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Hip replacement in Central Greece: a critical view on patients' profile

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ABSTRACT

Introduction-Purpose: As elderly people tend to have an increase of percentage in the Greek population, health problems related to ageing, such as primary hip osteoarthritis will result in an increase of treatment demand of procedures like total hip arthroplasty. Identifying the key characteristics of these prospective, patients will be valuable for health professionals as well as in the design of hospital services and orthopedic clinics.

Materials and Methods: One hundred and eighty-three patients who underwent a total hip arthroplasty at the University Hospital of Larissa, Greece, were interviewed one year after their procedure. Their demographic and social characteristics were analyzed. In addition, we tried to identify associations or correlations that may be important for the general profile of a patient with primary hip osteoarthritis, in rural central Greece.

Results-Conclusions: Based on our study we conclude that for rural Greece, the common patient will be an elderly (60 to 79 y.o.) overweight (BMI>25) woman of low income and education, with strong support from the social network. Smoking and alcohol consumption do not seem to correlate with hip osteoarthritis. Forty percent of patients had not completed mandatory education. Health professionals (surgeons, nurses, therapists) should always have patient's satisfaction as a criterion for service quality evaluation and control.

KEY WORDS: hip osteoarthritis, hip arthroplasty, patient profile, arthroplasty in Greece, epidemiology of osteoarthritis, epidemiology of total hip arthroplasty

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Introduction

Total hip arthroplasty (THA), commonly known as hip replacement to repair the painful, degenerated and deformed hip joint, has been characterized as the "operation of the 20th century".[1,2] Osteoarthritis of the hip is a debilitating disease highly correlated with aging[3], excess body weight and overloading and represents a the key demographic factor for undergoing THA.[4-8] However the prevalence in relation to other demographic factors such as gender seems to vary, between age groups and different ethnicities. Dagenais et al.[4] found in their review higher prevalence in males, whereas Reginster demonstrates higher rates in females in the USA[9], as does Quintana et al. for Spain [10], whilst Pereira et al. don't find significant differences [11]. In addition Nevitt et al. found that Chinese tend to have lower prevalence of hip osteoarthritis compared with caucasian in the United States. [12] Osteoarthritis has a higher prevalence and incidence in men under the age of 50 years, but after the age of 50, women have a higher prevalence and incidence".

Some major factors we have to take into account are the differences in methodology and the various methods of diagnostics for Hip OA and the design of each research. [11] In addition the frequency of THA or its occurrence in a health care system may be influenced by socioeconomic factors even in countries with universal health coverage. [13]

The main purpose of this study is to identify the prevailing demographic characteristics of patients with primary hip OA that undergo THA in rural Greece. We aim to identify with relative certainty if our findings can be applied for all of Greece and if so, if there are important enough so that they must be integrated in the design of specialized services to provide THA in accordance to the demand.

Materials and Methods

Seven hundred and fifty patients from the region of Thessaly, a rural central Greece area with a population of farmers, underwent THA in the Department of Orthopaedics and Musculoskeletal Trauma at the University Hospital of Larissa. Of these patients, 374 were diagnosed with primary osteoarthritis (hip OA - M16.0 and M16.1 diagnosis according to ICD-10 standards) as the reason for admission to receive THA.

These 374 patients were reached out at a minimum of one year after the primary THA, for a phone survey based on a questionnaire about their general health, habits and disease profile. Age, sex, height and weight were crosschecked with the hospitals database and additional information about habits such as smoking, use of alcohol, their occupation and education along with social parameters were recorded. We were not able to reach 54 patients, 12 patients had died and 125 were reluctant to reply. As a result, full set of data was obtained only for 183 patients. These patients were interviewed by phone about their only or their latest primary THA procedure in our University hospital.

We analyze the demographic and social characteristics of the 183 patients with full data. We analyzed the differences between males and females and age groups. In addition we tried to identify associations or correlations that occur and may be of importance for the general profile of a patient in rural Greece with primary hip osteoarthritis.

Data results are presented in percentages and means are reported with standard error. Correlations are performed using the more robust and non-parametric Kendall's tau b coefficient. ANOVA or adequate non-parametric methods like chi-square for example, were utilized to compare different results and attributes. Statistical analyses were performed using SPSS Version software.

Results

The majority of the patients were female (71.6%) operated at a mean age of 65.32 years (se ±0.7) (37 - 84) (Table 1). No statistically significant differences in the age at operation was found between male and female ($p=0.96$). The majority (74%) of the patients were between 60 and 79 years, followed by the second smaller age group between 48-56. The men were an average of 10cm taller (173 cm ±1) and 10kg heavier (85kg ±1.5) than women ($p<0.00$) with a significant correlation at the 0.01 level (2-tailed). Men tend to have larger variance for height and women for weight, and overweigh individuals over 100 kg exist in both sexes. However when we test the BMI

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TABLE 1.

Sample characteristics and values

Sample size N=183		
	percentage %	
Females	71.6%	Sex differences
Social support	85.2%	No*
Illiterate	39.8%	Yes*
Smoking	26.3%	Yes*
Drinking	5.1%	Yes*
	mean ± se	
Height (cm)	165.2 ±0.5	Yes*
Weight (kg)	78.4 ±0.9	Yes*
BMI (kg/m2)	28.67 ±0.29	No*
Age (years)	65.32 ±0.7	No*

** statistically significant at the 0.05 level or better*

index (kg/m^2), no statistically important difference exists between the two sexes (p=0.71) (**Table 2**). Mean BMI is 28.67 (se ±0.29) that corresponds to overweight people (**Table 1**). A staggering low percentage of patients had BMI below 25 (15.8%) most of them are classified as overweight (53.1%) and a significant percentage are obese (31.1%).

Smoking and drinking habits do not seem to correlate with hip OA (Sturm, 2002) and most of the patients did not smoke tobacco (73.7%) or drink alcoholics (93.9%) but males differ from females for both habits (p<0.00) with higher percentages of smokers and alcohol drinkers with a significant correlation at the 0.01 level (2-tailed) (**Table 1**). The percentage of patients who had received an education beyond the six (at their time) years compulsory elementary school was relatively small. It was not clear whether they had completed elementary compulsory education. It appears that over 40% had not completed the mandatory education, so they are considered illiterate. This percentage is very large but reflects the social situation in Greece during the Second World War and the subsequent civil war. During this period specifically women's education was considered superfluous. Among our patients population few were working, while the largest percentage were retirees, followed by housewives. Comparing education and employment there are statistically significant differences between the two sexes (p<0.00), reflecting socio-economic parameters of the sample that do not affect the current survey. In general, males tend to have better education (p<0.00) whereas women might even be illiterate (40% of sample) due to the particular socioeconomic condition and the dominant culture at the time. (**Table 1**). Same conditions had all the men working while 40% of women were housewives. These findings could differ for urban areas and other European countries.

Another characteristic is the hip that was replaced. Our data show that there are no differences between sex (p=0.59) and the three categories (left hip, right hip, both hips) occur with equal probabilities (chi-square p=0.36) and do not correlate (Kendall's tau b) with any of the other parameters. In addition no correlation exists between age and having both hips replaced.

Social support was also investigated. Any of the patients that had at least one family member living with them (spouse or otherwise), or strong relationship with children, siblings etc that took care of them or spend a significant amount of time or money for their care during the time from the THA procedure to recovery were considered patients with strong social support. All other patients that had to rely mostly on themselves and/or paid assistance were considered patients without social support. Eighty five percent of patients had strong social support as another social parameter with 2 people on average, taking care of, or assisting them (**Table 1**). No differences for sex or age were found (p<0.00).

Lastly, another factor to take into consideration is the current health of the patients as it is simply defined by them. In the question: how do you assess your mobility, 55% answered that they have no problem and 44 that have some or few issues. These findings show that the patients have overcome their mobility limitations due to hip OA

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TABLE 2.

Between genders body characteristics

Parameters	Male	Female	P value
	mean ± se	**mean ± se**	
Height (cm)	172.98 ±1.02	162.21 ±0.46	0.000
Weight (kg)	85.34 ±1.5	75.64 ±1.1	0.000
BMI (kg/m2)	28.49 ±0.4	28.73 ±0.36	0.706
	mean ± se	**mean ± se**	
Age (years)	65.29 ±1.32	65.33 ±0.87	0.981

Figure 1. *Radiograph of an osteoarthritic left hip. The patient is debilitated secondary to pain and restriction of motion.*

Figure 2. *Total hip arthroplasty was performed to relieve patient's symptoms and provide a very functional hip.*

and their profile concludes for successful results. We believe there is bias introduced in our findings because patients that did not have a good final outcome or their mobility problems were not fully solved, did not answer our survey questionnaire. This should be taken into consideration when we generalize our findings.

Discussion

Our findings demonstrate that most patients who will undergo THA as a result of primary Hip Osteoarthritis in rural central Greece would be on the age group of 60 to 79 (**figures 1 and 2**). Females will dominate, and most patients will be at least overweight which is considered a major independent

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factor for the disease[14, 15] Most patients will also have a strong social support network during the hospitalization and rehabilitation periods.

The few male patients will most likely smoke and drink alcohol, have financial independence and be educated. Smoking has been studied and partly identified, as a preventing factor of knee Osteoarthritis[16] but not for hip OA. The majority of overweight women will be of low or none education won't smoke or drink alcohol, but will probably be economically dependent.

Our findings for age, sex, BMI as well as education and social support, agree with those of Dailiana et al.[17] for Greece (age 65, females 68%, social support 84%, obese at 23.5% and low education), as well as only for sex prevalence with the older and symptomatic defined OA study by Andrianakos et al.[18] where age of symptoms is at 47 years average. Similar results about sex and age of patients are found in Turkey[19], Spain[8, 20] and even Brazil[21] or North America.[22] Thus, we can safely assume that the identified pattern for rural central Greece can be applied for the entire country. A generalization for Europe is possible, for age and sex findings, but other factors vary. In Sweden, for example, Franklin et al.[23] can't identify a clear connection between BMI and hip OA and in addition, THA patients have BMI values smaller by three degrees average than our data.

The socio economic findings, do not seem to influence the prevalence of hip OA but can be important for patient – health specialist interactions and handling, affecting the compliance or understanding of patients for doctor's orders and rehabilitation recommendations. Moreover, misunderstanding or misinterpreting key aspects of the procedure, or preoperative preparations can occur. Thus, if not taken into account, education level could have a negative effect.

Although women's high percentage or BMI scores probably won't improve over time, social parameters will evolve as the ageing population evolves. So we argue that in a 20 year period women will be better educated and more economically independent. We cannot assume that social support will differ significantly. The issue that many studies demonstrate is that the demand for THA will rise. For example Turkiewicz et al.[24] estimate that by 2032, at least an additional 26,000 individuals per 1 million population aged ≥45 years will have OA issues, compared to 2012.

In conclusion, the ageing population will put extra burden on the health care system and the budget by increasing the demand for arthroplasty procedures. Women with relatively high BMI will continue to be the predominant group of candidates for THA. Orthopaedic surgery units should be appropriately equipped and have the personnel to carry out this service. All possible efforts to provide quality services and achieve patient's satisfaction should be continued. Patient-centered healthcare is the predominant model in modern healthcare provision.[25] Health professionals should always have patient's satisfaction as a criterion for quality control of health services provided.[26] By identifying the "average" patient's profile, better control of the therapeutic effects can be achieved.

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Conflict of interest

The authors declare no conflicts of interest.

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