



Original Article

Rotator cuff injuries: current perspectives and trends for treatment and rehabilitation[☆]



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ABSTRACT

Objective: To map out the approaches used by Brazilian orthopedists in treating complete tears of the rotator cuff.

Methods: A multiple-choice questionnaire was handed out to 232 orthopedists at the 45th Brazilian Congress of Orthopedics and Traumatology. Of these, 207 were returned but five were incomplete and were excluded. Thus, 202 questionnaires were used.

Results: Among the orthopedists who answered the questionnaires, around 60% were from the southeastern region and 46% were shoulder and elbow surgeons. There was a significant association ($p < 0.05$) between length of experience and number of rotator cuff repairs performed per year. There was also a significant association ($p < 0.05$) between shoulder specialty and the following variables: arthroscopic technique, use of anchors in a single-row configuration, mean time taken for an indication for surgery to be made in cases of traumatic and degenerative lesions, use of a specific protocol for postsurgical rehabilitation, return to sport and indication of irreparable injuries.

Conclusions: Brazilian shoulder surgeons have well-established approaches toward treating rotator cuff injuries. Most of these approaches differ significantly from those of other specialties. This shows the importance of placing value on training in preparing shoulder specialists in this country.

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Lesão do manguito rotador: tratamento e reabilitação. Perspectivas e tendências atuais

R E S U M O

Palavras-chave:
Manguito rotador
Terapêutica
Reabilitação

Objetivo: Mapear as condutas dos ortopedistas brasileiros no tratamento das lesões completas do manguito rotador.

Métodos: Um questionário de múltiplas escolhas foi entregue a 232 ortopedistas no 45º Congresso Brasileiro de Ortopedia e Traumatologia. Foram devolvidos 207 questionários, mas cinco estavam incompletos e foram excluídos. Total final de 202 questionários.

Resultados: Dos ortopedistas que responderam os questionários, cerca de 60% foram da Região Sudeste, 46% eram cirurgiões de ombro e cotovelo. Houve associação significativa ($p < 0,05$) entre tempo de experiência e número de reparos do manguito rotador feitos anualmente. Também houve associação significativa ($p < 0,05$) entre especialidade de ombro e as seguintes variáveis: técnica artroscópica, uso de âncoras na configuração de fileira simples, tempo médio para indicação de cirurgia em lesões traumáticas e degenerativas, uso de protocolo específico para reabilitação pós-cirúrgica, retorno ao esporte e indicação de lesões irreparáveis.

Conclusões: Os cirurgiões de ombro do Brasil têm condutas bem estabelecidas em relação ao tratamento das lesões do manguito rotador que diferem, em sua maioria, significativamente, das condutas dos cirurgiões de outras especialidades. Isso mostra a importância da valorização do treinamento na formação dos especialistas de ombro em nosso país.

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Introduction

Rotator cuff injuries are a significant source of shoulder pain and dysfunction.¹ They occur mainly in patients between 40 and 60 years of age and may be of traumatic or degenerative origin.

Despite the vast quantity of published papers on this topic, we were unable to find any consensus on this subject in the Brazilian literature.²

The high incidence of these injuries and the great importance of the social and economic issues relating to them, along with the divergences that exist on this subject in the literature, make it extremely important to evaluate the approaches and trends that exist in Brazil on this topic.

The aim of the present study was to evaluate the approaches and procedures used by orthopedic surgeons in Brazil in treating and rehabilitating rotator cuff injuries of the shoulder. From the results of this study, we would be able to delimit the national trends on this matter and also guide future studies of quality.

Materials and methods

This was a descriptive study with application of a questionnaire to a sample of Brazilian orthopedic surgeons. The questionnaire was drawn up and approved by the authors in such a way that it would be simple and very easy to understand. It consisted of 16 closed questions that addressed topics such as the number of years of experience and the annual number of surgical procedures performed by the

surgeons, and a variety of factors relating to treatment and rehabilitation of rotator cuff injuries of the shoulder (Annex 1). The questionnaire was applied to orthopedic surgeons during the 3 days of the 45th Brazilian Congress of Orthopedics and Traumatology, in 2013. Only orthopedists who performed surgery filled out the questionnaire. In this manner, 207 questionnaires were filled out, but five were incomplete and were excluded. Thus a total of 202 questionnaires were evaluated. To resolve any possible doubts while the forms were being filled out, two researchers were present throughout the period when the questionnaires were applied.

Descriptive statistical analysis was performed on the variables involved in the data retrieved from the questionnaire, in order to characterize the sample.

The data were analyzed using the SPSS for Windows software, version 16.0, and the significance level used was 5%.

Results

The distribution of the surgeons as a function of their region of origin and number of years of experience is shown in [Table 1](#). Approximately 62% of the surgeons were from the southeastern region, and 38.7% were specialists in shoulder and elbow surgery. In relation to the number of rotator cuff repair performed per year, 21% of the surgeons performed more than 60. In this case, a direct and statistically significant relationship between the number of repairs and the length experience in orthopedics and in the specialty of shoulder and elbow surgery was noted ($p < 0.001$) ([Table 1](#)).

Table 1 – Description of the number of repairs according to the specialty.

How many rotator cuff repairs do you do per year (number per year)?	Specialty				Total		p
			Shoulder		Others		
	n	%	n	%	n	%	
<20	8	17.4	58	79.5	66	55.5	< 0.001
20–30	9	19.6	6	8.2	15	12.6	
30–40	5	10.9	3	4.1	8	6.7	
40–60	2	4.3	3	4.1	5	4.2	
>60 cases	22	47.8	3	4.1	25	21.0	
Total	46	100	73	100	119	100	

Table 2 – Description of the type of repair according to specialty.

What type of repair do you use?	Specialty				Total		p
	Others		Others				
	n	%	n	%	n	%	
Single row	33	71.7	27	37	60	50.4	0.002
Double row	8	17.4	23	31.5	31	26.1	
Transosseous stitch	4	8.7	15	20.5	19	16.0	
Transosseous equivalent	1	2.2	8	11.0	9	7.6	
Total	46	100	73	100	119	100	

Table 3 – Description of the duration of immobilization recommended, according to specialty.

How much immobilization time do you recommend?	Specialty				Total		p
	Shoulder		Others				
	n	%	n	%	n	%	
Early rehabilitation	2	4.3	12	16.4	14	11.8	0.020
<3 weeks	4	8.7	16	21.9	20	16.8	
3–6 weeks	31	67.4	36	49.3	67	56.3	
Depends on the injury	9	19.6	9	12.3	18	15.1	
Total	46	100	73	100	119	100	

With regard to the type of repair performed, 50% of the surgeons used anchors configured as a single row and 26% as a double row. We found that the repair configuration (single row) and the type of technique (arthroscopic) showed a statistically significant relationship with the specialty of shoulder and elbow surgery ($p < 0.05$) (Table 2).

The shoulder surgeons agreed in relation to the length of postoperative immobilization (3–6 weeks) and the time taken

to return to sports (>6 months). Both of these showed a significant difference in relation to surgeons in other specialties (Table 3).

In defining irreparable injuries, the shoulder specialists used the degree of fatty infiltration more frequently than did surgeons in other specialties ($p < 0.01$) (Table 4).

Lastly, the shoulder surgeons indicated surgical treatment at an earlier stage, in relation to both traumatic injuries

Table 4 – Description of the criteria for irreparable injury, according to specialty.

What criteria do you use for classifying injuries as irreparable?	Specialty				Total		p
	Shoulder		Others				
	n	%	n	%	n	%	
Acromion-humerus distance	18	39.1	38	52.1	56	47.1	0.010
Fatty infiltrations	23	50	16	21.9	39	32.8	
Patient's age	4	8.7	13	17.8	17	14.3	
Number of tendons affected	1	2.2	6	8.2	7	5.9	
Total	46	100	73	100	119	100	

Table 5 – Description of the duration of treatment for traumatic injuries before the procedure, according to specialty.

What is the average duration of physiotherapy that you prescribe before indicating surgery for traumatic rotator cuff injuries?	Specialty				Total		p
	Shoulder		Others		n	%	
	n	%	n	%			
Immediate surgery	27	58.7	14	19.2	41	34.5	< 0.001
2 months	8	17.4	12	16.4	20	16.8	
2-6 months	11	23.9	37	50.7	48	40.3	
>6 months	0	0.0	7	9.6	7	5.9	
I don't operate	0	0.0	3	4.1	3	2.5	
Total	46	100	73	100	119	100	

Table 6 – Description of the duration of treatment for degenerative lesions, according to specialty.

What is the average duration of physiotherapy that you prescribe before indicating surgery for degenerative rotator cuff lesions?	Specialty				Total		p
	Shoulder		Others		n	%	
	n	%	n	%			
Immediate surgery	5	10.9	5	6.8	10	8.4	< 0.001
2 months	8	17.4	8	11.0	16	13.4	
2-6 months	32	69.6	34	46.6	66	55.5	
>6 months	1	2.2	17	23.3	18	15.1	
I don't operate	0	0.0	9	12.3	9	7.6	
Total	46	100	73	100	119	100	

Table 7 – Description of the type of anchor according to specialty.

What type of anchor do you use?	Specialty				Total		p
	Shoulder		Others		n	%	
	n	%	n	%			
Metallic	23	50.0	42	57.5	65	54.6	0.494
Bioabsorbable	22	47.8	27	37.0	49	41.2	
Peek	1	2.2	3	4.1	4	3.4	
Others	0	0.0	1	1.4	1	0.8	
Total	46	100	73	100	119	100	

and degenerative lesions, than did specialists in other areas ($p < 0.01$) (Tables 5 and 6).

The results relating to the anchor material used (Table 7) and the most frequent types of complications (Table 8) were not statistically significant.

Discussion

The incidence of complete tears of the rotator cuff ranges from 5% to 40%. Epidemiological studies have correlated increased

Table 8 – Description of the main complications observed, according to specialty.

Main complications observed	Specialty				Total		p
	Shoulder		Others		n	%	
	n	%	n	%			
No complications	5	10.9	4	5.5	9	7.6	0.135
Infection	0	0.0	3	4.1	3	2.5	
Repeated rupture	15	32.6	33	45.2	48	40.3	
Adhesive capsulitis	26	56.5	32	43.8	58	48.7	
Reaction to anchor	0	0.0	1	1.4	1	0.8	
Total	46	100	73	100	119	100	

frequency of these injuries with advancing age. Symptomatic lesions of the rotator cuff are commonly seen during daily clinical practice. According to Dias et al.,¹ rotator cuff tears are the most frequent cause of pain during day-to-day activities, and they have greater prevalence among women and on the dominant side. According to a systematic review published by Ejnisman et al.,² no studies with a high level of evidence have demonstrated what the best approach should be, in dealing with rotator cuff injuries.

Likewise, there is no standard approach used by Brazilian orthopedists. The novel feature of the present study was that its aim was to show the approaches used among orthopedists who were members of the Brazilian Society of Orthopedics and Traumatology (SBOT), in relation to this injury. The greatest representation in our sample comprised orthopedists working in the southeastern region of Brazil, which portrays the situation in this country, in which there is no lack of professionals, but there is poor distribution of physicians between the different regions.

From the data obtained, it can be perceived that the greater the degree of specialization in this area (shoulder and elbow surgery) and the greater the surgeon's experience were, the larger the number of repairs performed was. The specialists in this area indicated surgical treatment at an earlier stage, independent of the etiology of the lesion (traumatic or degenerative). This can be explained because in our sample, the surgeons defined injuries as irreparable on the basis of the degree of fatty infiltration, and not according to the size of the lesion, which demonstrates their concern regarding the evolutionary nature of the injury.

Currently, there are no studies with a high level of evidence that prove that a double row is superior to a single row, especially through clinical assessments done using functional scales (UCLA, DASH, Constant or ASES).³⁻⁹ However, the latest two articles describe a biomechanical advantage from fixation and better reestablishment of muscle strength among patients who underwent repair by means of a double row, compared with a single row. Although the double-row technique does not show functional superiority over the single-row technique, surgeons require greater skill and experience to perform the double technique. However, in our sample, there was no statistical correlation between the type of repair performed and the surgeon's degree of experience or level of specialization. Nonetheless, our data showed that the current preference of shoulder surgery specialists is for the single-row technique. The strong point of our study is that it provided a current portrayal of the approaches used by Brazilian orthopedists in relation to treatments for rotator cuff injuries, and that it proves data for guiding the training of residents in shoulder and elbow surgery at services

accredited by the Brazilian Society of Shoulder and Elbow Surgery.

Conclusion

Shoulder surgery specialists in Brazil have a greater tendency to indicate surgical treatment for rotator cuff injuries at an earlier stage than do non-specialists. There is currently a preference among Brazilian shoulder surgeons for performing repairs using a single row of anchors.

Conflicts of interest

The authors declare no conflicts of interest.

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