Original Articles

Asistance Quality Standards in Rheumatology

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Objective: To develop standards for quality of care and processing times in rheumatology.

Materials and methods: After a systematic review of the literature, a working group of 10 rheumatologists and 2 methodologists selected 164 indicators of quality of care and processing times. A panel of 65 experts rated the indicators following a Delphi methodology.

Results: Among the most important of the 164 standards obtained were: maximum number of inhabitants per rheumatologist (40 000-50 000); minimum number of rheumatologists in a Rheumatology Unit (3); duration of the first visit (30 minutes) and successive visits (19 minutes), ratio of successive/first visits (3.2); a rheumatologist should receive no more than 5 first visits/day and no more than 11 successive visits/day, and should spend no more than 5 hours on patients visits/day nor more than 4 days/week; the maximum waiting time for first visits should not exceed 4 weeks; the time needed to visit hospitalized patients (43 minutes on admission, 17 minutes for daily visit and 40 minutes at discharge); and time to carry out some of the most frequent procedures in rheumatology (12 minutes for arthrocentesis and infiltrations and 17 minutes for synovial fluid analysis).

Conclusions: This study establishes basic standards for quality of care, organization and process times. It is a useful tool for organizing a rheumatology unit, which can facilitate dialogue with health administrators and help improve the quality of rheumatology care.

Key words: Standards. Quality of care. Rheumatology.

Estándares de calidad asistencial en reumatología

Objetivo: Elaborar estándares de calidad asistencial y de tiempos de los procesos reumatológicos.

Material y métodos: Tras una revisión sistemática de la literatura un grupo de trabajo, constituido por 10 reumatólogos y 2 metodólogos, ha seleccionado 164 indicadores de calidad y de tiempos de proceso. Un panel de 65 expertos los ha puntuado mediante metodología Delphi.

Resultados: Entre los 164 estándares obtenidos destacan: número máximo de habitantes por reumatólogo (40.000-50.000); número mínimo de reumatólogos en una unidad de reumatología (3); tiempo de duración de la primera consulta (30 min) y la sucesiva (19 min), relación sucesiva/primera consulta (3,2); un reumatólogo no debe atender más de 5 primeras visitas/día y no más de 11 consultas sucesivas/día, no debe pasar consulta más de 5 h/día, ni más de 4 días/semana; el tiempo máximo de espera para la primera consulta no será superior a 4 semanas; el tiempo necesario para la visita de pacientes ingresados (43 min al ingreso, 17 min la visita diaria y 40 min el alta); tiempo para la realización de las técnicas más frecuentes en reumatología (12 min para artrocentesis e infiltraciones y 17 min para análisis del líquido sinovial).

Conclusiones: Este estudio fija estándares básicos de calidad, organización y tiempo, y es un instrumento útil para la organización de una unidad de reumatología, ya que facilita el diálogo con los gestores sanitarios y contribuye a mejorar la calidad de la práctica reumatológica.

Palabras clave: Estándares. Calidad asistencial. Reumatología.

Introduction

The Spanish Society of Rheumatology (SER) is a scientific organization that has the objective of promoting the study of rheumatic disease (bone, muscle, and connective tissue diseases) and attending the problems

related to the specialty.[1-3] In the field of Rheumatology there are a large number of diseases to which a great variety of diagnostic and therapeutic procedures are applied.[4] Variability is 1 of the characteristics of the medical profession, but on occasion it can compromise assistance quality and reduce efficiency. Aware of the need for standards that serve as reference points to reduce variability, the SER has promoted the study with the objective of elaborating quality standards and minimal time schedules for different rheumatologic procedures that allow planning for the development of rheumatology units and improving the quality of attention of patients. This study has been promoted, financed, and carried out by the SER during the administrations of 2 of its presidents, Drs. Jordi Carbonell Abello and Jesús Tornero Molina.

Material and Methods

A task force (TF) formed by 10 rheumatologists selected by the SER (please refer to the "Thank you" section) and 2 methodologists from a company that specializes in health-related research (Advanced Research Techniques for Health Care, Técnicas Avanzadas de Investigación en Servicios de Salud: TAISS) intervened in this study. In the first place, a systematic review of the literature was carried out with the objective of identifying the standards of quality available in the field of rheumatology. The bibliographic search was carried out in PubMed and related scientific journals related to this area of knowledge.[5-23] Based on this review, the TF elaborated a series of 210 indicators, which were prioritized based on their importance, finally selecting the 144 indicators that were considered most important. These indicators were scored by a panel of 65 experts (EP) (please refer to the "Thank you" section). Members of the EP selected by the TF had to be rheumatologists, having more than 5 years of experience and professional recognition; in that manner a geographic representation of almost all autonomous communities was achieved.

A 2-round Delphi methodology was employed (October 2004 to March 2005). EP scored the 144 indicators in the first round. In the second round, 164 indicators were scored (because 20 indicators had been added by EP recommendations during the first round).

The proposed indicators had different scoring formats: a) on an importance scale of 1 to 9; b) by assigning a numerical value; c) by electing an option (categorical standard); or d) assigning a priority order to a series of options. For each quantitative indicator (scale or numerical value) the number of panelists that scored it (N) was calculated as well as average estimators (mean and median) and dispersion indicators (standard deviation [SD]). Variability was calculated through the variation coefficient (VC=SD/mean), categorized as follows: a) very low

variability (VC <25%); b) low variability (VC, 26%-50%); c) moderate variability (VC, 51%-75%); d) high variability (VC, 76%-100%); and e) very high variability (VC >100%). The categorical response indicators included the calculation of the frequency of response in each of the categories.

Standards are divided into 5 groups: a) general standards for a rheumatology unit and its area of influence; b) standards for rheumatology consultations; c) standards for hospitalization of rheumatology patients; d) standards for time needed for rheumatology techniques; and e) research and resource formation standards in rheumatology. The complete list of these standards is presented as an annex available on the Internet, while Tables 1 to 3 and Figures 1 to 5 summarize the most important ones.

Results

Variability in scoring (VC) was low or very low on the majority of standards. The annex presents the summary of all of the scores and standards, and we will mention the most relevant of each division in the lines below:

General Standards for a Rheumatology Unit and Its Area of Influence

Here we grouped the general aspects of structure, organization, quality, and time in a rheumatology consult. In section A of the internet annex we show all of the scored standards and in Table 1 we present a summary with the most important ones. The maximal number of inhabitants per rheumatologist must be less than 50 000; a rheumatology unit must be formed by at least 3 rheumatologists, having a nurse available for every 3 consult offices, an auxiliary for every 2 consult offices, and an administrator for every 4 consulting offices; the organizational capacity, followed by clinical capacity, must have the highest value when running a rheumatology unit.

Specific Standards for Rheumatology Consultations

In section B of the internet annex we present all of the standards on structure, time, quality, and organization of the rheumatology consult, with the most important shown on Table 2. Figures 1 to 5 detail the time standards according to the type of disease. The average duration of a first-time rheumatology consult is around 30 min (Figure 1), second time consult (for results review), is 19 min (Figure 2), and for the rest of the successive visits, 17 min (Figure 3), with a ratio of successive/first consult in the first year of follow-up of 3.2 (Figure 4); maximal time for

TABLE 1. Summary of the General Standards for a Rheumatology Unit and its Area of Influence

At least 1 rheumatologist for every 40 000-50 000 inhabitants

At least 3 rheumatologists in every unit

The unit must have an adequate architectural design, procedures room, and meeting room

The unit must have adequate computer infrastructure

There must be at least 1 polarized light microscopy and an echography

There must be 1 nurse for every 3 consult offices, 1 auxiliary for every 2 consult offices, and 1 administrator for every 4 consult offices

At least 1 nurse must be available at every rheumatology clinic

The same physician must follow patients

Guidelines, acting protocols, and total quality programs must be in place

The rheumatologist must have teaching activities in primary care

Organizational capacity is the most precious element when running a rheumatology unit

TABLE 2. Summary of Standards for a Rheumatology Unit

Time of consultation during the first visit must be approximately 30 minutes (40 minutes for systemic disease and 21 minutes for osteoarthritis)

Time of consultation for the second visit is approximately 19 minutes (24 min for systemic disease and 14 minutes in osteoarthritis and crystal arthropathy)

Mean time for successive visits must be 17 min (from 23 min in systemic diseases to 13 min in osteoarthritis, and crystal arthropathies)

The ratio of successive/first visits for the first year of follow up is 3 (from 5 in systemic disease to 2 in fibromyalgia)

The maximal waiting time for the first consult must no be over 4 weeks. The maximal waiting time between the first consult and the follow up must not surpass 4 weeks. The maximal waiting time between the first consult and the next one to examine results is approximately 2 weeks for systemic diseases and 6 for fibromyalgia. Maximal waiting time for the rest of the successive visits is around 3 months for patients with inflammatory and systemic disease and 9 for patients with metabolic bone disorders

A rheumatologist must not see more than 5 first time visits and no more than 11 successive visits a day, must not spend more than 5 hours a day attending consults, nor more than 4 days a week

The rheumatologist must follow practically all of the patients with systemic and inflammatory joint disease, approximately half of the patients with osteoporosis and crystal arthropathies, a fourth of the patients with osteoarthritis and local pain syndromes, and only a sixth of patients with fibromyalgia.

Monographic reviews are recommended

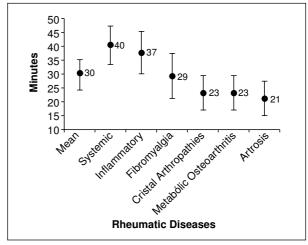A standardized report must be typed on a computer

the first consult to occur is 4 weeks; a rheumatologist must not devote more than 5 hours a day to consultations and see no more than 11 consecutive patients, nor spend more than 4 days a week seeing consultation patients; the rheumatologist has to follow practically all of the patients with systemic disease or joint inflammatory disease, and only a sixth of the patients with fibromyalgia (Figure 5).

Specific Standards for the Process of Hospitalization in Rheumatology

The hospitalization process requires of structure standards, clinical activity, organization, and specific times, which are presented in their entirety in section C of the internet annex. Table 3 presents the most relevant. A minimal of 3 beds in the rheumatology unit are needed for every 100 000 inhabitants; the mean stay, according to the type of hospital must be between 7 an 9 days; each rheumatologist mustn't have over 7 hospitalized patients, and time necessary for the attention of hospitalized rheumatologic patients, which varies according to the type of rounds, or if the patients are hospitalized in the rheumatology department or in a day clinic (Figure 6).

Standards for Diagnostic Techniques and Treatment in Rheumatology

With respect to techniques, only standards of care were elaborated (section D of the annex), given the complexity

Figure 1. *Duration time (min) of the first consultation according to rheumatic disease*

of obtaining quality standards and the fact that the structure standards have been presented in the general standard and rheumatology consultation standards paragraph. A summary with the most relevant data is presented on Table 4. The usual techniques (infiltrations, arthrocentesis) require
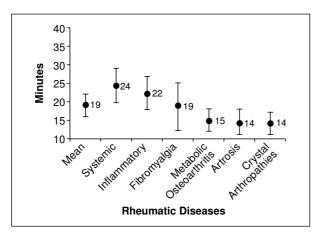
Figure 2. Duration time (min) of the second consult according to the type of rheumatic affection.
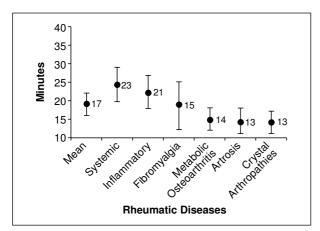

Figure 4. Relationship between successive visits and the first consultation according to the type of rheumatic disease.

Figure 3. Duration time (min) of a successive consultation according to the type of rheumatic affection.

Figure 5. Percentage of patients, according to affection, that must continue their attention by the rheumatologist after the first visit.

a minimum of 12 min and the search for crystals in the synovial fluid, 16 min. Necessary time for biopsies are between 19 min for subcutaneous fat biopsy to 50 min for a bone biopsy. Pain treatment procedures (epidural blocks, nerve block, sacroiliac infiltration), as well as synovectomy require approximately 30 min.

Standards for Research and Resource Formation in Rheumatology

The elaboration of a set of standards for resource formation and especially research is a particularly complex topic, choosing to select only a few basic standards (section E of the Annex), in Table 5 we present a summary of the most important ones. Minimal recommendations on the number of weekly sessions (according to whether or not there is a formation program at the center), and on the
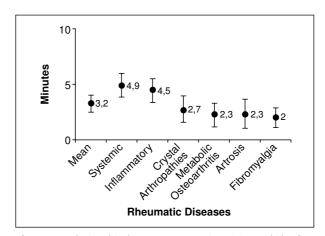

Figure 6. Time of activity (min) with hospitalized patients.

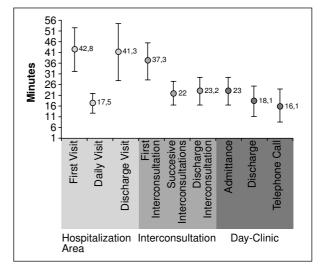**TABLE 3. Summary of the Standards for the Hospitalization Process in Rheumatology**

For every 100 000 inhabitants in the area, there must be at least 3 beds in the rheumatology unit

One rheumatologist can have a maximum of 7 patients under his care in a hospitalization area

The mean general stay (in days) of rheumatologic patients depends on the type of hospital: local, 7.3; reference, 9.2, and teaching, 9.5

The time necessary to attend hospitalized patients: 1st visit, 42 min; daily visit, 17 min; discharge visit, 41 min. time for interconsultation, 37 min. Time for the patient in the day clinic, 23 min

TABLE 5. Summary of the Standards for Research and Resource Formation in Rheumatology*

Three weekly sessions are recommended in units with RP training programs and at least 1 in units with no RP training programs

Rheumatologists must dedicate at least 15% of their time to research, 10% to resource formation, and 10% to teaching (in the case of RP tutors, teaching time would increase to 25%)

Rheumatologist's research activities must enable scientific production of, at least, 1 participation per year in national congresses, as well as a publication in a scientific journal once every 1-2 years

Administrators should promote, at least, 1 research project for every 5 practicing rheumatologists.

*RP indicates resident physician

TABLE 4. Summary of the Time Standards for Technique Performance in Rheumatology

Minimal time for the most frequent techniques in rheumatology is approximately 15 minutes (12 min for intra-articular injection and infiltration and 16 minutes for the synovial fluid analysis)

Ultrasound guided infiltrations, pain treatment techniques and radiosynovectomy must last approximately 30 min

The time for performing biopsies is approximately 19 min for subcutaneoaus fat biopsy and 50 minutes for bone biopsy

The estimated time for an ultrasound is 30 min, 15 min for a capillaroscopy, and 19 for a densitometry

number of scientific communications, publications, and research projects that should be developed by a rheumatologist are shown. An optimal distribution of the time dedicated to teaching and resource formation is also established.

Discussion

The intimate connection that professional health practice has with the right to health care has promoted specific and differentiated legislative attention for health-related professions as stated in Law 44/2003, dated November 21, regarding the order of sanitary professions (BOE 22-11-2003). As is recognized in title I of the law, on the exercise of sanitary professions: "Sanitary professionals develop, among other functions, a role is assistance, research, teaching, clinical care, preventive, informative, and health education fields."

All health professionals must actively participate in projects that may benefit the health and wellbeing of persons in situations of health and disease, especially in the field of disease prevention, education, research, and information exchange with other professionals and with health authorities to better insure such goals.

One of the important problems for the installation of new rheumatology services and for the management of those that are already established is the absence of solid quality and time standards. The SER has been dynamically studying the fundamental needs of the specialty in Spain in order to insure its progress.[1-3] In the same line, solid bases must be established for the development of rheumatology in Spain and SER has elaborated these standards for quality and minimal times, both for patient attention as for research. Other groups of professionals have carried out similar projects.[5,6,16] Special mention is deserved by the standards published by the British Society for Rheumatology (BSR)[19] and the Rheumatology Society of the Community of Madrid (SORCOM).[7]

The study was done through a literature review and a Delphi method with a task force formed by rheumatologists and independent researchers with experience in methodology. The panel was carefully selected with the objective that their opinion is representative of the whole of Spanish rheumatologists. The Delphi technique was developed by the RAND Corporation, United States, in order to carry out predictive studies and has been applied to diverse areas. There are numerous studies in medicine that employ this method.[24-27] The technique is applied through questionnaires on which it is complicated to obtain scientific evidence and based on the concept that a consensus coming from a group of experts provides a very approximate idea of the real dimension of a problem.[28,29]

Though the internet annex presents a complete report, the accompanying text shows a selection of the standards (Tables 1 to 5 and Figures 1 to 6), which are considered especially relevant for planning both structure and equipment, and organization of the rheumatology units. Recommendations on the minimal number of rheumatologists necessary for a proper attention in an area of influence (1 for every 40 000-50 000 inhabitants) and

in a rheumatology unit (at least 3) are made. Time of consultations is also established and differentiated according to whether it is the first, second, or successive visits and also, to the type of rheumatic disease; in this manner these times are needed to guarantee enough time for the assistance process. Apart from the duration of each consultation, standards can be found for organizing each consultation day to achieve an optimal equilibrium between the first consult and the successive ones, as well as what is the maximal amount of hours a day and days a week that the rheumatologists must work daily so that they can combine assistance activities with teaching activities, research, and resource formation. In this same way, maximal waiting list times according to the type of visit (first, second, and successive) are established and type of disease. Minimal time standards allow the accommodation of an approximate 13 to 15 patients a day per rheumatologist daily, while maximal time standards allow the stratification according to the type of rheumatic disease. In daily clinical practice, a progressive assistance care demand, with similar human and material resources, frequently results in the increase of patients seen by each physician and deterioration in the quality of care. However, it is possible that an important part of the consultation regard patients with diseases that, after being adequately diagnosed, not necessarily must be followed by the rheumatologist. In this sense, this study establishes the percentage of each disease that must be followed by the rheumatologist after the first visit.

Only certain groups of patients (inflammatory joint disease, connective tissue diseases, and a small percentage of other rheumatic diseases) must be followed in a rheumatology department, and the rest of the patients can continue their attention in primary care facilities, once the correct diagnosis is done and treatment has been installed.

Within the hospitalization process, standards for structure according to the area size are established: a number of 3 rheumatology unit beds for every 100 000 inhabitants are fixed.

As is the case with the consultations, minimal times necessary for the attention of hospitalized patients are recommended, recognizing the type of consults (first, daily, discharge) and staff (rheumatology staff and interconsultations to other departments), that are the base for planning the workload of the department. Recommendations on the mean stay facilitate the average time a patient must remain at the hospital, though this depends on the type of hospital and the complexity of patients.

Minimal times for diagnostic and therapeutic procedures are established, from the ones that are performed systematically during the consultations, such as arthrocenthesis or soft tissue infiltration, to infrequent techniques such as a bone biopsy. The application of these standards can help in accounting for time spent on these procedures.

When standards can be compared, agreement with other organisms is seen. For example, the recommended duration of first consultation of 30 minutes is the same as the one recommended by the BSR,[19] and in the same way, the maximal number of consultations/day that a rheumatologist must attend to are similar (5) or the maximum time between the first consultation and the successive ones (4-6 weeks).

With respect to the recommended duration of successive consultations, for the BSR[19] they would be only slightly inferior (15 min) to what's proposed in this study (17 min), and somewhat superior (20 min) to that proposed by SORCOM[7]; besides, SORCOM establishes a recommendation of 1 rheumatologist per 45 000 inhabitants, a number similar to the 40 000-50 000 recommended in this study. The American College of Rheumatology also recommends 1 rheumatologist per 45 000 inhabitants.[30] These similarities between equivalent documents, as well as the low variability among the members of the panel, indicate that the trustworthiness of these standards is high.

The process for obtaining these standards has taken over a year of work, as well as the implantation of a solid methodology, the collaboration with an important number of highly qualified and experienced rheumatologists, as well as the infrastructure of the SER. The methods for obtaining the standards are perfectly reproducible by other scientific societies that wish to obtain similar standards. An important number of standards, fundamentally regarding quality and time for rheumatologic attention, with a solid methodology that can serve as a basic document for planning structure, equipment, and organization of rheumatology units is definitely established. These standards should contribute to: *a)* improve assistance care; *b)* manage acceptable process times; *c)* appropriately establish human, technological, and structural resources; *d)* use the available resources in a cost/effective way; and *e)* avoid unacceptable differences in the access to or quality of clinical procedures in rheumatology.

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