An Approach to Gender Disparities Through the Evaluation of Sex Differences in Hospital Diagnoses in Spain 2016-2020

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Background

As it has been already demonstrated and stated in several works within diverse clinical specialties, there are many differences concerning sex and gender with respect to health such as pathophysiology, signs, and symptoms of a disease, diagnoses, and access to healthcare or interventions[1,2].

Objectives

All these differences found could lead to health inequities, and thus, we wondered what sex differences were found in Spain. As an approach to identify potential inequities in healthcare, we analyzed differences by sex in the primary diagnosis at hospital discharge.

Methodology

General groups of hospital discharge diagnoses (CCS, n=258) between 2016 and 2020 for individuals ≥14 years old were obtained by sex from the Spanish Health Service Minimum Data Set using ICD10-ES codification (RAE-CMBD[3]). According to the Spanish National Statistics Institute, rates per 100,000 inhabitants were adjusted by age and year. Rate ratios (RR) and 95%CIs were calculated to ensure a significant difference by sex. When possible, obtained ratios were compared with prevalence rate ratios found in the literature to identify potential disproportionalities in hospital admissions that could be indicative of disparities in management.

Results

We found that 61% of the rates in women were lower, 32% were higher, and 6% were equal. Conditions such as Foot deformities, Thyroid disorders, or Osteoporosis had an RR of 4.61 (95%CI 4.60-4.62), 3.56 (95%CI 3.54-3.57), and 4.02 (95%CI 3.97-4.06), higher in women, respectively. Contrarily, Gout and other crystal arthropathies, Urinary bladder cancer, or Cancer of the esophagus, had an RR of 6.16 (95%CI 6.13-6.19), 6.16 (95%CI 6.14-6.17), and 5.73 (95%CI 5.70-5.77) higher in men, respectively.

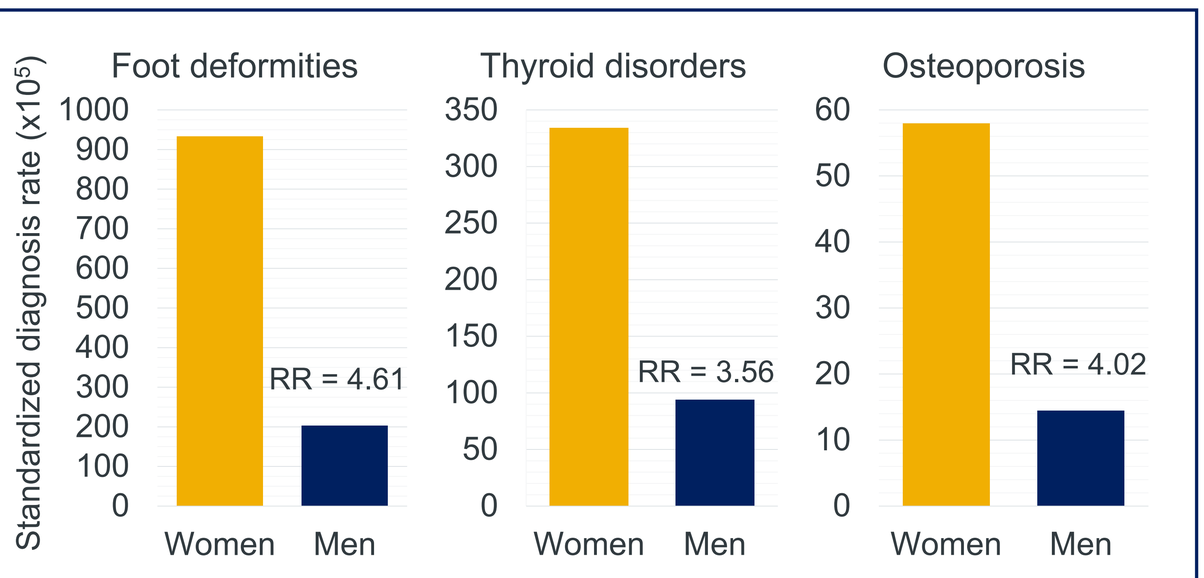

Figure 1: Sex differences in the main CCS

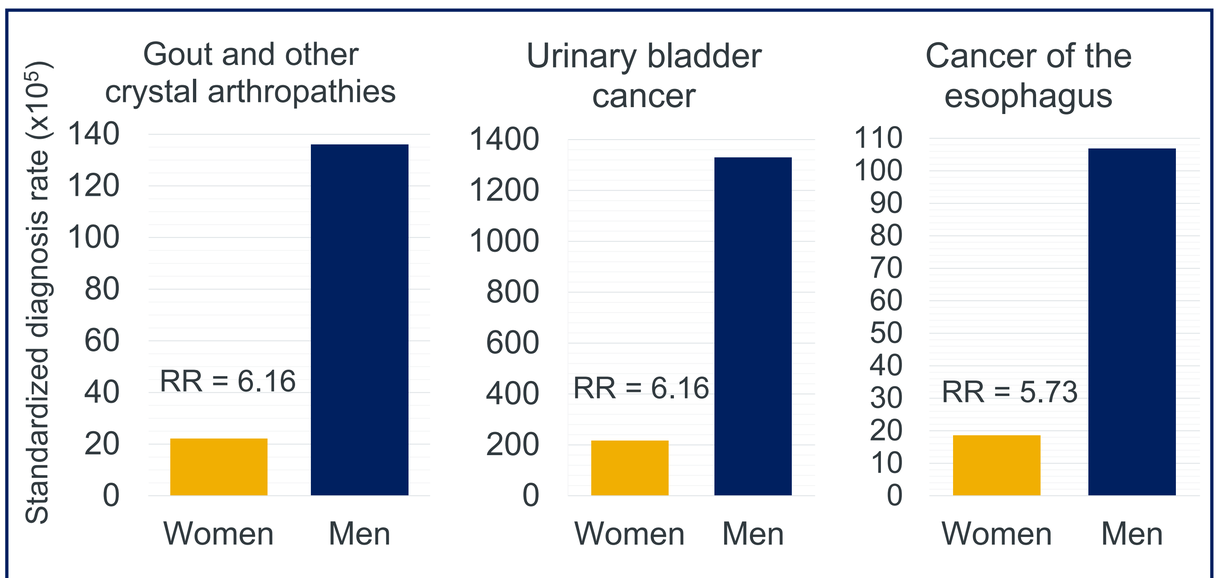

Figure 2: Sex differences in the main CCS

Figure 3 shows CCS RR found in this study vs the prevalence RR found in the literature. In some conditions highly skewed towards one sex (>75% prevalence of women or men), like Neck and Head Cancer, Systemic lupus erythematosus, Thyroid cancer, and Multiple Sclerosis we found lower CCS RR, indicative of a higher CCS rate of the minority sex.

CCS, Higher CCS rate in men	CCS RR	Prevalence RR
Gout and other cristal arthropathies	6.16	4-6[4]
Urinary bladder cancer	6.16	4.5-7[5]
Cancer of the esophagus	5.73	3.56[5]
Aortic, peripheral and visceral artery aneurysm	5.54	4-6[6]
Neck and Head cancer	3.89	10[5]
Disorders related to alcohol consumption	3.44	2.76[7]

CCS, Higher CCS rate in women	CCS RR	Prevalence RR
Osteoporosis	4.02	4.0[8]
Thyroid dysfunctions	3.56	1.35[9]
Systemic lupus erythematosus	2.86	9[10]
Thyroid cancer	2.52	4.22[5]
Asthma	2.27	1.55[11]
Multiple sclerosis	2.03	3[12]

CCS RR results are in accordance with prevalence RR found in the literature. CCS RR results are higher than prevalence RR found in the literature but follow the same trend. CCS RR results follow the opposite trend than prevalence RR found in the literature.

Figure 3: Concordance of CCS RR results with the expected trend based on prevalence RR found in literature.

Conclusions

In this analysis, we concentrated on the study of hospital discharge diagnoses by sex using a Spanish dataset, as an approach to identify potential inequities in healthcare. For some conditions highly skewed towards one sex we found higher hospitalization rates of the minority sex which could be indicative of potential suboptimal sex-specific detection or management. It should be highlighted that in the current disease selection, more discrepancies in the direction of higher than expected hospital discharge diagnosis rates for the minority sex were found in conditions with prevalence highly skewed towards women.

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