Profile of the research activity returned to the Brazilian Congress of Thoracic Surgery - Chest 2009

Perfil da atividade de pesquisa encaminhada ao Congresso Brasileiro de Cirurgia Torácica - Tórax 2009

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A B S T R A C T

Objective: To increase the knowledge of research activity in Thoracic Surgery in Brazil. Methods: We carried out a prospective observational study of the abstracts published in the Annals of the Brazilian Congress of Thoracic Surgery - Thorax 2009, to quantitatively and qualitatively assess the geographic distribution and type of home institutions of abstracts, the types of studies and themes addressed. Results: We published 182 abstracts, 174 (95.60%) of interventionist nature. There were three foreign abstracts, all from a single Italian institution. As for the types of studies, we observed 108 trials, 67 case reports and seven experimental studies. Pulmonary resection (14.29%) was the most frequent theme, followed by lung cancer, hyperhidrosis and tracheal disorders (10.44%), trauma (7.14%) and mediastinum (6.04%). Public institutions participated with 68.16% of the abstracts, private institutions with 11.17% and the philanthropic entities with 20.67%: the Pontifical Catholic Universities (11.00%) and the *Santas Casas* – Holy Homes (7.70 %) – had a significant involvement in Thoracic Surgery research in Brazil. Conclusion: Public institutions are mainly responsible for research activity in Thoracic Surgery in Brazil, which is more concentrated in the state of São Paulo (34.07%). One third of this activity is represented by case reports and, although there is wide variation in topics covered, pulmonary resection is the most frequent theme.

Key words: Thoracic surgery/statistics & numerical data. Bibliometrics. Academies and institutes. Thorax.

INTRODUCTION

The efficiency of academic research is of critical concern to surgeons, including thoracic ones, given the increasing tendency to follow evidence-based medicine, whose characteristic of incorporating research evidence into medical practice comes directly from the concept of research and development. From a broader perspective of public health, academic research quality is essential for the development and planning of national health policies and for the efficient provision of health services[1,2].

The so-called knowledge society is increasingly seen as a knowledge economy in the globalized context and, as such, it requires a knowledge production to the extent possible and the notion of visibility fits definitely into the lexicon of academic research[3,4].

The importance of scientific research for development and progress of nations is a widely acknowledged fact today. In Brazil, scientific production has grown significantly in the recent decades, both quantitatively and qualitatively, as confirmed by the growing number of Brazilian articles published in journals indexed by the Institute for Science Information[5]. In the period from 1997 to 2001, Brazilian medicine contributed with 0.9% of the world production in the area[5].

However, little is known about various aspects of research activity in Thoracic Surgery in Brazil, such as diseases and / or the most studied situations, types of studies, research groups, geographical distribution of these groups, funding sources, etc.

Even the international literature discloses little about it. Some authors have done a bibliometric evaluation, i.e., production, circulation, absorbance, consumption and impact of research in respiratory diseases in the European Union from 1987 to 1998[6]. In Brazil, in 1999, we analyzed the researchers in the field of pneumology. Nevertheless, no studies were found in the surgical field[7].

Aiming to contribute to the initiation of knowledge of research activity in Thoracic Surgery in Brazil, we present an observational study of Abstracts sent to the last Brazilian Congress of Thoracic Surgery - Thorax, 2009, with quantitative description of the geographical distribution and nature (public / private or institutional) of the institutions of origin, and the types of topics.

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METHODS

A retrospective study was conducted through observation, calculation and analysis of abstracts submitted to the Brazilian Congress of Thoracic Surgery - Thorax 2009. The publication of its proceedings is conducted every two years. Each abstract was carefully, manually evaluated by two independent observers regarding the following variables: the originality of the work, interference with the study, type of unit of study, temporal directionality, origin of the investigative team, randomization of the samples, State of origin of the institution in which the work was performed (each abstract was counted only once and, when multi-institutional, the first author's institution was considered; when the data contained in the summary did not enable to identify the institution, it was classified as undetermined); type of institution in which the work was carried out (Brazilian or foreign) and, when Brazilian, whether public, private or institutional (when these data could not be identified in the summary it was classified as undetermined); type of study - clinical, experimental or case report; themes, which were divided into 21 types of diseases and conditions: lung cancer, pleural effusion, diaphragm, endoscopy, esophagus, hyperhidrosis, mediastinum, pulmonary nodules, chest wall, pectus, pleurodesis, pneumothorax, chylothorax, pulmonary resection, thymectomy, transplantation, trachea, trauma, tuberculosis, pleural tumor, congenital, thoracoscopic, surgical access and undetermined.

The results were plotted in tables and charts for analysis and interpretation.

RESULTS

From a total of 183 abstracts, 179 were from Brazilian institutions (98.3%), 122 of them public (68.16%), 20 private (11.17%) and 37 institutional (20, 67%). The European Institute of Oncology, based in Milan, Italy, sent three abstracts (1.7%).

Regarding the type of study, we found that 108 were clinical studies (59.34%) and of these 25 were prospective (23.15%) and 83 retrospective (76.85%); 67 were case reports (36.81%) and seven were experimental studies (3.85%). (Figure 1).

Table 1 shows the types of studies from institutions in each geographical region of the country and abroad, showing the total number of entries submitted by each institution and assessing the type of unit of each study (Table 1).

The ratio of clinical studies and case reports were similar in the institutions that displayed the highest number of presented productions. Most foreign abstracts were case reports. Most experimental studies have come from the State University of Campinas (São Paulo, Brazil), with three works, seconded by the States of Rio Grande do Sul (RS) and Amazonas (AM), with two studies each.

We found 174 (95.60%) interventional studies, where the researcher is not limited to mere observation, but interferes by exclusion, inclusion or modification of a given factor. Only eight (4.40%) were observational. Of these, five were from institutions in the Rio Grande do Sul (RS), one in Santa Catarina (SC), one in Amazonas (AM) and one in São Paulo (SP).

As for the research team's origin, we found abstracts coming from a single center in 143 (78.57%) cases and multicenter studies, cooperative among several institutions, in 39 (21.43%).

Upon analysis of abstracts on each topic, it was observed that, overall, lung resection (14.29%) was the most frequent, followed by hyperhidrosis, lung and tracheal disorders (10.44%) thoracic trauma (7.14%) and mediastinum (6.04%). (Table 2)

Figure 2 shows the relationship between the types of institutions involved in research that sent abstracts in the area of Thoracic Surgery. There is a large predominance of public institutions (68.16%), but we found 20 studies from private institutions (11.17%), nine in SP, four in RS, four in AM, one in Minas Gerais (MG) and two in Rio de Janeiro (RJ). The so-called Institutional (philanthropic) entities (20.67%), such as the Pontifical Catholic Universities (11.00%) and the Santa Casas – Holy Homes (7.70%), had significant involvement in research in Thoracic Surgery in Brazil. Table 1 and Figure 2.

DISCUSSION

It seems clear that researchers should direct special attention to three key elements: ethics, biomedical dimension and economics (funding). Under the banner of ethics sensitivity is needed for the fact that not all have the

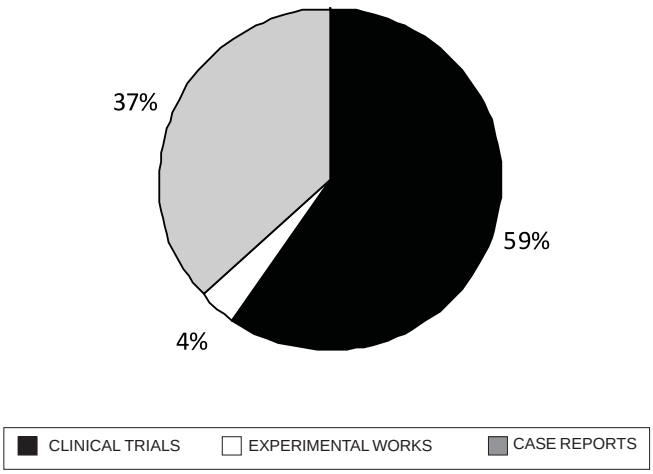

Figure 1 - *Types of studies submitted to the Brazilian Congress of Thoracic Surgery - Thorax 2009.*

Table 1- Geographic distribution of home institutions of abstracts correlating the amount of work and type of unit of study sent to the Brazilian Congress of Thoracic Surgery - Thorax 2009.

Institution of Origin	State	Clinical Trials	Experimental Works	Case Reports	Total	%
PONTIFÍCIA UNIVERSIDADE CATÓLICA DO PARANÁ	PR	8		1	9	4,95
UNICAMP	SP	5	3	1	9	4,95
HOSPITAL HELIÓPOLIS	SP	6		3	9	4,95
SANTA CASA DE PORTO ALEGRE	RS	7	1		8	4,40
FACULDADE DE MEDICINA DE BOTUCATU - UNESP	SP	7			7	3,85
HOSPITAL DAS CLÍNICAS - FMUSP	SP	5		2	7	3,85
UNIFESP	SP	2		5	7	3,85
UNIVERSIDADE FEDERAL DE JUIZ DE FORA	MG	4		3	7	3,85
HOSPITAL MUNICIPAL DE CONTAGEM	MG	1		5	6	3,30
PONTIFÍCIA UNIVERSIDADE CATÓLICA DO RIO DE JANEIRO	RJ	3		3	6	3,30
UNIVERSIDADE DO ESTADO DO AMAZONAS	AM	2	1	3	6	3,30
UNIVERSIDADE FEDERAL DO AMAZONAS	AM	2	1	3	6	3,30
INSTITUTO DO CÂNCER DR ARNALDO VIEIRA DE CARVALHO - IAVC	SP			5	5	2,75
UNIVERSIDADE FEDERAL DO RIO GRANDE DO NORTE	RN	2		3	5	2,75
HOSPITAIS JULIA KUBITSCHEK E MADRE TERESA	MG	3		1	4	2,20
HOSPITAL CARDOSO FONTES - MS - RIO DE JANEIRO	RJ	4			4	2,20
SANTA CASA DE SANTOS	SP	2		2	4	2,20
ULBRA	RS	3		1	4	2,20
UNIVERSIDADE DE CAXIAS DO SUL*	RS	3		1	4	2,20
OTHER INSTITUTIONS		39	1	25	65	35,65
		108 (59,34%)	7 (3,85%)	67 (36,81%)	182	100,0

** Institutions with less than three papers submitted*

same worldview, especially those who are socioeconomically disadvantaged or who have been historically exploited[8,9].

Ethics guides the conduct, setting out the principles of social relations, establishing guidelines and principles for the guidance of human conduct. The conduct of the investigators should be guided by ethics, so that it is compatible with the personal development and the common good of humanity. In scientific experiments involving human beings we need to preserve the fundamental rights of the individuals and the interest of science, the potential social benefits at the background. There are tensions between these elements and even conflicts with regard to social and personal benefits and to which advances in scientific knowledge would justify human experimentation[10].

Among the studies involving human subjects, clinical trials are those that need more care, as characterized by intervention followed by prospective evaluation of groups of individuals.

There are several references that guide the ethical conduct of clinical trials in developing countries. However, several points are targets of debates, particularly the informed consent and the appropriate benefits and standards of care. Reflections on the guidelines for conducting medical research in developing countries have received attention in recent years[11-14].

The research activity in Thoracic Surgery in Brazil initiates a critical reflection, a reflection that may provide the bases for planning and implementing, by the academic community and / or the government, actions for induction of research, funding, human resources training, assistance to emerging groups, etc.

To The Brazilian Congress of Thoracic Surgery - Thorax 2009 182 abstracts were submitted. In the annals of the meetings of the Society of Thoracic Surgeons, which has around 5,000 participants, approximately 200 abstracts are published yearly, and of these a small part is from studies conducted in Brazil. For example, in 2009, among 204 abstracts published in the Annals of the Congress, only two were from Brazil and from the same institution.

In this Congress, there was a marked predominance of abstracts from institutions within the state of Sao Paulo, which accounted for 34.07%. In this region are located most of the specialized services accredited by the Brazilian Society of Thoracic Surgery, offering graduate, specialization and postgraduate strict sense courses, and this is also the region with the largest number of researchers in the country[6,15]. This phenomenon of research concentration in specific geographic locations and / or

Table 2 - Geographical distribution of institutions of origin of short correlation with the studied theme sent to the Brazilian Congress of Thoracic Surgery - Thorax 2009.

	SP	RS	MG	AM	RJ	PR	RN	BA	PA	AL	PB	CE	DF	GO	SC	Foreigners	Total	%
PULMONARY RESECTION	8	7	1	1	5	1	1	1		1							26	14,29
HYPERHIDROSIS	3	2	3	3	1	3	1			1	1		1				19	10,44
TRAQUEA	6	2	8	1		1	1										19	10,44
LUNG CANCER	7	6	2									1			1	2	19	10,44
TRAUMA	6		1	3		1	1				1						13	7,14
MEDIASTINUM	4		2	2					1					1		1	11	6,04
TRANSPLANTATION	4	6															10	5,49
CONGENITAL	5	1		1				1	1								9	4,95
PULMONARY NODULE	1				4				1								6	3,30
OESOPHAGUS	1			2			2										5	2,75
PLEURAL TUMOR	2		1	1	1			1									5	2,75
THORACOSCOPY	3		1		1												5	2,75
TIMECTOMY	2	1		1													4	2,20
PLEURAL EFFUSION	2				2												4	2,20
ENDOSCOPY	1		1			1											3	1,65
TUBERCULOSIS	1				1												2	1,10
PECTUS		1				1											2	1,10
PLEURODESIS				2													2	1,10
PNEUMOTHORAX			1			1											2	1,10
SURGICAL ACCESS		1															1	0,55
CHYLOTHORAX							1										1	0,55
DIAFRAGM					1												1	0,55
UNDETERMINED			1														1	0,55
	62	27	26	17	16	10	8	3	3	2	2	1	1	1	1	3	182	100,00

institutions is not only Brazilian, occuring in other countries, especially in those of continental size such as ours, since the execution of research is directly related to human resources in adequate quantity and quality and financial support[16].

It should be noted that 90% of published abstracts were produced in public institutions in the country. Brazil invests little in research and, with the exception of São Paulo, where the State Foundation for Research Support provides reasonable funding, in other states there is great instability of financial support for public institutions, whether for investment in research itself or for human resources[17]. These findings underscore the direct relationship between research production and financial resources and highlight the commitment of professionals from public institutions to conduct research, despite adverse conditions.

There was a wide variation of topics studied, but in the aggregate 14.29% of the abstracts were on lung resection, followed by lung cancer, hyperhidrosis and tracheal diseases, which summed 10.44% of all cases.

A qualitative analysis of the studied material was not feasible due to the diversity of forms in which the abstracts were sent, the lack of graphic standards and, in particular, the unstructured format of the abstracts. It is known that a structured abstract improves the quantity and quality of the provided information[18].

Another finding that deserves mention is that 36.81% of the published abstracts are case reports, which although being an important and legitimate form of

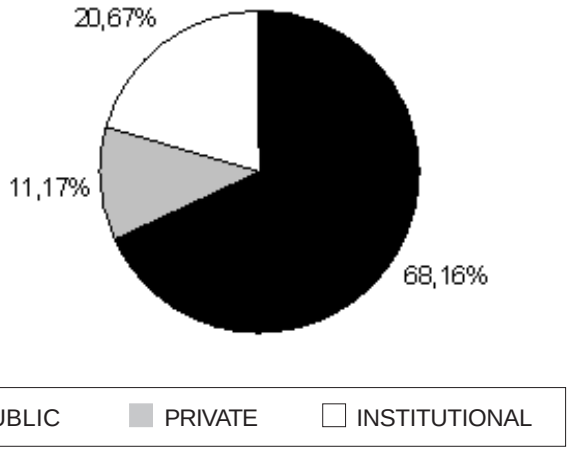

Figure 2 – *Relations between research institutions for studies submitted to the Brazilian Congress of Thoracic Surgery - Thorax 2009.*

scientific communication, characterizes no methodically and structured research, being void of questioning and hypothesis elaboration.

As previously discussed, the Brazilian Southeast region is privileged, when compared with the rest of the country, regarding research financial and human resources, the presentation of case reports as the only or most important form of research possible being therefore unjustified.

According to many authors, judging from the scene of major peer-reviewed journals, the paper submission has the same quality, while the proportion of publications cited in prestigious databases such as MEDLINE and Journal Citation Reports (JCR) is seen as an indicator of visibility[4,19]. This combination of quality and visibility is adopted by most agencies that fund research, as is the case of CAPES (Coordination for the Improvement of Higher Education Personnel), which bases its assessment of graduate programs in the production of publications, visibility, preferably international, and performance of orienting scholars[20]. Recent studies have shown significant advances in publishing of Brazilian articles about human health in international journals[21].

Moreover, most theoretical scholars now agree that the strength of the binomial research / development of a nation should put society and the environment at the heart of a research system based on quality, transparency and valuation of financial resources. This concept usually translates into the equation that equals efficiency to the sum of appropriate use of financial resources and knowledge production.

Science is certainly involved in the production of well-being, though not following basic principles of the market such as consumer pressure, nor being sensitive to investment in areas adjacent to science and technology.

Brazil is one of the few middle-income countries that have a solid state program aimed at financing projects of production of knowledge in health, despite the low budget allocated to scientific research, taking into account its gross domestic product[22-24].

Government policies for funding health research in Brazil are mainly operationalized through three agencies with national coverage (CAPES, the National Council for Scientific and Technological Development – CNPq and the Sponsor of Studies and Projects – FINEP), through State research support foundations. CAPES stands out among them, having as main objective to organize and plan the development of human resources at the post-graduation level. Its process for evaluating the post-graduation program began in the late 1970s, but significant changes in methods and criteria for evaluation occurred from 1996, placing great emphasis on knowledge production, especially the number of published articles, international visibility and performance of individual researchers[20].

During this period, the overall share of scientific publications in the international indexing databases increased significantly from 0.56% to 1.49%, so that Brazil is currently the 17th position in the list of countries with greater scientific production and 9th position in the list of countries with the greatest increase in scientific output of the last 10 years[25].

In Brazil, as mentioned above and described by King, scientific production is very small compared to gross national income, indicating that investments in science and technology are not seen as a strategic priority of the country. Moreover, according to CAPES, despite a 205% increase in master's degrees and doctorates in the last 10 years, there was an increase of only 30% in the budget for funding of post-graduation schools, with a marked reduction of scholarships to new students during this period[26]. Therefore, these findings suggest that the growth of scientific production in Brazil occurred in reaction of the institutions to the policy of pursuit of excellence, in which the evaluation process had a major role. Abstracts in proceedings and publications in not indexed, hardly known journals are part of the so-called "invisible science," one that is not disclosed and which may represent an important contingent of the research activity in Brazil.

These results suggest, despite a significant increase, that the institutions in thoracic surgery did not respond in proportion to inputs to improve the overall performance of Brazilian research. The reasons for this scenario should be evaluated immediately, among other reasons, to investigate the total budget allocated to research institutions and administrative performance of the programs in the face of the new criteria, such as scales of problems, opportunities and administrative pressure. Finally, if one looks at this scenario in light of the report made by Meis et al. in 2003, which described the high stress levels of postgraduate students and faculties caused by the conflict between competitiveness and the growing scarcity of resources, and taking into account all the limitations imposed by lack of investment, we must congratulate the institutions that submitted studies to our Congress[26].

Similar surveys, besides assisting in understanding the profile of research in Brazil, could help determine the adequacy of this activity in the context of national life, thus aiding support agencies and government organs in planning their investments in the areas of Thoracic Surgery, offsetting possible distortions and encouraging specific and / or characteristic sectors of Brazil. Furthermore, data are important for the specialty society to know, based on scientific criteria, the research performed by its members and thus to plan and implement actions to promotion of knowledge, continuous education, etc.

This study did not allow evaluation of research activity in general Thoracic Surgery in Brazil, since not all Brazilian abstracts sent to other national or international conferences of the specialty, or of other specialties, were studied. Above all, we did not evaluate papers of the specialty published in Brazil and abroad. This last proposal would allow the identification and evaluation of a research

activity of the specialty, i.e., the published works, the impact of journals in which they were published and the number of citations received, as has been done for other specialties or countries[6,18,27,28].

We conclude that the review of abstracts submitted to the Brazilian Congress in 2009, some representing the profile of the study to the specialty shows: Brazilian public institutions are responsible for the majority of this activity; there is a concentration of research groups in the State of São Paulo (34.7%); one third of all such research is done through descriptive case reports; and pulmonary resections are the most common theme, although there is great variability in the conditions studied.

R E S U M O

***Objetivo**: Contribuir para o melhor conhecimento da atividade de pesquisa em Cirurgia Torácica no Brasil. **Métodos**: Estudo prospectivo observacional dos resumos publicados nos Anais do Congressos Brasileiro de Cirurgia Torácica – Tórax 2009, para descrição quantitativa e qualitativa da distribuição geográfica e do tipo das instituições de origem dos resumos, dos tipos de estudos e dos temas abordados.**Resultados**: Foram publicados 182 resumos, sendo 174 (95,60%) intervencionistas. Houve três resumos provenientes de instituições estrangeiras, todos provindos de uma mesma instituição italiana. Quanto aos tipos de estudos, foram observados 108 estudos clínicos, 67 relatos de caso e sete estudos experimentais. No cômputo geral, a ressecção pulmonar (14,29%) é o tema mais freqüente, seguidos de câncer pulmonar, hiperidrose e afecções traqueais (10,44%), trauma torácico (7,14%) e mediastino (6,04%). As instituições públicas participaram com 68,16% dos resumos avaliados, as instituições privadas 11,17% e as chamadas institucionais com 20,67%, sendo que as Pontifícias Universidades Católicas (11,00%) e as Santas Casas (7,70%) tiveram participação significativa na pesquisa em Cirurgia Torácica no Brasil. **Conclusão**: As instituições públicas são as principais responsáveis pela atividade de pesquisa em Cirurgia Torácica no Brasil, a qual está mais concentrada no estado de São Paulo (34,07%). Um terço desta atividade é representada por relatos de caso e, embora haja grande variação de assuntos abordados, a ressecçãos pulmonar é o tema mais freqüente.*

***Descritores:** Cirurgia torácica/estatística & dados numéricos. Bibliometria. Academias e institutos. Tórax.*

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