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Epidemiology of Bone Fractures in the Hand in Adult Population Using the ICD-10 Classification

Epidemiologie zlomenin kostí ruky dospělých s využitím klasifikace ICD-10

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ABSTRACT

PURPOSE OF THE STUDY

The purpose of this study was to conduct an epidemiological study of hand fractures in adult population.

MATERIAL AND METHODS

A retrospective observational study in a population of 470,000 habitants was performed. Over the course of three years, all patients over 16 years of age who were diagnosed with fracture or fracture-dislocation at the level of a carpal bone, metacarpal and/or phalange were included. These fractures were classified according to the International Classification of Diseases 10th edition (ICD-10). Incidence rates, along with gender and age distribution were also studied.

RESULTS

1,267 patients with a total of 1,341 hand fractures were included. They represented 29.7% of all upper limb fractures and 7.6% of all traumatological emergencies involving a bone fracture during that period. The most frequent ICD-10 group was S62.3, with the fifth metacarpal as the most often affected bone (39.7%). The most frequent location at the level of the phalanges (S62.5) was the proximal third of the proximal phalanx of the fifth radius. The global incidence rate was 99 fractures per 100,000 persons/year. No seasonal variation was observed. Only 10.2% of hand fractures received surgical treatment.

DISCUSSION

Several epidemiological studies have been published on fractures in the hand, but none have used the ICD-10 classification. Although the distribution of our stratified sample by age and gender was similar to those previously published, the incidence rate in our study was much lower. We may possibly extrapolate our results to the rest of the Spanish population and even to the rest of the population of southern Europe, given the scarcity of epidemiological studies on this matter in these geographical areas.

CONCLUSIONS

The ICD-10 classification is useful for the description and classification of hand fractures. The most often affected group is that including metacarpals of the long fingers (S62.3), being the distal level of the fifth metacarpal in young male patients the most frequent one. Most fractures are treated conservatively and in case of surgical treatment, the preferred surgical techniques include K-wire fixation, interfragmentary compression screws and plate osteosynthesis.

Key words: epidemiology, incidence, fracture, fracture dislocation, carpal bones, metacarpals, finger phalanges.

INTRODUCTION

Fractures are an increasing burden on health resources due to population demographic changes and management strategies. Thus, an accurate understanding of their epidemiology is essential to assist in the allocation of health care resources (24).

After forearm fractures, hand fractures are the second most common fractures at the upper limb level and account for up to 20% of all fractures (6, 11, 14). There are many published works on fractures of the distal radius and proximal humerus, although epidemiological studies at the level of the hand are much scarcer, and there are no papers published in the Iberian Peninsula.

The purpose of this study was to conduct an epidemiological study of hand fractures based on the population of a health area of almost half a million patients during the 3-year period from January 1st, 2016 to December 31st, 2018. Our specific research goals were to find the following: the number of hand fractures that occur each year, the age and sex distribution of hand fractures, the location of those fractures and any seasonal variations.

MATERIAL AND METHODS

We performed a retrospective observational study, obtaining the data of all patients diagnosed and treated for hand fractures (carpus, metacarpal, or phalanges) in our hospital (tertiary hospital that covers a population of approximately 470,000 inhabitants, including both urban and rural areas) over three years.

Since September 2015, all patients who were assisted in the Emergency Department of our University Hospital

with traumatological pathologies in the upper extremity and who were attended by the Orthopaedic Surgery and Traumatology Service (OST) of the centre, have been collected in a database of the aforementioned service. From this database, patients who had attended the Emergency Department between January 1st, 2016 and December 31st, 2018 were analysed, and we selected patients diagnosed with a fracture at the level of the hand (carpal, metacarpal and/or phalanx).

Inclusion criteria

All patients over 16 years of age who were diagnosed with fracture or fracture-dislocation at the level of a carpal bone, metacarpal and/or phalange, including polytraumatized and pathological fractures.

The upper age limit of adolescence varies among regions and in our country, along with some other European countries, it is set at the age of 16 years for health related issues. Therefore, they are treated as adults from a healthcare point of view. Moreover, depending on factors such as the condition and the study design, it is justifiable to include paediatric adolescent subpopulations in adult studies (12). For this particular study we take into account that after puberty, all carpals, metacarpals, and phalanges are completely developed and their physes are closed by the age of 16 years in the vast majority of people (4).

Exclusion criteria

Those patients who met the inclusion criteria but were not from our health area. Patients who had dislocation of any bone of the hand without fractures.

The fractures were initially classified according to whether they affected the three main anatomical zones of the hand: carpus, metacarpals and phalanges. These were then classified according to the International Classification of Diseases 10th edition (ICD-10), which was elaborated by the World Health Organization (26). The ICD-10 classification is primarily used for statistical purposes and is accepted worldwide. This classification divides the fractures studied into eight major groups: Carpal scaphoid fractures (S62.0), Fractures of the rest of carpal bones (S62.1), Fracture of the first metacarpal (S62.2), Fracture of other metacarpal bones (S62.3), Multiple fractures of metacarpal bones (S62.4), Fracture of the thumb (S62.5), Fracture of another finger of the hand (S62.6), Multiple fractures of the fingers of the hand (S62.7), Fracture of other parts and unspecified parts of the wrist and hand (S62.8). Patients who presented fractures in different groups of the ICD-10 classification at the same time were counted as independent patients in each ICD-10 group.

Collected variables

Location of the fracture, age at the time of trauma, sex, laterality, date of attendance, incidence rate, presence of accompanying luxation, whether it was an open fracture or not, and type of treatment performed (conservative or surgical), specifying in the latter case the technique used.

In fractures found in the metacarpal (MTC) and phalanges (from S62.2 to S62.7) we recorded the affected radius (or row) and the affected area within the bone (base, diaphysary or distal fracture: neck/head in the metacarpals and condylar in phalanges). In phalangeal fractures (S62.5-S62.7) the affected phalanx (proximal, middle or distal) was accurately recorded.

We stratified age by decades and five-year periods. Based on other multicentre epidemiology studies (8), we established a cut-off point at age 50 to divide the sample into young and older patients.

We calculated the incidence rate defined as the risk of developing a new condition over a specific period of time. In this specific case, the risk of an individual suffering a fracture of a ICD-10 group within the period of 1 year (16). We calculated the incidence rate as follows:

$$\text{Incidence Rate} = \frac{\text{number of events that occurred during a specific time period}}{\text{population at risk in a given time period}} \text{ x10n}$$

The demographic data of the population studied were collected from the annual reports of the years 2016, 2017 and 2018 published by the Regional Health Service.

Data collection was carried out by five resident internal physicians from the specialty of Orthopaedic Surgery and Traumatology (OST), and the analysis of the data was carried out by an independent observer (medical specialist in OST).

The study was approved by the hospital's ethics committee following the guidelines for the evaluation of quality of care. The researchers conducted the study according to the principles of the Helsinki Declaration. The study was conducted in accordance with the protocol and in compliance with the standards of good clinical practice, as described in the rules of the International Conference for Harmonization (ICH) for good clinical practice.

Statistical analysis

For the analysis of the data, we use SPSS v25 (IBM®). We described continuous variables by mean, standard deviation and minimum and maximum values. We described discrete variables through distribution of frequencies and percentages.

In the bivariate analysis, we used the Student-Fisher t-test for continuous variables and the Chi-squared for categorical variables. We used the Pearson and Spearman's correlation coefficients for the association between variables. We considered $p<0.05$ to be significant.

RESULTS

Over the 3 years we analysed, 16,644 patients assisted to traumatology emergencies, of which 4,264 (1,688 men and 2,576 women) were diagnosed with fractures at the upper limb level (25.6%). Of all these patients, 1,267 had hand fractures (29.7% of patients with fracture at the upper limb level) which represent 7.6% of all traumatological emergencies.

Characteristics of the population

The sample consisted of 840 men (66.3%) and 427 women (33.7%) with a mean age of 44.5 years (95% confidence interval (95% CI): 43.3–45.6 years). Counting each fracture individually, we recorded a total of 1,341 fractures (131 at the carpal level, 789 at the MTC level and 421 at the phalanges level) (Fig. 1). The distribution by sex, age, side, season of the year, presence of open fracture or treatment performed divided by groups according to the ICD-10 classification is shown in Table 1.

In 12 patients (0.9% of the sample), seven men and five women, the fractures were located in two different zones according to the classification (ICD-10) (5). The most frequent combination was the combination of groups S62.3 and S62.6 with six cases. No patient with bilateral fractures was recorded in the same emergency assistance.

The stratified sample, grouped by decades and gender, is described in Table 2. Around 61% of the sample were under 50 years of age. Divided by sex, we observed that 84.6% of patients under 50 years of age were men, achieving a male:female ratio of 5.5:1. This ratio changes to 1:1.7 (M:F) in people over 50 years of age. These changes in the ratios of men to women were maintained in virtually all groups.

Distribution of fractures

The distribution of fractures is shown in Figure 1. The most affected area was at the MTC level with 789 fractures (59%), with the most affected group being S62.3 (662 cases-49.4%). In this group, the most affected MTC was the 5th MTC, followed by the 4th MTC, 3rd MTC and 2nd MTC (Fig.1). Within the 5th MTC, the most frequent location (51.3%) was at the distal level with 266 fractures, being 88% of them at the neck level or boxer's fractures. In the other MTC, the most frequent fracture location was the diaphysis.

We recorded 42 patients in the S62.4 group. In most cases (37) only two MTC were affected, with the most frequent combination (20 patients) being the joint fracture of the 4th and 5th MTC.

At the level of the carpal, the most affected bone was the scaphoid with eighty-nine cases (group S62.0). The most affected bone in the group of the rest of the carpal bones (S62.1) was the pyramidal bone on 20 occasions (1.5% of the sample).

We recorded 425 phalangeal fractures (31.6% of all hand fractures) in 309 patients. Seventy-two cases were at the thumb level (S62.5), 302 individual fractures at the level of the long fingers (S62.6) and fifty-one cases involving fractures of various phalanges (S62.7) (Fig. 1). In this last group, in thirty-seven cases two phalanges were affected and in fourteen cases three phalanges. The most frequent association was P1 fracture of the 4th and 5th fingers. In the S62.6 group (phalanges of the long fingers), the most affected area was P1 of the 5th finger (Fig. 1). Specifically, more than half of those cases involving proximal area of the phalanx presented articular fracture. The least affected phalanx was the 2nd finger P3.

The most affected side in the sample was the right side. Divided into groups, we also found greater affectation in the right hand, except in groups S62.5 and

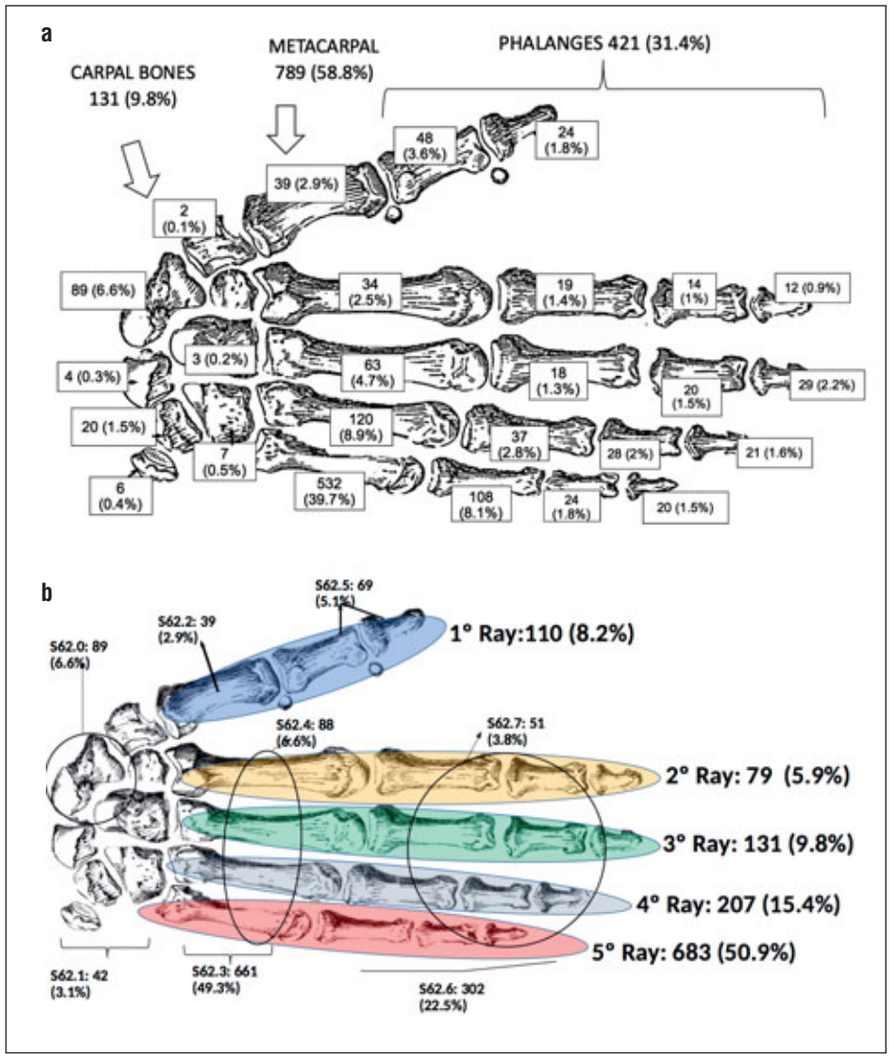

Fig. 1. Hand bone fractures frecuency (A) and distribution by ICD-10 classiffication group and affected ray (B).

Table 1. Sociodemographic characteristics and distribution of the sample

		ICD-10 Hand Fracture Classification									
		S62	**S62.0**	**S62.1**	**S62.2**	**S62.3**	**S62.4**	**S62.5**	**S62.6**	**S62.7**	**p**
Gender	Male	840	55	19	24	493	32	39	166	11	0.000
	Female	427	34	23	15	168	10	27	139	11	
Age	Years Mean (SD)	44.46 (20.7)	42.2 (20.2)	52.1 (18)	48.7 (23)	40.7 (20.4)	46.8 (23.2)	51.9 (21.3)	48.7 (19.5)	61.5 (18)	0.000
Age (decades)	< 20	153	12	1	4	96	5	5	30	0	0.000
	20-29	223	19	5	6	144	9	2	36	1	
	30-39	215	13	4	6	139	4	11	35	1	
	40-49	188	13	7	4	96	3	10	51	3	
	50-59	141	8	12	4	53	6	8	46	4	
	60-69	142	13	4	4	42	7	10	58	4	
	70-79	124	9	6	9	46	4	10	33	7	
	>80	80	2	3	2	45	4	6	16	3	
Laterality	Right	801	50	23	24	484	23	31	156	10	0.000
	Left	466	39	19	15	177	19	35	149	13	
Season	Winter	263	18	11	7	134	10	17	64	4	0.7
	Spring	328	23	9	13	172	8	17	79	6	
	Summer	368	33	10	8	200	14	12	83	8	
	Autumm	307	15	12	11	160	8	20	79	5	
Fracture		1232	88	41	27	648	41	66	301	21	0.000
Fracture-dislocation		34	1	1	12	13	1	0	4	2	
Open Fracture	No	1244	89	42	39	666	40	52	296	20	0.000
	Yes	22	0	0	0	0	0	4	16	2	
Treatment	Conservative	1138	69	42	25	608	34	60	279	20	0.000
	Surgical	129	20	0	14	53	8	6	26	2	
Surgical Treatment	Plate	41	0	0	1	31	4	1	4	0	0.000
	K-Needles	40	1	0	13	13	3	0	8	2	
	Screws	41	19	0	0	5	1	2	14	0	
	Suture	2	0	0	0	0	0	1	1	0	

S62.7 (Table 1). Similarly, all radius (or rows) were also more affected in the right hand.

Open fractures and associated dislocation

Only open fractures were recorded at the level of the phalanges (22 cases- 1.7% of the total), with these being more frequent at the level of P3 (9 cases), specifically in P3 of the 3rd finger (31.8% of the open fractures). Only 2.7% of all fractures had an associated dislocation (Table 1). At the level of the carpus, we found a dislocation fracture at the level of the scaphoid (S62.0) and another at the level of the semi-lunar (S62.1). At the level of the 1st MTC (S62.2) we found nine Bennet fracture-dislocations and three Rolando fracture-dislocations. We recorded 11 fractures classified as *Pseudo-Bennet* (ten in group S62.3 and one in group S62.4) at the level of the 5th MTC. At the level of the phalanges, we found six cases in the long fingers, four at the level of the proximal inter-phalanx (2 in the group S62.6 and 2 in group S62.7) and two cases at the level of the distal inter-phalanx joint (S62.6).

Seasonal variation

The season when we found more fractures was in the summer, with the months with the highest incidence being September and August (141 and 134 fractures respectively). Nonetheless, no statistically significant differences were found between groups (p=0.7) (Table 1).

Incidence

The global incidence rate of hand fractures was ninety-nine fractures per 100,000 persons/year ($x10^5$ persons/year), with women being $65x10^5$ persons/year and men $136x10^5$ persons/year. The incidence rate of the groups stratified by sex and age (decades) is shown in Table 3.

Table 2. Sample distribution by gender and age

ICD-10	Age	Gender			M:F Ratio
		Male	Female	Total	
S62.0 Scaphoid	<50 years	47	10	57	4.7:1
	>50 years	8	24	32	1:3
	Total	**55**	**34**	**89**	**1.6:1**
S62.1 Other carpal bones	<50 years	10	7	17	1.4:1
	>50 years	9	16	25	1:1.8
	Total	**19**	**23**	**42**	**1:1.2**
S62.2 First metacarpal	<50 years	15	5	20	3:1
	>50 years	9	10	19	1:1.1
	Total	**24**	**15**	**39**	**1.6:1**
S62.3 Other single metacarpal	<50 years	426	49	475	8.7:1
	>50 years	67	119	186	1:1.8
	Total	**493**	**168**	**661**	**3:1**
S62.4 Multiple metacarpal	<50 years	20	1	21	20:1
	>50 years	12	9	21	1.3:1
	Total	**32**	**10**	**42**	**3.2:1**
S62.5 Thumb	<50 years	25	7	32	3.6:1
	>50 years	14	20	34	1:1.4
	Total	**39**	**27**	**66**	**1.4:1**
S62.6 Other single finger	<50 years	112	40	152	2,8:1
	>50 years	54	99	153	1:1.8
	Total	**166**	**139**	**305**	**1.2:1**
S62.7 Multiple fingers	<50 years	4	1	5	4,0:1
	>50 years	8	10	18	1:1.3
	Total	**12**	**11**	**23**	**1.1:1**
Total	<50 years	659	120	779	5.5:1
	>50 years	181	307	488	1:1.7
	Total	**840**	**427**	**1267**	**2:1**

Table 3. Incidence rate distribution by gender and decade

ICD-10	S62	S62.0	S62.1	S62.2	S62.3	S62.4	S62.5	S62.6	S62.7
AGE	**TOTAL**								
15-19	**287**	30	2	**8**	**180**	**9**	9	56	0
20-29	**195**	15	3	**5**	**126**	**8**	3	32	1
30-39	**122**	8	3	**3**	**79**	**2**	7	20	1
40-49	**89**	4	4	**2**	**45**	**1**	5	24	1
50-59	**81**	6	7	**2**	**31**	**3**	5	26	2
60-69	**113**	9	2	**3**	**33**	**6**	8	46	3
70-79	**102**	7	5	**7**	**38**	**3**	8	27	6
≥80	**96**	2	4	**2**	**53**	**5**	7	19	4
TOTAL	**99**	8	4	**3**	**52**	**3**	5	24	2
AGE	**MALE**								
15-19	**514**	16	11	**14**	**326**	**18**	14	94	0
20-29	**329**	9	15	**9**	**224**	**14**	5	38	0
30-39	**197**	3	10	**3**	**135**	**5**	10	28	1
40-49	**145**	2	6	**3**	**83**	**3**	9	37	3
50-59	**90**	1	21	**4**	**39**	**7**	7	22	2
60-69	**97**	1	5	**5**	**29**	**5**	7	42	2
70-79	**66**	2	11	**5**	**18**	**5**	5	14	9
≥80	**42**	0	11	**0**	**25**	**0**	4	11	0
TOTAL	**136**	3	11	**4**	**80**	**5**	6	27	2
AGE	**FEMALE**								
15-19	**43**	1	0	**0**	**23**	**0**	4	16	0
20-29	**57**	0	0	**2**	**25**	**2**	0	25	2
30-39	**48**	2	7	**3**	**23**	**0**	5	11	0
40-49	**33**	1	17	**1**	**9**	**0**	2	11	0
50-59	**73**	2	24	**1**	**22**	**0**	2	30	2
60-69	**127**	4	4	**1**	**37**	**6**	9	50	4
70-79	**132**	3	18	**9**	**55**	**2**	11	38	3
≥80	**124**	1	11	**4**	**68**	**7**	9	23	5
TOTAL	**65**	2	12	**2**	**25**	**2**	4	21	2

Treatment

Most patients were treated conservatively, with only 10.2% of the sample receiving surgery. The type of surgical material used is shown in Table 1 and Figure 2.

DISCUSSION

Hand fractures are the most frequent fractures of the upper limb after fractures of the distal radius, and account for almost 30% of fractures at this level in our environment. In addition, they accounted for more than 7% of traumatological emergencies, which implies their high prevalence (13, 27).

Although several epidemiological studies have been published on fractures at the level of the hand (1, 2, 5, 11, 13, 18, 23, 25, 27, 29, 30) none have used the ICD-10 classification. This classification is widely accepted throughout the world and is used primarily for statistical purposes. We believe that it is important to use this classification in epidemiological studies to be able to make systematic comparisons between different populations.

The most significant finding of our study was that the most frequent group was S62.3, with the 5th MTC being the most often affected bone (39.7%) and fractures at the level of the neck of the 5th MTC or boxer's fractures, especially in young men. These data are comparable to those published by Laugharne et al. in the United Kingdom (18). The higher incidence of fractures at the level of the 5th radius is common in all epidemiological studies on fractures of the hand that we consulted (1, 2, 5, 11, 13, 18, 23, 25, 27, 29, 30). However, most of them report higher incidences at the level of the phalanges (5, 13, 27, 29, 30). This finding in our study could be due to the fact that, sometimes, fractures of the phalanges, especially at the distal level, may be underestimated and therefore not sent for assessment by the specialist in Orthopaedic Surgery and Traumatology.

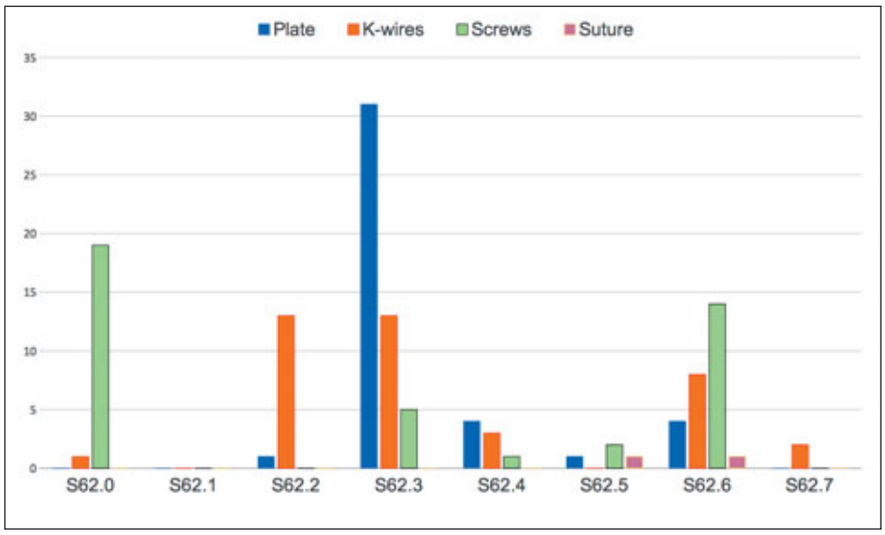

Fig. 2. Surgical material used in each ICD-10 group fracture.

At phalanx level (S62.5-S62.7) there is variability in the literature on the most affected area. Some studies report greater involvement at the P1 level (18, 23, 27, 29). This also occurred in our study where most of the fractures were found at the proximal level of P1 of the 5th radius. On the contrary, others report a higher incidence at the level of distal phalanges (1, 3, 13, 25).

Fractures at the carpal level accounted for 9.8% of our sample, with this being a somewhat higher proportion than that published in other studies (6-9%) (10, 13, 22, 27). Coinciding with the literature, the most affected group at this level was the S62.0 group (9, 10, 13, 17, 19, 22, 27). Nevertheless, within the rest of the carpal bones (S62.1) our distribution differs from that cited in other works (15) with the most affected bone being the pyramidal.

Unlike in other fractures of the upper limb, such as those of the distal radius or proximal humerus, which are considered osteoporotic fractures, at this level they are more frequent in young men. Packer and Shaheen report that this male predominance is related to sports and leisure activities, including fights (20). In our work we have not collected this variable since the origin could not be identified in a third of the cases. Other authors have justified this male predominance up to the sixth decade due to men performing heavy manual labour (27). As age increases, the proportion of women increases, although in no group of our series did we reach 1:2 M:F, which is a much lower proportion than that published in fractures of the distal radius or proximal humerus in the UK population (7). Anakwe et al found that metacarpal fractures are more common in men, while phalangeal fractures are more common in women (2). This was also observed in our study, where, contrary to what was observed with MTC fractures, phalangeal fractures occurred more frequently in women over 50 years of age.

Coinciding with other studies, most of the fractures occurred in the right hand (2, 5, 11, 13, 25, 27, 29, 30). According to the world's largest study, which was led by the National and Kapodistriaca University of Athens (Greece) and by the University of St Andrews (UK) (21), 10.6% of the world's population is left-handed, so, according to this work, most of the patients in our series must have injured their dominant hand.

Open fractures were seen in the areas most exposed to trauma, found at the level of the distal phalanx of the long fingers (S62.6) and also at the level of the proximal phalanx of the thumb (S62.5).

In our work, although we saw more fractures in summer, we found no statistically significant differences with respect to the rest of the seasons. This could be explained because, since they are the months with the best weather, more outdoor activities are carried out in all age ranges. In the Canadian cohort they also observed a higher incidence in Spring and Summer (11), while in northern Norway they found a higher incidence in the winter period (29). This finding was justified by the slippery winter conditions and polar darkness. In our area, the climate is oceanic and temperate.

The annual incidence rates of hand fractures published in the literature varies from area to area. In the United Kingdom, van Staa et al. published an incidence rate of 180 $x10^5$ persons/year in patients over 20 years of age (28), while in Canada, Feehan et al. found 290 $x10^5$ persons/year (11). Although the distribution of our stratified sample by age is similar to that published in these studies, the incidence rate was much lower (99 $x10^5$ persons/year). This may be due to the fact that, in the case of our health system, most of work accidents are referred to a concerted centre agreed with the insurer.

Court-Brown and Caesar conducted an epidemiological review of fractures in patients older than 12 years old

and classified the distribution of fractures into eight curves (7). In their work, fractures of the carpus, MTC and phalanges followed a unimodal distribution with a peak corresponding to young men. In our study, all groups followed this distribution except in the S62.1 group where we observed a peak in middle-aged men and women (50–59 years) and in the S62.7 group where the peak was observed in elderly patients (over 70 years old).

The indications for surgery in hand fractures depend on the location of the fracture. It is usually indicated in comminuted, open or intra-articular fractures. Any malrotation in the metacarpal bone or multiple fractures will require surgery. Few studies analysed the treatment of these fractures, and we found no studies that analysed the type of osteosynthesis material used. In our study, we treated 90% of the fractures conservatively. This was in a slightly higher percentage than the 79% published by Anakwe et al. (2) and Laugharne et al. (18). In our study, we treated the majority of open fractures (70%) conservatively, with the majority being located at the P1 level. At the carpal level, only 22.5% of the scaphoid fractures (S62.0) were intervened and we used an intramedullary screw for compression in almost all cases. At the level of the first MTC (S62.2), all fractures that were surgically intervened were at the proximal level, although only 50% included the joint. Most cases were synthesised with K-wires. In the rest of groups, the most frequent location where we performed surgical treatment was at the proximal level, except in the S62.3 group (long finger MTC) where it was more frequent at the diaphyseal level, usually by shortening or angulation. In this group, the most common osteosynthesis material we used a plate while in the rest of the groups it was interfragmentary compression screws and K-wires.

Our study has important limitations. The retrospective nature and relatively small population of the study are a limitation. Also, the results could be slightly biased taking into account that part of the work-related pathology in our population is diagnosed and treated in concerted centres. As strengths of the study, we may highlight that it was limited to the registration of a hospital centre where all the emergencies of the metropolitan area described are received, to which the entire population has access, given the system of comprehensive public health coverage that exists in our country. Another strong point is that we were able to collect all the hand fractures that occurred in the area described, whether they were treated in hospital or as out-patients, both conservatively and surgically. In addition, this is the only epidemiological study of its type that describes the surgical techniques used for the treatment of these fractures. We consider that we have selected a representative sample from our region for the epidemiological analysis of this pathology. We may possibly extrapolate our results to the rest of the population of central-southern Europe, given the scarcity of epidemiological studies on this matter in those geographical areas. However, comparisons with other published studies should be taken with caution, especially due to differences in patient selection criteria.

CONCLUSIONS

The ICD-10 classification is useful for the description and classification of hand fractures.

The most often affected group at the level of the hand is that including metacarpals of the long fingers (S62.3).

The most affected area is at the distal level of the fifth metacarpal in young male patients.

The most frequent location at the level of the phalanges (S62.5) is at the level of the proximal third of the proximal phalanx of the fifth radius of the hand. This fracture is more common in women over the age of 50.

In this study, we saw no seasonal variation and most fractures were treated conservatively. In case of surgical fractures, most were osteosynthesised with plates, K-wires or interfragmentary compression screws.

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