

MODERATED POSTER SESSION 2 – THE GLOBAL PROBLEM OF HEART FAILURE

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Predictors of in-hospital mortality among hospitalized adult heart failure patients in the Philippines

R B Rudy Natividad¹; BA Tumanan-Mendoza¹; FER Punzalan¹; NS Pestano¹; VL Mendoza²; AAA Bermudez-Delos Santos¹; R Macabeo¹; LA Shiu¹

¹Manila Doctors Hospital, Department of Internal Medicine, Section of Cardiology, Manila, Philippines; ²De La Salle Health Sciences Institute, Dasmariñas, Cavite, Philippines

Background: Majority of the large cohort studies on heart failure involved Western countries and developed nations. The ADHERE International Asia-Pacific study was the only major cohort that included Asian nations, 7.1% of which, (out of a total population of 10,171) were from the Philippines. This research was done in conjunction with a nationwide prevalence study on acute heart failure, which is the first heart failure study to be done encompassing the entire Philippine archipelago.

Purpose: To determine the predictors of mortality among hospitalized adult heart failure patients in the Philippines

Methodology: The study is a nationwide retrospective cohort that involved all adult patients aged 19 years old and above hospitalized for heart failure in 2014. Data was collected from the hospitalization claims database of the Philippine Health Insurance Corporation (PhilHealth), a government corporation that administers the health insurance program for the country. Univariate and multivariate analysis was done in determining predictors of mortality

Results: A total of 44,046 hospitalized heart failure patients were included in the study, with an in-hospital mortality rate of 8.2%. Multivariate analysis was done using logistic regression which showed the following independent factors as predictors of increased in-hospital mortality: government hospital admission (odds ratio (OR) 2.14, 95% confidence interval (CI) 1.89 – 2.42), ward stay (OR 1.24, 95% CI 1.10 – 1.40), and regional classification to regions V (OR 1.42, 95% CI 1.07 – 1.87) and VII (OR 1.31, 95% CI 1.05 – 1.62). Independent variables associated with in-hospital survival are shorter length of hospital stay (OR 0.98, 95% CI 0.97 – 0.99), geographical classification under regions I (OR 0.72, 95% CI 0.58 - 0.89), II (OR 0.31, 95% CI 0.20 - 0.49), IX (OR 0.74, 95% CI 0.58 - 0.96), Cordillera Autonomous Region (CAR) (OR 0.59, 95% CI 0.44 - 0.78) and Autonomous Region of Muslim Mindanao (ARMM) (OR 0.41, 95% CI 0.23 - 0.73) and having hypertension (OR 0.68, 95% CI 0.59 - 0.77) and cardiomyopathy (OR 0.17, 95% CI 0.06 - 0.47) as the etiology of heart failure.

Conclusions: Heart failure patients in the Philippines are relatively younger compared to patients in the Western and developed countries. Government hospital admission, ward admission and residing in regions V and VII are the independent predictors of mortality for hospitalized adult heart failure patients in the country. Living in regions I, II, IX, CAR and ARMM and hypertension as the etiology of heart failure independently predict in-hospital survival. Ward admission and hypertension as the etiology of heart failure, as predictors of in-hospital mortality/survival, should be further validated. Future studies on the outcomes of heart failure should include more variables, clinical or non-clinical, to ascertain the most significant predictors of outcomes

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ABO blood group and cardiovascular outcomes in the general population: a meta-analysis

TM Tessa Marthe Kole¹; N Suthahar¹; K Damman¹; RA De Boer¹

¹University Medical Center Groningen, Experimental Cardiology, Groningen, Netherlands

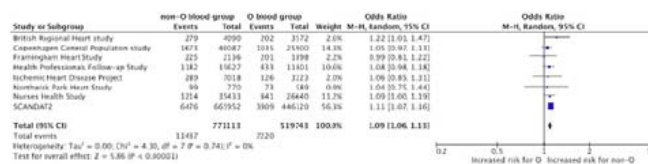
Introduction: It has been suggested that carriers of non-O blood groups (ABO groups A, B, and AB) have higher cardiovascular (CV) risk, including risk for myocardial infarction (MI), stroke, heart failure and CV death. However, this assumption

is mainly based on case-control studies, which showed a skewed blood group distribution in subjects with CV events, but have a low level of evidence.

Methods: We performed a meta-analysis of prospective studies reporting on blood group and CV events. We searched for terms "ABO blood group" and "myocardial infarction, coronary artery disease, ischemic heart disease, heart failure, stroke, cardiovascular events, cardiovascular mortality and all-cause mortality", and initially retrieved 531 articles. After exclusion of studies with diseased subjects and studies with inappropriate CV endpoints, 9 articles describing 11 prospective cohorts, that reported on CV morbidity and mortality in both O and non-O blood groups, remained.

Results: The total number of subjects included in all studies was 1,362,569, and they experienced 23,154 CV events. The odds ratio's (OR, with 95% Confidence Intervals, CI) for subjects having non-O blood groups compared to O blood group for fatal coronary events, all coronary events and combined CV events were 1.00 (CI 0.85-1.18; p-value: 0.98), 1.09 (CI 1.06-1.13; p-value: <0.00001) and 1.09 (CI 1.06-1.11; p-value: 0.006), respectively. Several sensitivity analyses did not materially change the results.

Conclusion: Our meta-analysis shows that subjects carrying non-O blood group have an increased risk of (nonfatal) CV events, especially myocardial infarction. Underlying mechanisms may vary, although this increased risk has been attributed to a higher concentration of von Willebrand factor and dyslipidemia in subjects with non-O blood group. Further studies should address if the excess CV risk of non O blood group is amenable to treatment.



Coronary events

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Real-world evidence on heart failure: findings from 25 thousand patients in a portuguese primary care database

R Raquel Ascencao¹; F Fiorentino¹; M Gouveia²; J Costa³; P Broeiro⁴; C Fonseca⁵; M Borges¹

¹Faculty of Medicine, University of Lisbon, Center for Evidence Based Medicine, Lisbon, Portugal; ²Catolica Lisbon School of Business and Economics, Lisbon, Portugal; ³Faculty of Medicine, University of Lisbon, Laboratory of Clinical Pharmacology and Therapeutics, Lisbon, Portugal; ⁴Agrupamento de Centros de Saúde Lisboa Central, Unidade de Cuidados de Saúde Personalizados dos Olivais, Lisbon, Portugal; ⁵Centro Hospitalar de Lisboa Ocidental, Heart Failure Unit, Department of Internal Medicine and Day Hospital – Hospital São Francisco Xavier, Lisbon, Portugal

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Background: Heart failure (HF) is a major health problem in developed countries, accounting for a significant social and economic burden. Published estimates of costs associated with HF patients in the primary care setting are scarce.

Purpose: To determine the clinical and demographic characteristics of adult patients with a HF diagnosis in a Portuguese primary care comprehensive administrative database and to estimate the associated annual costs

per patient.

Methods: Population-based study with real data covering a population of 3.6 million patients attending primary care services in a large health region in Portugal. All adult users coded for HF with at least one visit in 2014 were selected. We analyzed patients' characteristics, comorbidities (anemia, diabetes, hypertension, cerebrovascular disease, atrial fibrillation, ischemic heart disease, cardiomyopathies, valve disease, chronic obstructive pulmonary disease, pulmonary embolism, alcohol abuse), and resource use in 2014 related to medical tests and cardiovascular diagnostic procedures, visits and cardiovascular or anticoagulant medication. Unit costs estimates were based on national sources.

Results: We identified 25,337 patients, with an estimated HF prevalence of 1.4%. This is approximately 30% of number expected according to a previously conducted national community-based epidemiological survey. The difference may be explained by both underdiagnosis and underregistration. Patients with HF are mostly women (58%) and on average 77 ± 11 years old. The large majority of patients (93%) had at least one of the selected comorbidities present, 70% had 2 or more and 38% had 3 or more. About two thirds of patients (65%) had at least one medical test or diagnostic procedure done during 2014. Blood tests, echocardiogram, electrocardiogram and chest x-ray were performed in 61%, 16%, 14% and 11% of patients, respectively. The majority of patients (56%) had at least four office visits during one year. Angiotensin-converting enzyme inhibitor or angiotensin receptor blockers, beta-blockers, and aldosterone blockers were prescribed for 80%, 48% and 20% of patients, respectively. Only 12% of patients were prescribed all three drug classes. The average annual cost per patient was estimated at €552 ± 348, of which 54%, 40% and 6% was associated to medications, medical visits and medical tests or diagnostic procedures, respectively.

Conclusions: This study provides a characterization of patients with HF in a large population in a primary care setting. Surprisingly 70% of the expected number of patients are either not diagnosed or not registered. HF patients are old, mostly women and characterized by multimorbidity. The average annual cost per patient was estimated to be about €550.

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Age- and gender-specific risks of all-cause mortality in patients with newly diagnosed heart failure: a population-based case-cohort study in Taiwan

Y-C Yi-Chih Wang¹; S-R Chen²; C-Y Fann³

¹National Taiwan University Hospital, Internal Medicine, Cardiovascular Division, Taipei, Taiwan ROC; ²Novartis (Taiwan) Co., Ltd, Taipei, Taiwan ROC; ³Kainan University, Department of Health Industry Management, School of Healthcare Management, Tao-Yuan, Taiwan ROC

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Background: The age- and gender-specific risk of all-cause mortality for newly diagnosed heart failure (HF) patients (pts) comparing with general population is lacking. In Taiwan, the national health insurance (NHI) provides a population-based data with longitudinal follow-up for assessing the issue.

Purpose: We evaluated the relative risk (RR) of all-cause mortality between newly diagnosed HF pts and non-HF subjects.

Methods: The age- and gender-matched case-cohort study estimated the RR of all-cause mortality in HF pts by using all insured data between 2002 and 2013. By excluding prevalent HF pts in 2002, incident and new HF cases should have at least three outpatient visits or one hospital admission with HF (ICD9CM code: 428, 402.01, 402.11, 402.91) between 2003 and 2012. The last insured date was the surrogate endpoint of death. The data in 2013 was to sure those withdrawn before 2012 for at least one year. Each HF pt had a control, randomly sampled from the same age- and gender- subgroup. A total of 1,392,334 subjects including 696,167 HF cases were analyzed. RR was estimated by Poisson and negative-binomial regression models. We further used all-cause mortality from the life table in the whole population to estimate the all-cause mortality of HF.

Results: Two thirds of HF pts were diagnosed at 65 years (yrs) or older. Among HF pts, the RR of all-cause mortality was higher in male (1.33, 95% CI=1.31-1.34), and getting higher with aging (45-64 vs. <45 yrs: RR=1.4; >=65 vs 45-64 yrs: RR=5.2; both p < 0.05). When compared with non-HF subjects, the overall RR of all-cause mortality for HF pts was 2.41 (95% CI:2.40-2.43). In both gender (Figure 1A), the RRs of the younger groups were much higher. Although the age-specific RR for HF pts with either gender were similar, the estimated all-cause mortality in male HF pts was higher due to higher age-specific all-cause mortality in male population (Figure 1B).

Conclusions: When compared with non-HF controls, there remains a more than two-fold risk of all-cause mortality for newly diagnosed HF pts. The mortality burden was much greater on the elderly and male gender. The younger HF pts, however, carry a rather high risk of death, when compared to the non-HF younger population. All suggest the diverse but critical age- and gender-specific burdens of HF among the whole population.

Figure 1A. Relative Risk on All-cause Mortality

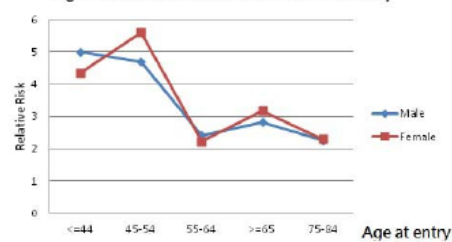


Figure 1B. Age-specific all-cause mortality

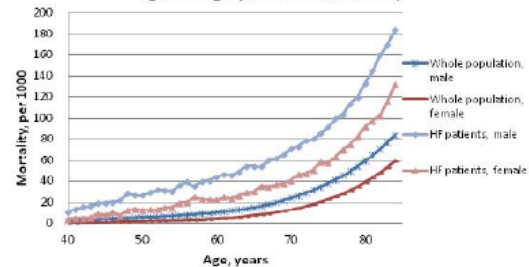


Figure 1A and 1B

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The demographic change in Germany: an analysis by the two leading causes of hospitalisation

S Stoerk¹; M Doerr²; M Christ³; HJ Heppner⁴; C Mueller⁵; U Riemer¹; R Rolf Wächter¹

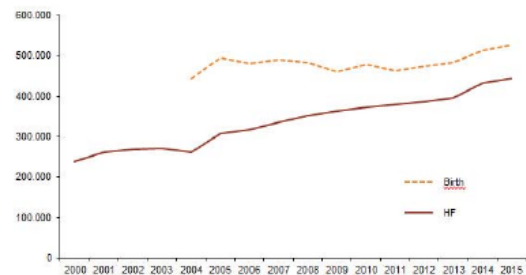
¹University of Göttingen, Göttingen, Germany; ²University Medicine of Greifswald, Greifswald, Germany; ³Klinikum Nürnberg-Nord, Notfallmedizin, Nürnberg, Germany; ⁴Helios Klinikum Schwelm, Schwelm, Germany; ⁵University Hospital Basel, Basel, Switzerland

Background: The demographic change, i. e. an increase in elderly people in the general population with an increase in comorbidities, is also reflected within the two leading causes for hospitalization in Germany, which are "Delivery/Birth" (Z38) and "Heart Failure" (I50). We analyzed data available from the German Federal Statistical Office for both diagnoses from 2000 to 2015.

Methods: We used publically available databases for ICD-10-GM diagnoses in Germany and compared the two most common reasons for hospitalization.

Results: Data were available from 2000 to 2015 for heart failure and from 2004 to 2015 for birth. Hospitalization for birth increased by 1.55 %/year from 444,306 (2004) to 526,437 (2015) [+82,131]. Hospitalization for heart failure increased by 4.96 %/year from 260,803 (2004) to 444,632 (2015) [+183,829] effecting heart failure to become the most common cause for disease-related hospitalization in Germany. Should these trends continue, there will be more hospitalizations for heart failure than for birth from 2020 onwards.

Conclusion: The demographic change in Germany will lead to a greater need for comprehensive heart failure care, while the number of hospitalizations for birth only mildly increased at last. Some geographic areas might consider converting labour rooms into comprehensive heart failure clinics.



Trends in Hospitalisation for Birth/HF