thoracoscopy is the technique of choice in Brazil. Brandao et al.⁹⁸ analyzed the clinical and pathological aspects of bronchiolo-alveolar carcinoma and the survival in a sample of patients at clinical stage I. Their data indicate these aspects were similar to those of patients with bronchiolo-alveolar carcinoma evaluated in previous studies.

A number of studies fell into sundry categories. Coelho et al.⁹⁹ evaluated predictors of health-related quality of life (HRQoL) in patients with interstitial lung disease and found that these in patients the degree of dyspnea had a major impact on the physical and mental HRQoL, and depression had an impact on mental HRQoL. Antunes et al.¹⁰⁰ determine the interobserver and intraobserver agreement in the diagnosis of interstitial lung diseases based on HRCT scans and the impact of observer expertise, clinical data and confidence level on such agreement. They conclude that interobserver and intraobserver agreement in the diagnosis of ILDs based on HRCT scans ranged from fair to almost perfect and was influenced by radiologist expertise, clinical history and confidence level. Navarro et al.¹⁰¹ evaluated the biological and functional behavior of decellularized pulmonary homografts (Decell-H), treated by a sodium dodecyl sulfate solution (0.1%) and found that in their experimental model, the Decell-H behaved as an excellent valve substitute. Pego-Fernandes et al.¹⁰² report on the functional evaluation experience with ex vivo perfusion of twelve donor lungs deemed unacceptable in Sao Paulo, Brazil. They claim that ex vivo evaluation model can improve oxygenation capacity of "marginal" lungs rejected for transplantation. It has a great potential to increase lung donor availability and, possibly, to reduce the waiting time on the list. Athanazio et al.¹⁰³ profiled the characteristics of adult patients with bronchiectasis, drawing comparisons between cystic fibrosis patients and those with bronchiectasis from other causes in order to determine whether it is rational to extrapolate the bronchiectasis treatment given to CF patients to those with bronchiectasis from other causes. They conclude that causes and clinical manifestations of bronchiectasis are heterogeneous, and it

is important to identify the differences. It is crucial that these differences be recognized so that new strategies for the management of patients with bronchiectasis can be developed. de Souza et al.¹⁰⁴ determined the prevalence of respiratory symptoms and smoking, as well as pulmonary function parameters among charcoal production workers in three cities in southern Brazil. They indicate that respiratory symptoms and airflow reduction were more common in the smoking workers. Desalu et al.¹⁰⁵ determined whether respiratory symptoms and chronic bronchitis are associated with the use of biomass fuels among women residing in rural areas of the Ekiti State, in southwestern Nigeria and claim that their results underscore the need for women using biomass fuels in their households to replace them with a nontoxic type of fuel, such as electricity or gas. Desalu et al.¹⁰⁶ also determined factors associated with nocturnal, productive and dry cough among young adults in Nigeria. Their results indicate that early prevention and treatment of conditions associated with cough, as well as the modification of social factors commonly associated with cough, are needed in order to reduce respiratory morbidity. Ferreira et al.¹⁰⁷ surveyed the main congenital lung malformations treated and the principal diagnostic methods employed, as well as the indications for surgical treatment and the results obtained, at a referral facility for pediatric thoracic surgery. Their analysis shows that pulmonary resection for the treatment of congenital lung malformations is a safe procedure, presenting low morbidity and no mortality at a referral facility for pediatric thoracic surgery. Forgiarini et al.¹⁰⁸ evaluated structural alterations of the lung in rats with diabetes mellitus, by quantifying oxidative stress and DNA damage; they also determined the effects that exogenous superoxide dismutase has on such alterations and conclude that exogenous SOD can reverse changes in the lungs of animals with induced diabetes mellitus. Maranhao et al.¹⁰⁹ propose a new classification criterion for the differentiation between pleural exudates and transudates quantifying total proteins in pleural fluid (TP-PF) and lactate dehydrogenase in pleural fluid (LDH-PF) exclusively; they also compare this new criterion with the classical criterion in terms of diagnostic yield. They understand that the diagnostic tool was comparable to the classical one and can be used in daily practice. Melo et al.¹¹⁰ determined the lung age of patients with morbid obesity and compared it with the chronological age of these patients, emphasizing the premature damage that morbid obesity does to the lungs. Pereira et al.¹¹¹ evaluated the efficacy and safety of two inhalers for Mometasone furoate administration in patients with asthma and find that the use of the single-dose inhaler developed in Brazil is as effective and safe as is that of a standard inhaler in the treatment of patients with asthma. Pinheiro et al.¹¹² compared the effects of early vs. late tracheostomy in patients with acute severe brain injury and conclude that early tracheostomy should be considered a first choice for patients with acute severe brain injury. Santana et al.¹¹³ endeavored to quantify fibrin thrombi in the small and medium-sized pulmonary arteries of patients with Wegener's granulomatosis and report that confocal laser scanning microscopy revealed a significant association between pulmonary microvascular thrombosis and Wegener's granulomatosis.

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