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A VIDEOTEX APPLICATION FOR LARGE SCALE
EPIDEMIOLOGICAL STUDIES

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Since the early 1980s, the French government has placed at the disposition of telephone owners free programmed informational miniterminals (MINITEL) of easy use, offering the user a large number of data services through a national teledata network (TRANSPAC).

These services are extremely variable (from an automated phone-number search to an ordering of goods...), numbering more than 9,000, more than 1,000 of which are exclusively for professional use.

More than 50% of the French medical population is equipped with this service (corresponding to 4% of all terminals).

Among the available applications, 3.70% of the services concern health in general; most of them are destined for the general public (vaccination calendar, dietary information, health tips...)

The following study concerns the use of this means in carrying out an epidemiological study on a large scale: more than 60,000 questionnaires completed by more than 5,000 doctors (20,000 on paper, 40,000 by minitel).

1. INTRODUCTION AND CONCEPTS

From the first of March, 1988, to July 31, 1988, our organisation has effectuated for a French pharmaceutical company a clinical study concerning venolymphatic insufficiency of the lower members.

This investigation was based on the use of a questionnaire consisting in more than 15 items: sex, age, weight excess (no, slight, large), a pre-existing family history of this problem, exposed profession, tobacco use, number of pregnancies, use of oral contraception, practice of sports, presence of visible varicose veins, the length in years or months of the ailment. To this data was added a qualitative characterization of the complaint by the patient (any 4 words could be expressed), a subjective quantification by the patient on a visual scale from one to ten, and a measure of the skin temperature of the second interdigital space of the right and left foot by

means of an electronic thermometer furnished to the doctors participating in the investigation.

The doctors were free to choose to respond to this study using the paper form after a certain delay, or by means of a minitel terminal using the information gathering service that we had installed.

2. EQUIPMENT

The whole study was carried out on a Motorola (tm) compact computer VME 121 (microprocessor 68010, 160 megabytes disk, 8 megabytes of central memory) functioning under the operating system UNIX System V.

This compact computer was coupled to the TRANSPAC(X25) network by means of a Personal Computer.

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On the programming level, we were led to develop beforehand a "videotext monitor" handling the control of calls from the Teletel network to our machine and permitting to automatically send out a specific application : in our case a program which deals with the inputs through masks.

For this application we conceived in language C this program permitting a syntactic and semantic control at the time of input of each item. This program was also entered in the PC to permit the input of the manually completed questionnaires, input that was then transferred to our compact computer for analysis of the results.

For the data analysis, because of the problem raised by the treatment of the words describing a patient's complaint, we developed a specific and very general program functioning in four phases : first of all the program constructed a group of dictionary files corresponding to each item of the questionnaire. In a second phase an expert selected synonyms for the words in these lists that were coded in a third phase. The coded file was then analyzed in the final phase in which basical statistical calculations were performed (sums, averages, variances, correlations, etc)

3. RESULTS

Findings on the use of this means by the general practitioner, and contributions concerning venolymphatic insufficiency.

We observed for the reports received through minitel during the entire operation several parameters concerning the modalities of the use of this means by the practitioner ; region from which the call was made, day and hour of the call, the number of calls from each doctor; analysis of these parameters shows that each doctor reported an average of 10 cases investigations, that the connection was made the most often on Wednesday, that Saturday, Sunday, and Monday were "empty days", that the proportion in evening calls (after the evening meal) was far from negligible as opposed to the general population, and additionally that the doctors eat a noon and around 8 o'clock at night (cf fig a, b, c).

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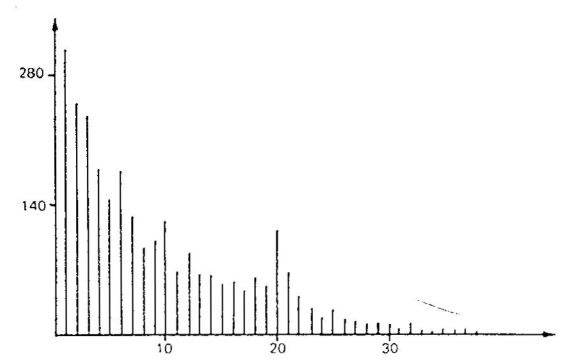


Fig a : number of minitel calls per doctor

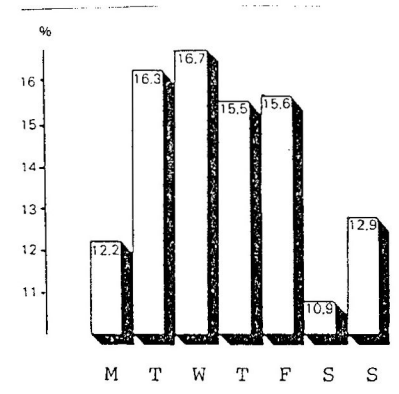


Fig b : number of calls (in % of the total number) related to the day of the week

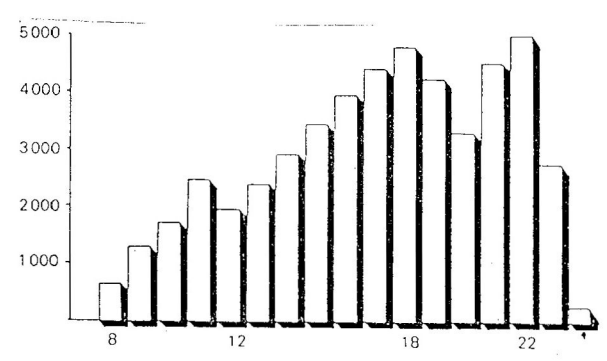


Fig c : number of calls related to the hour bracket

author	surname	initials	street
			city
			date
			tel. no.
			post. no.

Background

The gathered data gave a picture that confirmed what we knew implicitly : that women represent more than 85% of the patients consulting doctors for venolymphatic problems of the lower members, that the majority (55%) of them are between 20 and 40 years old, for more than 40%, they exercise a profession said to be exposed (haidresser, salesperson, etc...) and that family members are attained by the same pathology. The risk factors were in order tobacco, excess of weight and professional activity.

Men represented less than 15% of the patients included in the study. Compared to the female population, a greater homogeneity of the age was observed, with nonetheless a peak between 25 and 30 years. Almost half exercised an exposed profession and the notion of a family history of the ailment was found in a little more than 50% of the cases.

Analysis of keywords made possible a classification of the complaints expressing venolymphatic disorders of the lower members. These words are by decreasing order of frequency : heaviness, pain, edema, cramps, presthesia, varicose veins, burning sensation, bothersome and esthetic complaints.

Analysis of skin temperatures was the source of a surprise : there existed a constant difference in mean temperature measured between the right and left legs whatever the age. The right leg was warmer by approximately 1/2 a degree centigrade than the left leg (fig d). The average temperature of the legs was related to the duration of the pathology and decreased as duration increased.

4 .CONCLUSION

The development of videotex networks in many countries offers great practical possibilities to carry out on a large scale at low cost epidemiological studies of numerous subjects.

This study would not have been possible without the active participation of a pharmaceutical company in the framework of its activities. This company contributed the means of information that made possible the motivation of the nearly 5,000 participating practitioners.

The results obtained demonstrate the value of developing such investigation in different countries which would not fail to contribute to the practitioner's understanding of medication.

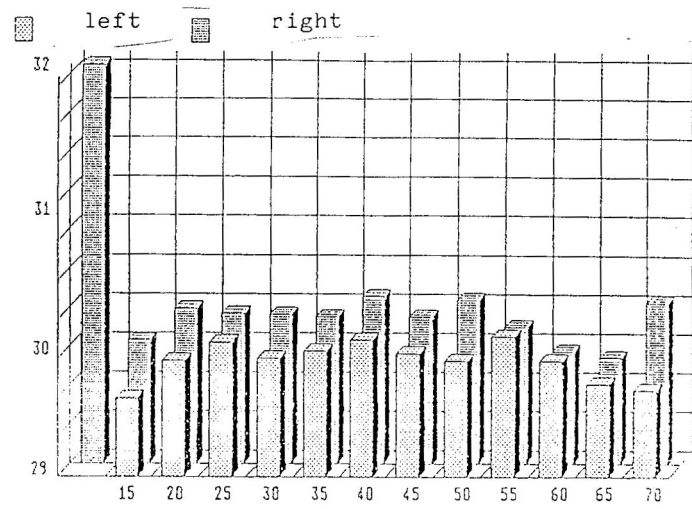


Fig d : Average leg's temperature versus age

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