



# Incidence of Hip Fractures during the COVID-19 Pandemic in Brazil

Enrique Lopez Gavilanez<sup>1,2</sup>

Received: 28 April 2022 / Accepted: 13 June 2022

© International Osteoporosis Foundation and Bone Health and Osteoporosis Foundation 2022

Dear Editor,

The epidemiological behavior of hip fractures during the COVID-19 pandemic has been recently studied in several publications. Most studies on the epidemiology of hip fractures during the COVID-19 pandemic have described a decrease in the number of fractures [1–3] and others have reported an increase [4, 5].

I have read with great interest the study published by da Silva AC et al. [6] in the *Archives of Osteoporosis* (March 6, 2022), comparing the incidence of hip fractures before and during the COVID-19 pandemic, as well as the mortality, lethality, and costs associated with these fractures. The authors find a significant decrease in the incidence of hip fractures, a non-significant reduction in mortality, lethality, and costs, as well as a significant reduction in the length of hospital stay.

However, it is necessary to highlight certain aspects that could have affected the results obtained in this study. For example, in the “Study design” the filter used to select the cases is the ICD-10 code (S72.0 to S72.9), which would include in the analysis, in addition to hip fractures (S720 to S722), those fractures of the femoral diaphysis (S72.3), lower epiphysis of femur (S72.4), multiple fractures of femur (S72.7), fracture of other parts of femur (S728), and fracture of femur, unspecified part (S72.9).

The prevalence of fractures at different femoral sites varies among sources by age and gender and could influence the results of the calculations performed in this study, including the costs of care.

In older adults with increased bone fragility, lower force impacts, such as falls from standing, can cause a fracture of

the femoral diaphysis. Up to 51% of femoral (non-hip femur fractures) occur in the diaphysis, and the cause is minimal to moderate trauma in 34% of cases and pathologic causes in 15% [7]. Distal femoral fractures account 29% of femoral fragility fractures [7], and about 50% of these fractures affect patients older than 70 years, being a relevant cause of morbidity and mortality in the geriatric population [8].

In Latin America, the incidence of hip fractures has been little studied, and no comparisons have been published before and during the pandemic (except for the study by da Silva). Recently, in a population-based study, our group compared the incidence of hip fracture in Ecuador before and during the pandemic, finding that there was a significant decrease when comparing the periods 2019 vs 2020 (unpublished data).

Worldwide, hip fracture incidence has declined in recent decades, with 2 notable exceptions in Latin America (Mexico and Ecuador) [9]. The COVID-19 pandemic represents a turning point in the epidemiology of hip fracture, with some studies (local and regional in scope) describing the decrease in the number of hip fractures during the pandemic compared with previous periods, but the population-based incidence has been poorly studied. Presumably, with the progressive return to normality, there will be a readjustment of the epidemiology and it is unknown whether trends will either return to the previous sequence or a new trend will be established.

## Declarations

**Conflicts of interest** The authors declare no competing interests.

## References

1. Stullitel PA, Lucero CM, Soruco ML, Barla JD, Benchimol JA, Boietti BR, Zanotti G, Comba F, Taype-Zamboni DR, Carabelli GS, Piccaluga F, Sancineto CF, Diehl M, Buttarro MA (2020) Prolonged social lockdown during COVID-19 pandemic and hip

✉ Enrique Lopez Gavilanez  
enrique\_lopezg57@hotmail.com

<sup>1</sup> AECE Research Group, The Association of Clinical Endocrinologists of Ecuador, Guayaquil, Ecuador

<sup>2</sup> Servicio de Endocrinología, Hospital Docente de La Policía Nacional, Guayaquil No2, Guayaquil, Ecuador

- fracture epidemiology. *Int Orthop* 44(10):1887–1895. <https://doi.org/10.1007/s00264-020-04769-6>
2. Maniscalco P, Poggiali E, Quattrini F, Ciatti C, Magnacavallo A, Vercelli A, Domenichini M, Vaienti E, Pogliacomì F, Ceccarelli F (2020) Proximal femur fractures in COVID19 emergency: the experience of two Orthopedics and Traumatology Departments in the first eight weeks of the Italian epidemic. *Acta Bio Medica. Atenei Parmensis* 91(2):89. <https://doi.org/10.23750/abm.v91i2.9636>
  3. Minarro JC, Zamorano-Moyano C, Urbano-Luque MT, Arenas-de Larriva AP, Izquierdo-Fernández A, Quevedo-Reinoso R (2020) Is COVID-19 affecting the incidence of hip fractures? *Injury* 51(10):2329. <https://doi.org/10.1016/j.injury.2020.07.018>
  4. Egol KA, Konda SR, Bird ML, Dedhia N, Landes EK, Ranson RA, Solasz SJ, Aggarwal VK, Bosco JA 3rd, Furgiuele DL, Ganta A, Gould J, Lyon TR, McLaurin TM, Tejwani NC, Zuckerman JD, Leucht P (2020) Increased mortality and major complications in hip fracture care during the COVID-19 pandemic: a New York City perspective. *J Orthop Trauma* 34(8):395–402. <https://doi.org/10.1097/BOT.0000000000001845>
  5. Narang A, Chan G, Aframian A, Ali Z, Carr A, Goodier H, Morgan C, Park C, Sugand K, Walton T, Wilson M, Belgaumkar A, Gallagher K, Ghosh K, Gibbons C, Keightley A, Nawaz Z, Wakeling C, Sarraf K, Rogers BA, Kieffer WKM (2021) Thirty-day mortality following surgical management of hip fractures during the COVID-19 pandemic: findings from a prospective multi-centre UK study. *Int Orthop* 45(1):23–31. <https://doi.org/10.1007/s00264-020-04739-y>
  6. da Silva AC, da Silva SG, Maluf EMCP, Borba VZC (2022) Incidence of hip fractures during the COVID-19 pandemic in the Brazilian public health care system. *Arch Osteoporos* 17(1):42. <https://doi.org/10.1007/s11657-022-01078-w>
  7. Ng AC, Drake MT, Clarke BL, Sems SA, Atkinson EJ, Achenbach SJ, Melton LJ 3rd (2012) Trends in subtrochanteric, diaphyseal, and distal femur fractures, 1984–2007. *Osteoporos Int* 23(6):1721–1726. <https://doi.org/10.1007/s00198-011-1777-9>
  8. Myers P, Laboe P, Johnson KJ, Fredericks PD, Crichlow RJ, Maar DC, Weber TG (2018) Patient Mortality in Geriatric Distal Femur Fractures. *J Orthop Trauma* 32(3):111–211
  9. Orces CH, Gavilanez EL (2017) Increasing hip fracture rates among older adults in Ecuador: analysis of the National Hospital Discharge System, 1999–2016. *Arch Osteoporos* 12(1):109. <https://doi.org/10.1007/s11657-017-0410-8>

**Publisher's note** Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.