ECRONICON OPEN ACCESS

EC ENDOCRINOLOGY AND METABOLIC RESEARCH
Guest Editorial

A Brief History of Ecuador's FRAX Model

Enrique Lopez Gavilanez[1,2]*

[1]*AECE Research Group, From the Association of Clinical Endocrinologists of Ecuador, Ecuador*

[2]*Servicio de Endocrinología del Hospital Docente de la Policía Nacional, Guayaquil No 2, Guayaquil, Ecuador*

***Corresponding Author**: Enrique Lopez Gavilanez, AECE Research Group, From the Association of Clinical Endocrinologists of Ecuador and Servicio de Endocrinología del Hospital Docente de la Policía Nacional, Guayaquil No 2, Guayaquil, Ecuador.

Received: August 23, 2019; **Published:** August 27, 2019

Keywords: *Osteoporosis; FRAX Tool; Hip Fracture; Epidemiology; Ecuador*

Firs act

It all started with a failure. In October 2005 I was preparing a conference to commemorate the World Osteoporosis Day in an event organized by the Association of Clinical Endocrinologists of Ecuador (AECE) and Notimedica (Official journal of AECE). Among the material that I was reviewing for the presentation I stumbled with an article that strongly called my attention because there was no evidence previously published about this topic. The author was a Rheumatologist that I later found out was Ecuadorian who lived and practiced the specialty in Laredo, Texas, EEUU. The title of the article is "Epidemiology of Hip Fracture in Ecuador" and was published in the PAHO Journal in 2009 [1]. On the article estimation of hip fracture the incidence on the population of Ecuador in the year 2005 was made (only one year).

The reading of this article - other than making me feel proud at knowing that an Ecuadorian author wrote this, woke up in me an immense curiosity about the methodology with which this was made. I perceived it was very easy to reproduce and since that moment, the idea never abandoned me.

Later I found out that the data on this article served as the base - together with the mortality rates of the country in 2009 given by the UN (United Nations Organization)- to construct the prediction model of osteoporosis fractures FRAX for Ecuador that was released online in 2012 by Kanis., *et al* [2].

In the year 2016, I decided to undertake the task to update the study on the incidence of hip fractures on Ecuador, and having elapsed 7 years since the original publication from Orces [1] and almost 11 years after the population used for this publication, we reproduced the methodology and obtained the new results of hip fractures epidemiology for the Ecuadorian population of 2016. The publisher to whom I had the unfortunate idea to send our manuscript the 30th of September of 2017 refused to publish [3], stating: "Because of the local focus of this descriptive manuscript and the reach of the conclusions, these results, of only one year (2016), are of major interest to the local health authorities other than the reader's universe of the American Region to whom our publication is destined for".

This response that I received 2 months later (November, 29 of 2017), was not only surprising, also disappointing because of the argument the executive editor of this journal gave us to avoid publishing our manuscript. In other words, the epidemiology facts from Ecuador, are not supposed to be interesting for the other regions of the Americas? Nevertheless, 7 years earlier, the same topic was considered, and published by this same journal with only 1-year results.

Second act

Convinced as I was - and was subsequently demonstrated - of the importance and validity to describe this information generated with current owned data, after 2 wasted months, waiting for this unheard response from the journal to whom I sent our manuscript [3], we

decided to send our article in December 2017, to a European journal and picked one that is indexed in Scopus and revised by pairs published in English and Spanish [4]. After some observations made by the reviewers of this journal, our article was approved on April 11th 2018 and published in May 2018 [5].

A month before (on April 2018), a group of Latin-American researchers leads by Patricia Clark., *et al*. [6], published on the Osteoporosis International Journal (one of the 3 official journals of the International Osteoporosis Foundation) the intervention and evaluation thresholds based on the FRAX tool for 7 Latin-American countries, including between those, Ecuador. From the reading of this article it is clear that the FRAX thresholds for Ecuador were developed based on the Ecuadorian population data of 2005, published by Orces in 2009 [1].

It was evident that, if our work was released before the Clark and cols publication, the obtained thresholds had to be different than the ones by these researchers. Therefore, we decided to write a letter to the editor of Osteoporosis International journal, which essentially suggested that the data generated by this FRAX model for Ecuador had to be updated based on the recent information generated by us, because there was an 11 years difference in the data of the Ecuadorian population used in the construction of the first FRAX model® Ecuador. This letter deserved the attention of the editor from the Archives of Osteoporosis journal (one of the 3 official journals of the International Osteoporosis Foundation) and was published in December 2018 [7].

After a little while, I received correspondence from Jhon Kanis, the leader of the research group from Sheffield University (authors of the FRAX model) in which they welcome the suggestion of our letter [7], I was asked complementary information to do, if considered relevant, the update on the Ecuador FRAX model. In effect, I sent the information with ample data of ages from 40 to 97 years old, that Dr. Kanis's group required and was able to process.

Third act

With the information generated based on our data, we elaborated, with the group from Sheffield University, UK, an abstract in which the old and new versions of the FRAX model were compared, showing up to that the probabilities of osteoporotic fractures are higher with the new model on advanced ages, confirming the need to update periodically with epidemiology data from each country. This abstract was presented in the last World Congress of the IOF from the 3rd to 7th of April 2019 (Paris, France) and is published in supplement 2, July 2019 of the Osteoporosis International journal [8]. A few days later, on the 26th of April 2019, Ecuador FRAX's new model 4.1 was released worldwide and is now available online [9].

Finally, we have developed with the University of Sheffield`s group a complete article in which we describe how the new Ecuador FRAX model was build and development of intervention and evaluation thresholds specific to age and sex of our population, the same one that was sent to the Archives of Osteoporosis journal and has been accepted for publication [11].

A flattering ending

In summary, the publishing made by our group with the Ecuadorian population data in 2016 [5], has given place to derive from it, other related publications, that is how we were able to update and compare the epidemiology of osteoporotic hip fractures with a range of almost 11 years, we publish the mortality tendency of hip fractures by fragility in Ecuador [10], we compare the osteoporotic fracture probabilities obtained with the old FRAX model against the new [8] and from this data we developed the new thresholds on intervention and evaluation specific to age and sex in the Ecuadorian population [11].

Finally, we have to highlight that all this scientific production - published/or about to be published - would have been frustrated if not having persisted in the effort to announce our data about the incidences of hip fractures based on the Ecuadorian population of 2016.

More than 2 years have passed to us achieve vindication and approval of our scientific production; the results are in sight and very flattering, by the way.

Bibliography

1. Orces CH. "Epidemiology of hip fractures in Ecuador". *Revista Panamericana de Salud Pública* 25.5 (2009): 438-442.
2. https://www.sheffield.ac.uk/FRAX/
3. https://www.paho.org/journal/
4. www.revistadeosteoporosisymetabolismomineral.com
5. López Gavilánez E., *et al*. "Osteoporotic hip fractures in older adults in Ecuador 2016". *Revista de Osteoporosis y Metabolismo Mineral* 10.2 (2018): 63-67.
6. Clark P., *et al*. "FRAX-based intervention and assessment thresholds in seven Latin American countries". *Osteoporosis International* 29.3 (2018): 707-715.
7. Lopez Gavilanez E., *et al*. "New FRAX-based intervention and assessment thresholds for the Ecuadorian population". *Archives of Osteoporosis* 13.1 (2018): 102.
8. Johansson H., *et al*. "Secular changes in hip fracture incidence in Ecuador and implications for FRAX". *Osteoporosis International* 30.2 (2019): 384-385.
9. https://www.sheffield.ac.uk/FRAX/tool.aspx?country=43
10. Lopez Gavilanez E., *et al*. "Trends in mortality rates due to osteoporotic hip fractures in Ecuador from 1997 to 2016". *International Journal of Osteoporosis and Metabolic Disorders* 11.1 (2018): 23-28.
11. Lopez Gavilanez E., *et al*. "Assessing the risk of osteoporotic fractures: the Ecuadorian FRAX model". *Archives of Osteoporosis* 14 (2019): 93.

Volume 4 Issue 7 September 2019