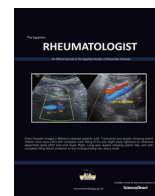




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## Original Article

## Analysis of referral letters to rheumatology consultation in Tunisia

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## ABSTRACT

**Aim of the work:** Our objective was to analyze the content and quality of referral letters to rheumatology consultation.**Patients and methods:** This is a cross-sectional study conducted on the rheumatology consultations in a tertiary hospital over six months (April–October 2014). Patients were interviewed and their rheumatology consultation referral letters analyzed. The relevance of referent reasons, suggested diagnosis and additional tests requested prior to recruitment were studied.**Results:** We studied 302 referral letters for rheumatology consultation. The average age of patients was  $55.34 \pm 15$  years (13–85). The sex ratio M/F was 0.3. All patients consulted for painful symptoms affecting mainly the lumbar spine (20%) and knees (20%). The current clinical problem was appropriately presented in 43% of the referral letters. Only 6 letters (2%) were illegible, 28 letters did not contain the consultation date (9%). General practitioners represented 59% of referring physicians. The age and patient history were more detailed in the letters written by physician specialists ( $p = 0.002$  and  $p < 0.001$  respectively). The complementary investigations were more requested by private sector physicians ( $p = 0.04$ ) and physician specialists ( $p = 0.011$ ). Of the 76 doctors who had proposed a diagnosis, 42 (55%) had proposed a correct one. The relevance of diagnoses showed no significant difference between GPs and specialists.**Conclusion:** Referral letters deserve more attention in order to improve communication between physicians and rheumatologists. Analysis of the quality of referral letters can be part of initial and continuing medical education. The referral letters have several shortcomings. A model referral letter has been proposed in this study.© 2017 Egyptian Society of Rheumatic Diseases. Publishing services provided by Elsevier B.V. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

## 1. Introduction

The referral letter is a device of communication between the referring doctor and the rheumatologist. The referring doctor must ensure that the referral letter has some criteria such as accuracy, clarity and relevance, since it will become a part of the medical record [1]. Otherwise, the referral letter would waste time and can raise risk of errors. Few studies have focused on the analysis of referral letters in rheumatologic consultation [2–6]. This cross-sectional study was conducted with the objectives to analyze the different parameters of the referral letter in rheumatologic consultation and to study the adequacy of consultations patterns

described on the referral letter, issued diagnoses and examinations requested in advance by the referring doctor.

## 2. Patients and methods

This cross-sectional study was conducted in the rheumatology clinic of Tunis El Manar University hospital over a 6-month period (April–October 2014). Patients who refused to participate in this study were excluded. All patients had a careful medical history and physical examination, and additional tests if necessary. A complete analysis of referral letter of each patient was carried out: readability, mention of the age, sex and the patient's medical history, the presence of the doctor's stamp, the mention of reference pattern or diagnosis issued by the doctor. The prescription of additional examinations was noted. The study conforms to the 1995 Helsinki declaration, was approved by the institutional ethical

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committee and all patients gave their informed consent prior to their inclusion.

### 2.1. Statistical analysis

The data were collected, tabulated and analyzed by SPSS package version 15 (SPSS corporation, USA). The data were presented as number and frequency and mean  $\pm$  SD (range). Mann–Whitney tests was used for comparative analysis of 2 quantitative data. Results were considered significant at  $p$  value  $<0.05$ .

### 3. Results

Five hundred new patients were sent for a rheumatology consultation during the period of this study. Of these, 302 patients (60%) were addressed with a referral letter. All the letters were handwritten. Only 6 referral letters were illegible (2%).

The date was specified in 274 referral letters (91%). Patient age was not specified in 48 referral letters (16%). The average age of the patients was  $55.34 \pm 15$  years [13–85] and the sex ratio M/F = 0.3. Patient history were specified in 140 referral letters (47%) and were more noted in the letters from assistants working in university hospital (UHA) ( $p = 0.016$ ). A stamp was affixed to 288 referral letters (95%). Twenty-eight referring physicians (9.3%) were from private sector and the rest were from the public sector (Table 1).

Physicians from university hospitals have specified more often patient's history ( $p < 0.001$ ). One hundred seventy-eight letters (58.9%) were from general practitioners (GPs). Distribution of

**Table 1**

Distribution of referral letters according to the referring establishment, referring physician specialty and their professional ranking.

Variable n (%)	Referrals N = 302	
<i>Establishment</i>		
Public sector		
University hospital	108	(35.8)
Regional hospital	16	(5.3)
District hospital	56	(18.5)
Community health center	92	(30.5)
Hemodialysis center	2	(6.6)
Private sector	28	(9.3)
<i>Specialty of referring physician</i>		
Orthopedic surgery	28	(9.3)
Gastro enterology	28	(9.3)
Emergency medicine	12	(4)
Pneumology	10	(3.3)
Cardiology	10	(3.3)
Rheumatology	8	(2.6)
Neurology	8	(2.6)
Endocrinology	4	(1.3)
Internal Medicine	4	(1.3)
General surgery	2	(0.7)
Thoracic surgery	2	(0.7)
Nephrology	2	(0.7)
Otorhinolaryngology	2	(0.7)
Pediatric	2	(0.7)
Ophthalmology	2	(0.7)
General practitioner (GP)	178	(58.9)
<i>Rank</i>		
Professor	6	(2)
University hospitals assistants	36	(11.9)
Chief physician	18	(6)
Senior physician	20	(6.6)
Hospital physician	16	(5.3)
Public health physician	72	(23.8)
Resident	2	(0.7)
Specialist physician	28	(9.3)
Unspecified rank	104	(34.4)

**Table 2**

Distribution of requested diagnostic investigations and reasons for rheumatology consultation.

Variable n (%)	Referrals (n = 302)	
<i>Requested investigation</i>		
Laboratory test	52	(17.2)
Plain X-ray	140	(46.4)
Bone densitometry	8	(2.6)
Magnetic resonance imaging	4	(1.3)
CT scan	2	(0.7)
Electromyogram	2	(0.7)
Bone scintigraphy	2	(0.7)
No requests	144	(47.6)
<i>Reason for consultation</i>		
Low back pain	62	(20.5)
Gonalgia	60	(19.9)
Polyarthralgia	60	(19.9)
Cervicobrachial neuralgia	36	(11.9)
Scapulalgia	24	(7.9)
Cervicalgia	20	(6.6)
Arthritis	12	(4)
Heel pain	12	(4)
Paresthesia	8	(2.6)
Osteoporosis	4	(1.3)
Others reasons	4	(0.14)

MRI: Magnetic resonance imaging, CT: computerized tomography.

specialties and professional rank of the referring physicians, being specified in 170 referral letters (56%) are shown in Table 1. The age and patient medical history were more detailed in referral letters written by specialized physicians ( $p = 0.002$  and  $p < 0.001$  respectively). 158 patients (52%) had a prescription of tests to be done before seeing the rheumatologist and plain X-ray was required in 46.6%. Other more specialized tests were requested in 18 patients (Table 2). Most of the tests requested by the referring physicians were incomplete (58%). Specialists asked for more X-ray than GPs (26% vs 4%) ( $p = 0.011$ ). Regarding the relevance of requested investigations, they were comparable between GPs and specialists (60% vs 55%). Laboratory tests prescribed by specialists tended to be more than from GPs (39% vs 27%). The prescription of laboratory tests was most noted in university and district hospitals ( $p = 0.013$ ). The comparison between letters from the private and public sectors showed a significant difference in specialized complementary tests that were most frequently requested by private physicians ( $p = 0.04$ ).

Pain was the main reason for consultation. Low back pain and knee pain were the most frequent reasons of consultation (Table 2). The reason of consultation was not specified in 2 referral letters (0.7%). The reasons of consultation, specified in 128 referral letters (43%) were consistent with the real reason of consultation reported by patients at the rheumatology consultation, while 104 letters (35%) had issued false patterns and 68 letters (22%) had issued incomplete patterns. The 6 illegible letters were considered as false patterns. 76 referring physicians (25%) had issued a diagnosis in their letter out of which 42 (55%) had issued a correct diagnosis. The percentage of referral letters with suggested diagnosis and relevance of diagnoses were similar between GPs and specialists (22% vs 31%). There was no impact of the physician specialty concerning the relevance of the suggested diagnosis. A model for referral letters for rheumatology consultation is proposed (Appendix 1).

### 4. Discussion

This study showed that the referral letters have several inefficiencies which depend mainly on the referring physician's profile.

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