

Letter

Internet based counseling to remote orthopedic patients

Sir—Internet-based counseling is a form of telemedicine that uses internet technology to inform or educate patients. We did a prospective study over 8 years to assess the efficiency of this type of counseling to underserved orthopaedic patients (Labiris et al. 2002). The patients could request information and professional advice on orthopedic matters via electronic mail. Their questions were answered by 31 physicians, including 18 consultant orthopaedic surgeons and general practitioners. The patients' age, sex, residence, social situation, and medical/orthopedic history were noted. The replies were given in everyday language. A quality-gap detection audit system monitored the service (Zeithaml et al. 1990). A seven-member expert committee supervised the scientific and ethical standards (Dyer 2001). Moreover, all cultural and religious differences in the various groups of patients were considered before answering the questions. The advisory role of the service was clarified and the importance of a physical examination and appropriate personal patient-doctor contact was emphasized.

Between 1993 and 2001, 1,234 patients asked for advice: 747 were men (43 (18–77) years) and 487 women (55 (32–75) years). Most came from urban areas in USA, EU, Canada, and Australia (Table 1). Inaccessible patients requested counseling for various reasons: 611 wanted to evaluate Internet-based health services; 277 were not satisfied with their physician; 44 explicitly stated that the local medical services were inaccessible/too expensive. Counseling was given to 1,021 patients (83%) (Table 2). The need for a physical examination and insufficient provision of medical data were the main reasons for failure to answer all requests. Apart from having their medical queries answered, a significant number of the inaccessible subjects participated in interactive educational sessions on common chronic diseases of the musculoskeletal system. During these sessions, groups of patients (i.e., with osteoporosis, rheumatoid arthri-

Table 1. Demographic data of the patients (n = 1556)

Location	Requests	Urban	Rural
E.U.	341	224	117
USA	274	131	143
Canada	95	82	13
Australia	58	45	13
Rest of Europe	111	94	17
Africa & M. East	179	116	63
S. America	107	74	33
Rest of world	69	54	15
Total	1234	820	414

tis) answered the available questionnaires and actively participated in internet-related "chats" in which the principal details of the relevant diseases were discussed—e.g., in the "osteoporosis" group, the importance of compliance to the physicians instructions and the need for dietary restrictions were strongly emphasized (Bourgon and Maillard 1998, Liel et al. 2001).

The quality audit of the service was determined by attaching the electronic mails to predetermined questionnaires, in Likert-scale forms, concerning the quality dimensions of responsiveness, empathy, and reliability. In descending numerical order, these patients complained of the predictable delays of the service, language barriers (the service was available in English and German only), and the local availability of the Internet. However, almost all patients (> 90%) favored this type of counseling and stated that they planned to use it in the future. It should be mentioned that due to technical problems the portal became inaccessible five times; this meant a total of 44 days on which counseling was not possible.

The internet physicians were interviewed by an independent psychologist and a group of IT experts. The general view was that Internet-based counseling can be used as a regular medical service. However, with present technology, it cannot replace conventional consultations with a physician (Kuppersmith 1999).

Table 2. Distribution of orthopedic requests

Category/Subgroup	Requests	Distribution
Systemic diseases	764	
Rheumatic conditions		174
Osteoarthritis		166
Osteoporosis		245
Infectious diseases		104
Other		75
Pediatric orthopedics	154	
Scoliosis		47
Club foot		31
DDH		28
Differential diagnosis (back pain, limp)		15
Other		
Sports injuries	143	
Anterior cruciate		33
Ligament rupture		68
Rotator cuff injuries		12
Muscle ruptures		22
Tendonitis		28
Other		13
Hand	81	
Carpal tunnel		45
Trigger finger		20
Congenital disorders		8
Other		8
Fracture complications	64	
Upper extremity		15
Tibia		19
Femur		20
Other		10
Miscellaneous	28	
Postoperative complications		11
Differential diagnosis		6
Congenital disorders		4
Other		7

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