

ANHEMIA

ANalysis of Hospital Events Meaning IA-trogenicity

A. Vainchtock ¹, M. Kosa ², R. Diazaraque ³, L. Lamarsalle ¹, G. Duru ⁴

(1) HEVA medical Lyon (France), (2) Outcomes Research, PFIZER, Paris (France), (3) Medical PFIZER, Walton Oaks (United Kingdom), (4) Chaire d'Economie médicale, Université Claude Bernard, Lyon (France)

Abstract

Anemia, whatever its cause, especially in elderly, is underdiagnosed. Its impact on health is known although health care costs consequences need to be documented. The specific case of patients possibly treated with Non-Steroidal-Anti-inflammatory Drugs (NSAIDs) for rheumatic disease is considered.

Purpose: to analyze demographic characteristics of anemic patients with osteoarthritis, to calculate the extra-costs of anemia in 2006 French inpatients, according to the existence of an iron-deficiency anemia

Methods: DRG matching were carried out on Programme de Médicalisation des Systèmes d'Informations (PMSI) database : iron deficiency anemia and osteoarthritis excluding cancers : four groups were determined : OA+AN- (osteoarthritis without anemia), OA+AN+ (osteoarthritis plus anemia) in private or public hospitals. In 94% of cases linkage could be performed between DRGs and patients

Results : demographic characteristics of the concerned populations showed a female predominance in any group ($p < 0.001$). Two out of 3 patients were women. Moreover anemia patients were older than 65 years : 88.09% vs 68.67% ($p < 0.001$) both in private or public hospitals. Anemia led to a longer hospital stay : 2.58 days in public, 2.49 days in private hospitals. The increase in length of hospital stays (LOS) was accountable for extra costs : 791504€ for public and 760080€ for private hospitals for the year 2006.

Conclusion : anemia in hospitalized patients with osteoarthritis is more often seen in women and elderly ; the existence of an iron-deficiency anemia is responsible for longer stays and extra costs. This analysis of database claims should however be confirmed by a clinical assessment.

RATIONALE

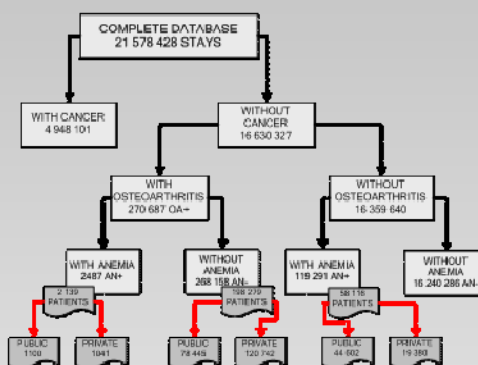
Anemia drives costs which are not easy to assess in primary care in France. By way of contrast the ATIH in charge of PMSI database collects all the medical, obstetrical and surgical procedures of public and private hospitals. Although this database is dedicated to hospitals management. It is also allows to have a rough epidemiological view of diagnosis through the different Diagnosis Related Groups (DRG) or groupements homogènes de maladies (GHM).

From an economical point of view, PMSI database allocates a financial weight to each DRG (monetary translations of DRG are named Groupes Homogènes de Séjour or GHS). In this context the economic reasoning is based not on patients figure but on hospital stays with an established link in about 94% of cases.

METHODS

Mean length of stay (MLOS) is the main component of hospital costs on the basis of Référentiel National de Coûts (RNC). PMSI database interrogation led to DRGs extraction using the International Statistical Classification of Diseases and Related Health Problems, 10th revision (ICD-10) codes : D50.0 for iron deficiency anemia, D50.8 « iron deficiency anemia secondary to a chronic blood loss », « other iron deficiency anemias » and D50.9 for « iron deficiency anemia without precisions ». Osteoarthritis diagnosis were

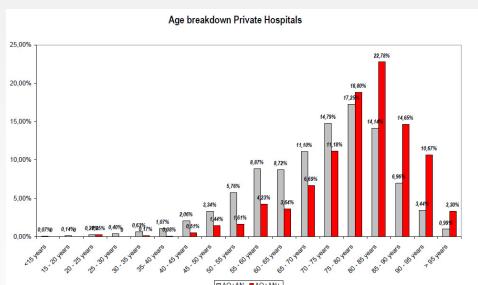
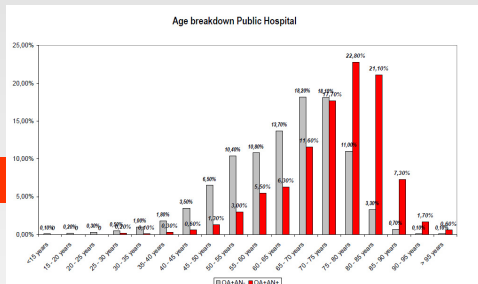
extracted with the following ICD-10 codes : M15 (from M15.0 to M15.9) : « polyosteoarthritis », M16 (from M16.0 to M16.9) : « coxarthrosis », M17 (from M17.0 to M17.9) « gonarthrosis », M18 (from M18.0 to M18.9) : « first carpo-metacarpal joint osteoarthritis » at least M19 (de M19.0 à M19.9) : « other osteoarthritis ». In this study, cancer related anemia had to be excluded. The whole codes corresponding to malignant tumors (C00 to C97), in situ carcinomas (D00 to D07 and D09) and unknown or unpredictable evolution tumors (D37 to D48) were merged and excluded.



RESULTS

DEMOGRAPHIC CHARACTERISTICS

Age distribution



A larger number of elderly (> 65 years) is observed in the OA+AN+ group : 88.1% vs 68.7% ($p < 0.001$). More OA+AN- elderly are hospitalized in public hospitals : 69.7% vs 51.3% for private hospitals ($p < 0.001$). No difference is found between OA+AN+ and OA+AN- according hospital status.

Gender distribution

Women outnumber men in all categories ($p < 0.001$).

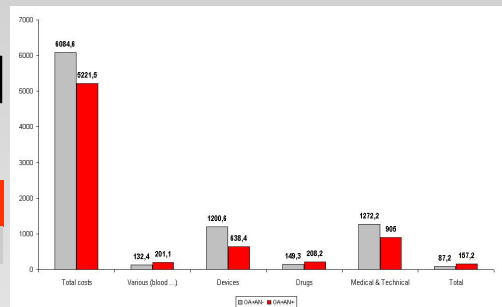
Gender distribution according hospital status

	men	women
OA+AN- public	27236	51209
OA+AN- priv.	4535	7697
OA+AN+ public	401	699
OA+AN+priv.	328	713

HOSPITAL COSTS ANALYSIS

Hospital costs breakdown

Medical wards costs plus logistical costs were added then divided by the average length of stay (LOS) in each group. Variation in drug utilization, devices, blood and intensive care had a low impact on costs.



Length of stays analysis

One hundred and sixty DRGs out of 900 were matched in order to compare OA+AN- and OA+AN+ groups. In public hospitals average LOS in case of coexisting osteoarthritis and anemia OA+AN- increased by 2.58, each with a mean daily cost of 305.6 €. In all, additional 1225 OA+AN+ stays could be valued at 967,750 €

In private hospitals average LOS increased by 2.49, each charged with a mean cost of 2802.3 €. The total 2612.25 additional days devoted to OA+AN+ could have been dedicated to 274 OA+AN- stays, each charged 2802.3 € a day. This led to a loss of incomes of 760,080 €. This method was used because of the absence of reference costs for private hospital for the studied period.

CONCLUSION

Given the specificity of PMSI database, anemia cases are probably underestimated since they do not drive the highest costs in hospitals. The female predominance can be explained because of cancer (digestive cancer especially) diagnosis exclusion. Anemia in hospitalized patients with osteoarthritis is more often seen in women and elderly ; the existence of an iron-deficiency anemia is responsible for longer stays and extra costs. This analysis of database claims should however be confirmed by a clinical assessment.

This study was supported by Pfizer

ISPOR PARIS 24-27 october 2009