Do women really complain more then men? Looking at gastrointestinal chief complaints in Boston

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OBJECTIVE

We evaluated the sensitivity and specificity of a gastrointestinal syndrome group (GISG) using the Boston Public Health Commission (BPHC) syndromic surveillance system.

BACKGROUND

The purpose of syndromic surveillance is the early identification of disease outbreaks. Classification of chief complaints into syndromes and the type of statistics used for aberration detection can affect outbreak detection sensitivity and specificity. Few data are available on the relationship between chief complaints and demographics such as gender, age, or race. For example, myocardial infarction in women would be misclassified using definitions based solely on "male" symptoms such as chest pain because women more commonly report neck, jaw, and back pain. [1]

METHODS

We randomly selected 50,000 visits from 9 Boston adult emergency departments (ED) received by the BPHC syndromic surveillance system between 8/1/04 and 3/15/05. Information for each encounter included a unique identifier, chief complaint, gender, age, race, and ICD-9 coded primary diagnosis. We excluded 5,123 records for persons < 20 years of age, unknown age, and missing ICD-9 code. GISG was defined as abdominal pain, nausea, vomiting, or diarrhea. ICD-9 codes were categorized using the Centers for Disease Control and Prevention surveillance definitions for total GI.[2] Two subgroups were further defined as follows: Gi1 = codes for potential bioterrorism diseases of highest concern or disease highly approximating them and other specific diagnoses such as Salmonella, and Gi2 = codes that are placed in the GISG but dilute the aberration detection ability of Gi1 due to high daily volume. We determined the sensitivity and specificity of the GISG compared to the ICD-9 GI related codes (GIC).

RESULTS

The characteristics of the 44,877 patient were: 50% female, 43% Black, 30% White and 67% age 20-49 years. Of the 44,877 visits 4,483 chief complaints were classified as GISG (10%). Reported symptoms included abdominal pain (n=3,272), vomiting (n=1,094), nausea (n=865) and diarrhea (n=398). The sensitivity and specificity of the GISG were 76% and 94% respectively. Women were 1.8 times more likely to report GI complaints compared to men. Gender significantly modified the sensitivity and specificity for GIC. (p=0.0032) The proportion of visits among women with GIC, Gi1, and Gi2 was 7.7%, 2.3%, and 5.4% respectively, and 4.8%, 1.6%, and 3.2% respectively, for men. Of the 670 false negatives, 23 patients reported GI bleeding, with 20 reported by males.

Sensitivity and specificity of the gastrointestinal syndrome group (GISG) for chief complaints as compared to ICD-9 GI related codes .

	Male		Female	
	Sensitivity	**Specificity**	**Sensitivity**	**Specificity**
All GIC (n= 2795)	71%	96%	79%	93%
Gi1 (n=881)	75%	96%	84%	93%
Gi2 (n=1914)	69%	96%	76%	93%

CONCLUSIONS

The sensitivity of the GISG varied by gender. Many current systems classify chief complaints into an exclusive syndrome category. However, parsing symptoms reported in chief complaints may allow for the creation of timely and flexible syndrome definitions. Further evaluation is also needed to understand the role of demographic characteristics on chief complaint interpretation.

REFERENCES

[1] Herlitz J, Bang A, Karlson BW, Hartford M. Is there a gender difference in aetiology of chest pain and symptoms associated with acute myocardial infarction? Eur J Emerg Med 1999;6;311-15.

[2] Centers for Disease Control and Prevention. Syndrome Definitions for Diseases Associated with Critical Bioterrorism-associated Agents. [Accessed July 1, 2005] Available from URL: http://www.bt.cdc.gov/surveillance/syndromedef