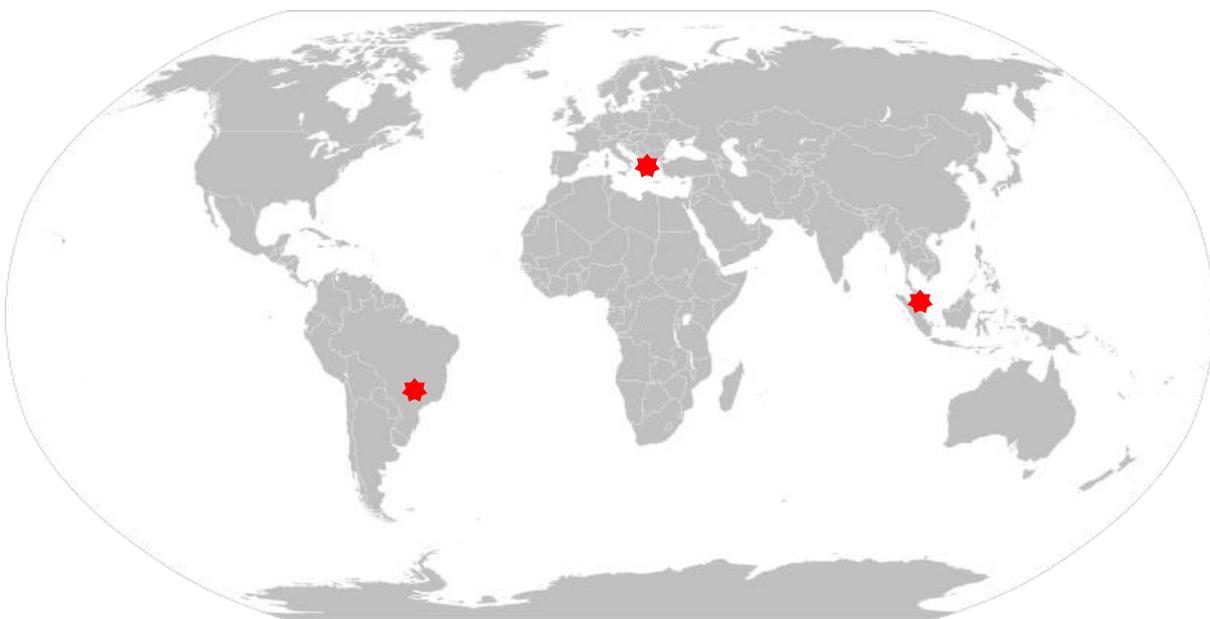


European programme

Central Europe timezone



## Regional Expert Meetings on the Management and Prevention of Fragility Fractures



24-25<sup>th</sup> October 2020

Asia-Pacific – Europe – Latin America

Organised by the Regionalisation Committee of the global FFN  
in partnership with FFN-Malaysia, FFN-Greece and FFN-Brasil

Free registration at

<https://ffnregionalmeetings.online-event.co/registration/scimentum-fragility-fracture-network-3>

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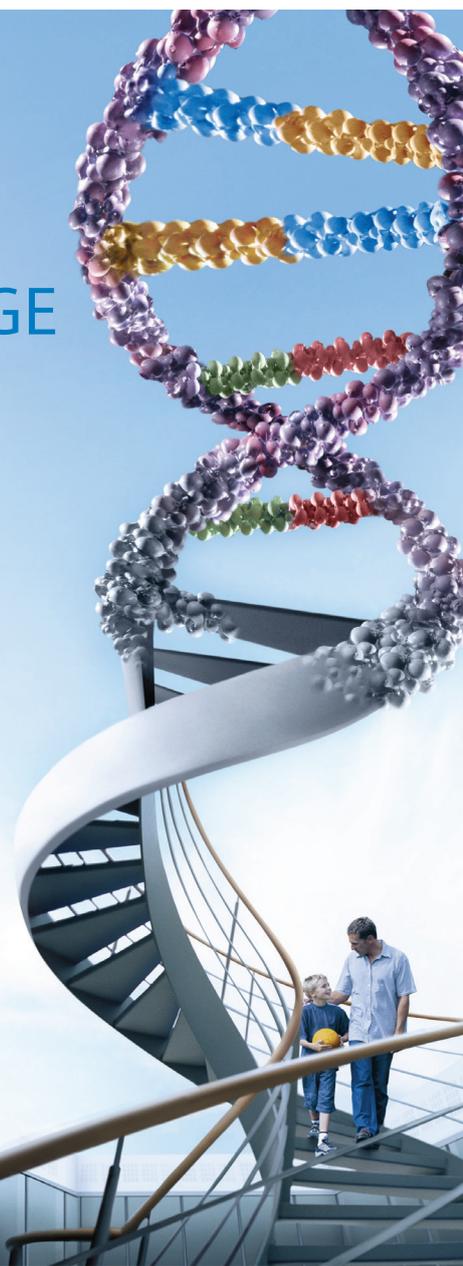


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## EVENTITY<sup>®</sup> (romosozumab) Abbreviated product information

**Name of the medicinal product:** EVENTITY<sup>®</sup> (romosozumab). Pharmaceutical form: Solution for injection containing 105 mg of romosozumab in 1.17 ml of solution (90 mg/ml) for injection in pre-filled pen or pre-filled syringe. **Therapeutic indications:** EVENTITY<sup>®</sup> is indicated in treatment of severe osteoporosis in postmenopausal women at high risk of fracture. **Posology and method of administration:** Treatment should be initiated and supervised by specialist physicians experienced in the management of osteoporosis. The recommended dose is 210 mg romosozumab (administered as two subcutaneous injections of 105 mg each) once monthly for 12 months. To administer the 210 mg dose, 2 subcutaneous injections of romosozumab should be given into the abdomen, thigh, or upper arm. The second injection should be given immediately after the first one but at a different injection site. Administration should be performed by an individual who has been trained in injection techniques. Patients should be adequately supplemented with calcium and vitamin D before and during treatment. Following completion of romosozumab therapy, transition to antiresorptive therapy is recommended in order to extend the benefit achieved with romosozumab beyond 12 months. If the romosozumab dose is missed, administer as soon as it can be feasible. Thereafter, the next romosozumab dose should not be given earlier than one month after the last dose. Based on data no dose adjustment is necessary in elderly patients or patients with renal impairment. Serum calcium should be monitored in patients with severe renal impairment or receiving dialysis. No clinical trials have been conducted to evaluate the effect of hepatic impairment. **Paediatric population:** romosozumab is not indicated for use in paediatric populations. The safety and efficacy of romosozumab in paediatric patients (age <18 years) have not yet been established and no data are available. **Contraindications:** Hypersensitivity to the active substance(s) or to any of the excipients, hypocalcaemia and history of myocardial infarction or stroke. **Special warnings and precautions for use:** In randomised controlled studies, an increase in serious cardiovascular events (myocardial infarction and stroke) has been observed romosozumab-treated patients compared to controls. Romosozumab is contraindicated in patients with previous myocardial infarction or stroke. When determining whether to use romosozumab for an individual patient, consideration should be given to her fracture risk over the next year and her cardiovascular risk based on risk factors (e.g. established cardiovascular disease, hypertension, hyperlipidaemia, diabetes mellitus, smoking, severe renal impairment, age). Romosozumab should only be used if the prescriber and patient agree that the benefit outweighs the risk. If a patient experiences a myocardial infarction or stroke during therapy, treatment with romosozumab should be discontinued. Transient hypocalcaemia has been observed in patients receiving romosozumab. Hypocalcaemia should be corrected prior to initiating therapy with romosozumab and patients should be monitored for signs and symptoms of hypocalcaemia. If any patient presents with suspected symptoms of hypocalcaemia during treatment, calcium levels should be measured. Patients should be adequately supplemented with calcium and Vitamin D. Patients with severe renal impairment (estimated glomerular filtration rate [eGFR] 15 to 29 ml/min/1.73 m<sup>2</sup>) or receiving dialysis are at greater risk of developing hypocalcaemia and the safety data for these patients is limited. Calcium levels should be monitored in these patients. Clinically significant hypersensitivity reactions, including angioedema, erythema multiforme, and urticaria occurred in the romosozumab group in clinical trials. If an anaphylactic or other clinically significant allergic reaction occurs, appropriate therapy should be initiated and use of romosozumab should be discontinued. Osteonecrosis of the jaw (ONJ), has been reported rarely in patients receiving romosozumab. The following risk factors should be considered when evaluating a patient's risk of developing ONJ: the potency of the medicinal product that inhibits bone resorption (the risk increases with the antiresorptive potency of the compound), and cumulative dose of bone resorption therapy, cancer, co-morbid conditions (e.g. anaemia, coagulopathies, infection), smoking, concomitant therapies: corticosteroids, chemotherapy, angiogenesis inhibitors, radiotherapy to head and neck, poor oral hygiene, periodontal disease, poorly fitting dentures, history of dental disease, invasive dental procedures e.g. tooth extractions. All patients should be encouraged to maintain good oral hygiene, receive routine dental check-ups, and immediately report any oral symptoms such as dental mobility, pain or swelling or non-healing of sores or discharge during treatment with romosozumab. Patients who are suspected of having or who develop ONJ while on romosozumab should receive care by a dentist or an oral surgeon with expertise in ONJ. Discontinuation of romosozumab therapy should be considered until the condition resolves and contributing risk factors are mitigated where possible. Atypical low-energy or low trauma fracture of the femoral shaft, which can occur spontaneously, has been reported rarely in patients receiving romosozumab. Any patient who presents with new or unusual thigh, hip, or groin pain should be suspected of having an atypical fracture and should be evaluated to rule out an incomplete femur fracture. Patient presenting with an atypical femur fracture should also be assessed for symptoms and signs of fracture in the contralateral limb. Interruption of romosozumab therapy should be considered, based on an individual benefit-risk assessment. This medicinal product contains less than 1 mmol sodium (23 mg) per dose, that is to say essentially sodium-free. **Interaction with other medicinal products and other forms of interaction:** No drug interaction studies have been performed with romosozumab.

### References:

1. EVENTITY SmPC. Available at: [[https://www.ema.europa.eu/en/documents/product-information/eventity-epar-product-information\\_en.pdf](https://www.ema.europa.eu/en/documents/product-information/eventity-epar-product-information_en.pdf)] and at [[https://www.swissmedic.ch/swissmedic/de/home/humanarzneimittel/authorisations/new-medicines/eventity\\_injektionsloesung-romosozumabum.html](https://www.swissmedic.ch/swissmedic/de/home/humanarzneimittel/authorisations/new-medicines/eventity_injektionsloesung-romosozumabum.html)]
2. Saag KG, et al. N Engl J Med 2017;377:1417-1427.
3. Langdahl BL, et al. Lancet 2017;390:1585-1594.

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No pharmacokinetic drug interactions are expected with romosozumab. **Pregnancy:** romosozumab is not indicated for use in women of child-bearing potential or in pregnant women. There are no data from the use of romosozumab in pregnant women. Skeletal malformations (including syndactyly and polydactyly) were observed at a low incidence in a single study with romosozumab in rats. A risk for malformations of developing digits in the human foetus is low following romosozumab exposure due to the timing of digit formation in the first trimester in humans, a period when placental transfer of immunoglobulins is limited. **Breast-feeding:** romosozumab is not indicated for use in breast-feeding women. No data are available on excretion of romosozumab in human milk. Human IgGs are known to be excreted in breast milk during the first few days after birth, which is decreasing to low concentrations soon afterwards; consequently, a risk to the breast-fed infant cannot be excluded during this short period. **Fertility:** No data are available on the effect of romosozumab on human fertility. Animal studies in female and male rats did not show any effects on fertility endpoints. **Effects on ability to drive and use machines:** romosozumab has no or negligible influence on the ability to drive and use machines. **Undesirable effects:** In randomised controlled studies, the most common adverse reactions were nasopharyngitis (13.6%) and arthralgia (12.4%). Hypersensitivity-related reactions occurred in 6.7% of patients treated with romosozumab. Hypocalcaemia was reported uncommonly (0.4% of patients treated with romosozumab). An increase in serious cardiovascular events (myocardial infarction and stroke) has been observed in romosozumab treated patients compared to controls. In randomised controlled studies, an increase in serious cardiovascular events (myocardial infarction and stroke) has been observed in romosozumab treated patients compared to controls. Very common adverse reactions ( $\geq 1/10$ ) included nasopharyngitis and arthralgia, common adverse reactions ( $\geq 1/100$  to  $< 1/10$ ) included sinusitis, hypersensitivity, rash, dermatitis, headache, neck pain, muscle spasms and injection site reactions, uncommon adverse reactions ( $\geq 1/1,000$  to  $< 1/100$ ) included urticaria, hypocalcaemia, stroke, cataract, myocardial infarction and rare adverse reactions ( $\geq 1/10,000$  to  $< 1/1,000$ ) included angioedema and erythema multiforme. In postmenopausal women dosed with monthly romosozumab, the incidence of anti-romosozumab antibodies was 18.6% (1162 of 6244) for binding antibodies and 0.9% (58 of 6244) for neutralizing antibodies. The earliest onset of anti-romosozumab antibodies was 3 months after first dosing. The majority of antibody responses were transient. The presence of anti-romosozumab binding antibodies decreased romosozumab exposure by up to 25%. No impact on the efficacy of romosozumab was observed in the presence of anti-romosozumab antibodies. Limited safety data show that the incidence of injection site reactions was numerically higher in female patients with neutralizing antibodies. In the active-controlled trial of romosozumab for the treatment of severe osteoporosis in postmenopausal women during the 12-month double-blind romosozumab treatment phase, 16 women (0.8%) had myocardial infarction in the romosozumab arm versus 5 women (0.2%) in the alendronate arm and 13 women (0.6%) had stroke in the romosozumab arm versus 7 women (0.3%) in the alendronate arm. These events occurred in patients with and without a history of myocardial infarction or stroke. Cardiovascular death occurred in 17 women (0.8%) in the romosozumab group and 12 (0.6%) women in the alendronate group. The number of women with major adverse cardiac events (MACE = positively adjudicated cardiovascular death, myocardial infarction or stroke) was 41 (2.0%) in the romosozumab group and 22 (1.1%) in the alendronate group, yielding a hazard ratio of 1.87 (95% confidence interval [1.11, 3.14]) for romosozumab compared to alendronate. All-cause death occurred in 30 women (1.5%) in the romosozumab group and 22 (1.1%) women in the alendronate group. In the placebo-controlled trial of romosozumab for the treatment of osteoporosis in postmenopausal women (including women with severe and less severe osteoporosis) during the 12-month double-blind romosozumab treatment phase, there was no difference in positively adjudicated MACE; 30 (0.8%) occurred in the romosozumab group and 29 (0.8%) in the placebo group. All-cause death occurred in 29 women (0.8%) in the romosozumab group and 24 (0.7%) women in the placebo group. **Overdose:** There is no experience with overdose in clinical trials. There is no known antidote to romosozumab or specific treatment for overdose. In case of overdose, it is recommended that patients are monitored closely and given appropriate treatment.

**Date:** 9th of December 2019. Refer to the full prescribing information in your country before prescribing. **Marketing authorisation holder:** UCB Pharma, SA, Allée de la Recherche 60, B-1070 Brussels, Belgium. **Marketing authorisation number(s):** EU/1/19/1411/001; EU/1/19/1411/002; EU/1/19/1411/003; EU/1/19/1411/004. **Date of first authorisation:** 09/12/2019. **Legal classification:** Prescription only medicine

▼ This medicinal product is subject to additional monitoring. This will allow quick identification of new safety information. Healthcare professionals are asked to report any suspected adverse reactions

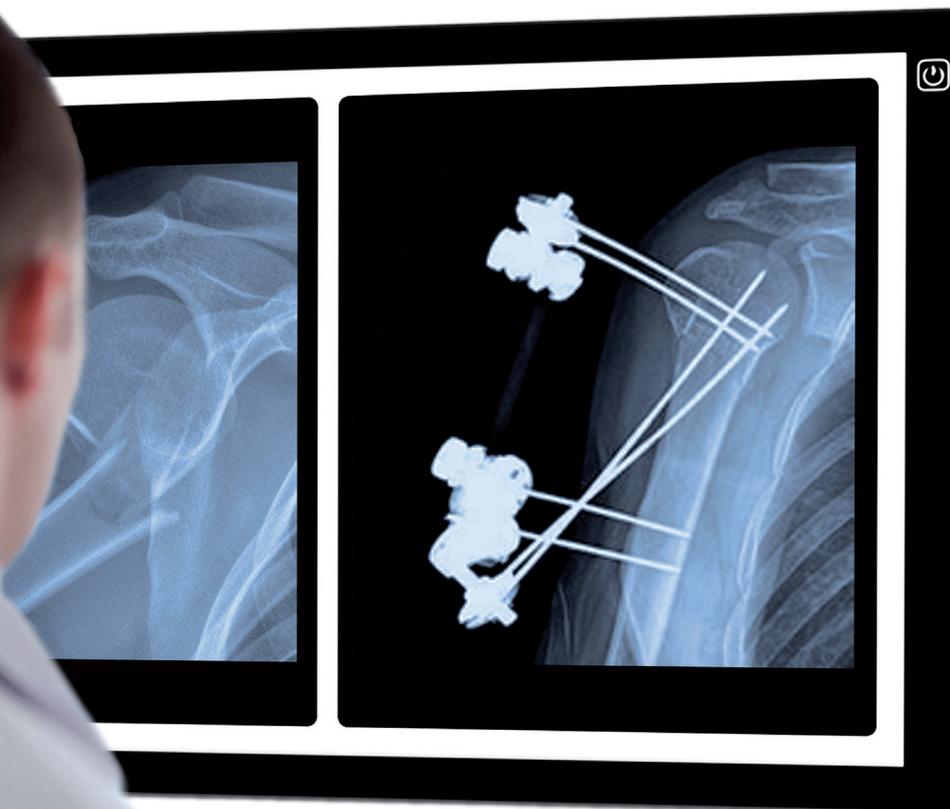
Please refer to the full Summary of Product Characteristics before prescribing EVENTITY.

To access the full SmPC, scan the QR code below or visit:  
[ema.europa.eu/en/documents/product-information/eventity-epar-product-information\\_en.pdf](https://www.ema.europa.eu/en/documents/product-information/eventity-epar-product-information_en.pdf)



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The logo for the Fragility Fracture Network (FFN) consists of the letters 'FFN' in a bold, dark teal, sans-serif font.

Fragility Fracture Network



# Virtual Symposium at the Fragility Fracture Network Regional Expert Meeting

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24–25 October 2020

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Sunday 25 October 2020 | 12:30–13:30 CET

**IQ Driving QI: Systematically improving the quality of care we provide to people who sustain fragility fractures**

Chaired by **David Marsh**

Presentation by **Paul Mitchell**

Followed by a Q&A with **Kassim Javaid** and **Andrew Gray**

---

Please join us for our symposium where we will be discussing the *Global Call to Action* to improve the care of fragility fracture patient.



**AMGEN**<sup>®</sup>

GL-N-DA-PF-2000022

Date of preparation: October 2020

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## What is FFN?

FFN is an international non-profit network organisation, founded in 2011 and based in Switzerland. Its purpose is to connect all the activists across the world who are working to ensure that people who sustain fragility fractures get high quality, cost-effective care.

### Our Vision

A world where anybody who sustains a fragility fracture achieves the optimal recovery of independent function and quality of life, with no further fractures

### Our Mission

To optimise globally the multidisciplinary management of the patient with a fragility fracture, including secondary prevention

## The four pillars

Our key objectives, as spelled out in the Global Call to Action<sup>1</sup>, can be represented by four pillars, three clinical and one political:

- I. Multidisciplinary co-management of the acute fracture episode, along orthogeriatric lines
- II. Excellent rehabilitation to regain function, independence and quality of life
- III. Reliable secondary prevention, addressing both falls risk and osteoporosis
- IV. Multidisciplinary national alliances, seeking policy change to facilitate I-III

The fourth, political pillar is the one that gets things done on a large scale in any given country. The alliance needs to be between the professional associations of the relevant disciplines – orthopaedics, geriatrics/internal medicine, nursing, physiotherapy, anaesthesiology etc.

National FFNs can be the driver that catalyses the formation of these alliances.

## National FFNs and the Regional Expert Meetings

In the Asia-Pacific region, there are 10 National FFNs (nFFNs), in Japan, India, China, Philippines, Malaysia, Thailand, Korea, Nepal, Myanmar, Sri Lanka. In Europe, there are four: Greece, Norway, UK and Italy; in Spain, SEFRAOS is a long-established multidisciplinary organisation working for similar goals. In Latin America, there is only one established nFFN, FFN-Brasil, but several other countries are considering creating one. In the MENA region, there is one nFFN, FFN-Lebanon.

The purpose of these Regional Expert Meetings is to share experience, obstacles and solutions, in order to stimulate the formation of new National FFNs.

All the sessions will be available to review on demand for 28 days on the virtual platform and will then be permanently archived on the websites of FFN-Malaysia, FFN-Greece and FFN-Brasil.

---

<sup>1</sup> Dreinhöfer K et al (2018). A global call to action to improve the care of people with fragility fractures. *Injury* 49: 1393-7

## How to get the most out of this virtual conference centre

Please see the appended Delegate User Guide. In brief:

When you have entered the meeting, you will come to the lobby:



You select where to go next by clicking on the options on the side panels.

### Regional agendas

Here you can download the agendas as pdfs, either just for your region or for all three Regional Expert Meetings globally.

### The auditorium

Go here initially to access all the plenary and breakout sessions.

First, select your region. You then see a menu of events in that region.

Click on  for the session you want to join; it opens in a new window. When you want to leave that session, close that window and you will be back in the lobby

### Plenary sessions

The plenary talks are pre-recorded and follow each other without a break. You can expand the screen with the corner handles. You can see the speaker profiles by clicking on the  widget

During the talks, you can submit questions by clicking on the chat icon 

You can see who is in the audience by clicking on the  widget

The  icon will alert you to an announcement

After the third talk you will be invited to join the live Q&A discussion for that plenary; you need to sign in for that in the pop-up window.

## Breakout sessions

When you select a particular Breakout from the Auditorium menu, you will be led to the appropriate 'Collaboration Space'. These are live workshop sessions, although the opening talk is pre-recorded. The audience can direct questions to the chairs via the 'Chat' window.

## The Poster Hall

The posters for all three REMs are included in this space. You can select those from your region and for one of the four Pillars. The numbering system linking the abstracts contained in this pdf with the posters themselves is <region>-<Pillar>-<number>.

## The Networking Centre

Like most Congresses, FFN events are always characterised by multiple informal get-togethers of people with a shared interest, often at lunchtime. In this event, we are hoping the same will happen. For each region there is a Networking Coordinator:

Asia-Pacific: Irewin Tabu ([jatabu@up.edu.ph](mailto:jatabu@up.edu.ph))

Europe: Katerina Athan ([kathy\\_athan@yahoo.gr](mailto:kathy_athan@yahoo.gr))

Latin America: Aline Tavares Domingos ([aline.domingos@ymail.com](mailto:aline.domingos@ymail.com))

These informal meetings will be held via Zoom, outwith the REM platform. If you want to propose a get-together, email your Coordinator and get it scheduled. It can be **open to all**, in which case it will be flagged up on the meeting platform, with a link to get to it. If it's a **closed group**, the Coordinator will give you a link to the Zoom space and you can email that to the people you want to include; this will not be announced in the REM platform.

Examples of possible topics for a Networking Meeting could be:

- People interested in setting up hip fracture audit
- People interested in creating a new National FFN in a given country

But anything is possible!

## The Chat Room

This space has two functions. (i) it can be used for text-based conversations, perhaps following a Q&A session where questions remain. Video is not available in this space. (ii) it contains polls that allow you to give very quick and easy feedback. It will ask for your views on:

**Using a scale of 1-10, how would you rate the overall quality of the Regional Expert Meeting?**

**Using a scale of 1-10, how did your educational experience compare with similar events?**

**What was your favourite element of the Regional Expert Meeting?**

Breakouts

Networking

Plenaries

Posters

Symposia

**The overall ease of use with this virtual educational platform met my expectations (agree-disagree)**

## Programme Committee

The Programme Committee members for this meeting are:

David Marsh (Chair)	Orthopaedic surgeon and Chair, global FFN Regionalisation Committee
Andrea Marques	Nurse, Portugal, FFN Education Committee
Carmelinda Ruggiero	Geriatrician and President-Elect, FFN-Italy
Christos Lionis	Primary Care, Board member FFN-Greece
Elias Panagiotopoulos	Orthopaedic surgeon, President of FFN-Greece
Finbarr Martin	Geriatrician, UK and EuGMS
José R. Caeiro	Orthopaedic surgeon and President of SEFRAOS, Spain
Luca Pietrogrande	Orthopaedic surgeon and President, FFN-Italy
Matt Costa	Orthopaedic surgeon and President, FFN-UK
Önder Aydingöz	Orthopaedic surgeon, Turkey and EFORT
Peter Giannoudis	Orthopaedic surgeon, UK and Editor of <i>Injury</i>
Theodoros Tosounidis	Orthopaedic surgeon, Board member FFN-Greece
Xanthi Michail	Rehabilitationist, Board member FFN-Greece

For further information about FFN, please contact:

Global FFN	<a href="http://www.fragilityfracturenetwork.org">www.fragilityfracturenetwork.org</a>
FFN-Greece	<a href="https://ffngr.eu/en/">https://ffngr.eu/en/</a>
FFN-Italy	
SEFRAOS	<a href="http://www.sefraos.es/">http://www.sefraos.es/</a>
FFN-UK	<a href="http://www.ffnuk.org.uk/">http://www.ffnuk.org.uk/</a>
FFN-Norway	

**The timezone for the European REM is CET**

**NB the clocks change from CEST to CET on Saturday night**

# EUROPEAN REGIONAL EXPERT MEETING ON THE MANAGEMENT AND PREVENTION OF FRAGILITY FRACTURES

24-25th October 2020

## Programme

<b>DAY 1, Oct 24<sup>th</sup>, Morning</b>		
<b>Opening Remarks (10:50 – 11:00)</b> David Marsh, FFN Regionalisation Committee		
<b>Plenary Session I (11:00-12:00)</b>		
<b>Multidisciplinary management of the acute fracture episode- Pillar I</b>		
<b>Chairs: Önder Aydingöz-Turkey and Carmelinda Ruggiero- Italy</b>		
11:00	Orthogeriatrics	<b>Carmelinda Ruggiero, FFN-Italy</b>
11:15	Perioperative Care of the Geriatric Hip Fracture Patient (Nurse’s Perspective)	<b>Karen Hertz, FFN-UK</b>
11:30	Perioperative Care of the Geriatric Hip Fracture Patient (Anaesthetist Perspective)	<b>Stuart White, UK</b>
11:45-12:00	Q and A	
<b>Breakouts– Pillar I 12:15-13:15</b>		
<b>No 1. Peri-Operative Care</b>	<b>No 2. Acute Management in Covid-19 Pandemic</b>	<b>No 3. Advances in Fragility Fracture Surgery</b>
<b>Chairs: Matt Costa, Jean-Marc Feron</b>	<b>Chairs: Cristina Ojeda Thies, Luca Pietrogrande</b>	<b>Chairs: Theo Tosoundis, Anze Kristan</b>
<u>20 min Introductory Lecture</u> When is specialist referral necessary? <b>Sofia Duque, Portugal</b>	<u>20 min Introductory Lecture</u> COVID + Geriatric Patient and Hip Fracture <b>Cristina Ojeda Thies, Spain</b>	<u>20 min Introductory Lecture</u> Advances in Fragility Fracture Surgery <b>Anze Kristan, Slovenia</b>
<u>Open Forum: 40 minutes</u> <ul style="list-style-type: none"> <li>• <b>George Karpetas, Anaesthetist, FFN-Greece</b></li> <li>• <b>Maria Spiraki, Anaesthetist, FFN-Greece</b></li> <li>• <b>Nicu Bajurea, Orthop Surgeon, Moldova</b></li> </ul>	<u>Open Forum: 40 minutes</u> <ul style="list-style-type: none"> <li>• <b>Luca Pietrogrande, Orthop Surgeon, FFN-Italy</b></li> <li>• <b>Kamil Eyvazov, Orthop Surgeon, Azerbaijan</b></li> <li>• <b>Ian Moppett, Anaesthetist, UK</b></li> </ul>	<u>Open Forum: 40 minutes</u> <ul style="list-style-type: none"> <li>• <b>Leonid Farba, Orthop Surgeon, Russia</b></li> <li>• <b>Igor Kaftandziev, Orthop Surgeon, North Macedonia</b></li> <li>• <b>Athanasios Artan Bano, Orthop Surgeon, Albania</b></li> </ul>

<b>EuGMS Symposium</b>		
<b>Chair: Anette Hylen Ranhoff</b>		
13:30-14:30		
13:30	New international guidelines on falls prevention	<b>Hubert Blain, France</b>
13:45	The current state of geriatric medicine in SE Europe and our Global Europe Initiative	<b>Finbarr Martin, UK</b>
14:00	Summary of the Fall-risk-increasing drugs (FRID) Task and Finish group work	<b>Gulistan Bahat, Turkey</b>
14:15	Discussion	

<b>Plenary Session II (15:00 - 16:00)</b>		
<b>Rehabilitation following fragility fracture- Pillar II</b>		
<b>Chairs: Peter Giannoudis-UK and Jay Magaziner-FFN Global</b>		
15:00	Functional Recovery After Hip Fracture: Implications for Rehabilitation	<b>Jay Magaziner, FFN President</b>
15:15	Can immediate mobilisation always be safely achieved?	<b>Peter Giannoudis, UK</b>
15:30	Malnutrition in the Older Hip Fracture Patient	<b>Silvia Migliaccio, Italy</b>
15:45-16:00	Q and A	
<b>Breakouts– Pillar II</b>		
<b>16:15-17:15</b>		
<b>No 4. Rehab After-care</b>	<b>No 5. Training &amp; Education</b>	<b>No 6. Fracture Audit / Registry</b>
<b>Chairs: Xanthi Michail, Aydan Oral</b>	<b>Chairs: Paolo Falaschi, Andrea Marques</b>	<b>Chairs: Finbarr Martin, Antony Johansen</b>
<i>20 min Introductory Lecture</i> Rehabilitation After-care <b>Aydan Oral, Turkey</b>	<i>20 min Introductory Lecture</i> Educating Nurses <b>Eduarda Batista Di Lima, FFN-Italy</b>	<i>20 min Introductory Lecture</i> Hip Fracture Registry Project <b>Antony Johansen, UK</b>
<u>Open Forum: 40 min</u> <ul style="list-style-type: none"> <li>• <b>Gordana Devecerski,</b> <i>Physiatrist,</i> <b>Serbia</b></li> <li>• <b>Volodymyr Golyk,</b> <i>Physiatrist,</i> <b>Ukraine</b></li> <li>• <b>Maya Racic,</b> <i>General Practitioner,</i> <b>Bosnia-Herzegovina</b></li> </ul>	<u>Open Forum: 40 min</u> <ul style="list-style-type: none"> <li>• <b>Andrea Marques,</b> <i>Nurse,</i> <b>Portugal</b></li> <li>• <b>Mohamed Salem,</b> <i>Geriatrician,</i> <b>Malta</b></li> <li>• <b>Maria Panourgia,</b> <i>Geriatrician,</i> <b>UK</b></li> </ul>	<u>Open Forum: 40 min</u> <ul style="list-style-type: none"> <li>• <b>Tasos Nikolaidis,</b> <i>Orthop Surgeon,</i> <b>UK</b></li> <li>• <b>Peter Schulz,</b> <i>Orthop Surgeon,</i> <b>Germany</b></li> <li>• <b>Cristina Ojeda Thies,</b> <i>Orthop Surgeon,</i> <b>Spain</b></li> </ul>

**Please note that daylight-saving time finishes between 24th and 25th October.**

Day 2 times, as printed below, are therefore CET, not CEST - ie one hour earlier.

<b>DAY 2, Oct 25<sup>th</sup>, Morning</b>		
<b>Welcome to Day 2 and Recap of Day 1 (09:50 – 10:00)</b> Elias Panagiotopoulos, President of FFN Greece		
<b>Plenary Session III (10:00 – 11:00)</b>		
<b>Secondary Prevention following Fragility Fracture- Pillar III</b>		
<b>Chairs: Kassim Javaid-UK and Polyzois Makras-Greece</b>		
10:00	Key Performance indicators for effective secondary fracture prevention	<b>Kassim Javaid, UK</b>
10:15	Falls prevention following fragility fracture	<b>Hubert Blain, France</b>
10:30	Enhancing adherence to Osteoporosis Treatment	<b>Polyzois Makras, Greece</b>
10:45-11:00	Q and A	
<b>Breakouts–Pillar III</b> <b>11:15 – 12:15</b>		
<b>No 7. Seamless Integration to Community Care</b>	<b>No 8. Secondary Prevention</b>	<b>No 9. Falls and Frailty</b>
<b>Chairs:</b> <b>Christos Lionis,</b> <b>Radost Assenova</b>	<b>Chairs:</b> <b>Andrea Marques,</b> <b>Andy Gray</b>	<b>Chairs:</b> <b>Tahir Masud,</b> <b>Eleftheria Antoniadou</b>
<u>20 min Introductory Lecture</u> Integration into Community Care <b>Christos Lionis, FFN-Greece</b>	<u>20 min Introductory Lecture</u> Training fracture prevention practitioners <b>Andrea Marques, Portugal</b>	<u>20 min Introductory Lecture</u> Fear of Falling <b>Tahir Masud, UK</b>
<u>Open Forum – 40 min</u> <ul style="list-style-type: none"> <li>• <b>Radost Assenova,</b> <i>General Practitioner,</i> <b>Bulgaria</b></li> <li>• <b>Sandra Alexiu,</b> <i>General Practitioner,</i> <b>Romania</b></li> <li>• <b>Patrocinio Ariza Vega,</b> <i>Physiotherapist,</i> <b>Spain</b></li> </ul>	<u>Open Forum - 40 min</u> <ul style="list-style-type: none"> <li>• <b>Andy Gray,</b> <i>Orthop Surgeon,</i> <b>UK</b></li> <li>• <b>Tanja Pekez,</b> <i>General Practitioner,</i> <b>Croatia</b></li> <li>• <b>Olga Lesnyak,</b> <i>Family Physician,</i> <b>Russia</b></li> </ul>	<u>Open Forum - 40 min</u> <ul style="list-style-type: none"> <li>• <b>E. Antoniadou,</b> <i>Physiatrist,</i> <b>FFN-Greece</b></li> <li>• <b>Julie Whitney,</b> <i>Physiotherapist,</i> <b>UK</b></li> <li>• <b>Morten Tange Kristensen,</b> <i>Physiotherapist,</i> <b>Denmark</b></li> </ul>

12:45-13:30	<p style="text-align: center;"><b>UCB Sponsored Symposium</b></p> <p style="text-align: center;"><b>Chair: David Marsh</b></p> <p style="text-align: center;"><b>IQ Driving QI: Systematically improving the quality of care we provide to people who sustain fragility fractures</b></p> <p style="text-align: center;"><b>Paul Mitchell, Scientist, New Zealand</b></p> <p style="text-align: center;"><b>Discussants: Kassim Javaid</b> <b>Andy Gray</b></p>
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DAY 2 ,Oct 25 <sup>th</sup> , Afternoon		
Plenary Session IV (15:00-17:00)		
National Alliances and Policy Change – Pillar IV		
Chairs: Önder Aydingöz-Turkey and José Caeiro-Spain		
15:00	Multidisciplinary co-management improves quality of life for fragility fracture patients	<b>Xavier Griffin, FFN-UK</b>
15:20	How to persuade politicians	<b>Finbarr Martin, FFN-UK</b>
15:40	Guides to action from the global FFN	<b>David Marsh, FFN Regionalisation Committee</b>
16:00	How to build a national multidisciplinary alliance	<b>José R. Caeiro Rey, SEFRAOS, Spain</b>
16:20	What to expect next year in Oslo	<b>Frede Frihagen, FFN-Norway</b>
16:40-17:00	Open Forum	
17:00	<b>CLOSING REMARKS</b>	

## Poster Abstracts

Posters for the EU region are numbered according to the Pillar they concern eg EU-Pillar1-001.

You will find the posters in the Poster Hall

### EU-Pillar1-01

#### **LEVELS OF VITAMIN D IN PATIENTS WITH OSTEOPOROTIC VERTEBRAL FRACTURE: A RETROSPECTIVE ONE YEAR STUDY**

Begkas D., Chatzopoulos S., Panagopoulos P., Papageorgiou A., Iliadis I., Lymaxis E.,  
Giannakopoulos A., Pastroudīs A.

6<sup>th</sup> Orthopaedic Department, Asclepieion Voulas General Hospital, Athens, Greece

**Aim:** Vertebral fractures are one of the most common manifestations of osteoporosis - with one occurring every 22 seconds in patients over age 50. They are associated with an 8-fold increase in mortality and morbidity as back pain, loss of height and immobility. Vitamin D deficiency has been identified as a contributing risk factor for osteoporotic fractures. The purpose of this study was to retrospectively evaluate the levels of Vitamin D (25-OH-D) in patients suffered an osteoporotic vertebral fracture.

**Material-Method:** During the 2018 calendar year, 56 patients (37 female, 19 male, mean age 74 years) were admitted in our clinic for an osteoporotic vertebral fracture (25 thoracic and 31 lumbar). During their admission, they were screened for 25-OH-D levels and risk factors for hypovitaminosis D. None of the patients was receiving Vitamin D supplements at the time of admission.

**Conclusions:** Twelve (21%) patients were found to have 25-OH-D level below 10 ng/ml, 33 (59%) patients between 10 and 30 ng/ml and 9 (16%) patients above 30 ng/ml. There was no statistically significant difference in the levels of 25-OH-D between male and female patients. There was no correlation between the fracture site and 25-OH-D level. Forty-seven (83%) patients had at least one risk factor for hypovitaminosis D. Vitamin D levels are correlated with osteoporotic vertebral fractures. Identifying patients with risk factors for hypovitaminosis D along with Vitamin D supplementation might reduce the incidence of osteoporotic vertebral fractures.

## EU-Pillar1-02

### PERIPROSTHETIC VANCOUVER B TYPE FEMORAL FRACTURES TREATMENT WITH LONG FEMORAL STEM: RADIOLOGICAL AND CLINICAL OUTCOMES

Begkas D., Chatzopoulos S., Panagopoulos P., Iliadis I., Lymaxis E., Papageorgiou A.,  
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**Aim:** The number of periprosthetic femoral fractures are becoming increasingly common together with the increase of total hip arthroplasties (THA) and hemiarthroplasties (HA) and the aging osteoporotic population. These fractures are a major complication and their treatment is challenging. The aim of this study was to evaluate the radiological and clinical outcomes of their treatment.

**Material-Method:** We conducted a retrospective review of 16 patients with a periprosthetic Vancouver B1, B2 and B3 fracture that were admitted in our department between 2016 and 2018 and treated with a long femoral stem revision. All patients were followed up at 1, 2, 3, 6 and 12 months postoperatively. Their radiological evaluation was based on plain X-Rays using the Beals and Tower's criteria and their clinical evaluation on Visual Analogue (VAS), Harris Hip Score as well there incidence of complications.

**Conclusions:** Out of the 16 patients, 12 were female, 4 male, 10 were around a THA and 6 around a HA. Their mean age was 74 years (58 to 83). Three fractures were classified as Vancouver B1, 6 as B2 and 7 as B3. All fractures achieved union between 2 to 8 months after the fractures (mean 4 months). The Beals and Tower's criteria were excellent in 5 patients, good in 8 and poor in 3. The mean Visual Analogue Scale at 2 months after the fracture was 34.2 in comparison with 65.2 the score at one week after the fracture which was statistically significant. The mean Harris Hip Score postoperatively was 71.3. All patients survived until the end of the follow up. Three (18%) patients had a major complication and 6 (37.5) a minor one. None of the patients required a further operation. Periprosthetic femoral fractures are a major complication of THA and HA and their treatment still remains challenging. Optimization of the surgical treatment and postoperative protocol is needed for the optimum outcome.

## EU-Pillar1-03

### **RADIOLOGICAL AND FUNCTIONAL OUTCOMES AFTER CONSERVATIVE TREATMENT OF INTRA-ARTICULAR DISTAL HUMERUS FRACTURES IN ELDERLY AND LOW DEMAND PATIENTS**

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**Aim:** With the increasing of osteoporotic aging population, intra-articular distal humerus (IADH) fractures are becoming more frequent. Open Reduction and Internal Fixation (ORIF) or Total Elbow Replacement (TER) are the gold standard for these fractures. However in the elderly, high comminution of the fracture, poor bone quality and comorbidities are influencing factors for high complication rates. Conservative treatment in younger patients is rarely considered as it is believed to give poor functional results, however in the elderly and frail patients this might be a viable option. The aim of this study was to review the radiological and functional outcomes in patients treated conservatively for an IADH fracture.

**Material-Method:** Between 2014 and 2018, 12 patients (9 females and 3 male) presented at our clinic with 12 closed IADH fractures. The mean age of the patients was 82 (76-97) years. Due to low demand and high comorbidities of the patients, conservative treatment was chosen. The follow up was at 2 weeks after the fracture (ATF) and then every month for up to 12 months ATF. Initially they were immobilized with a long back slab and per os analgesics were prescribed. At 3 weeks ATF they were fitted with a functional arm brace and passive movement as pain tolerated was encouraged. Plain X-Rays were taken at each visit. Functional outcome was measured using the Bromberg-Morrey score and Oxford Elbow Score (OES) and Visual Analogue Scale.

**Conclusions:** From the 12 fractures, 6 were united by 3 months ATF, 3 at 5 months ATF and 3 were not consolidated by 12 months ATF. The Bromberg-Morrey score continuously improved after the first month (mean 38.5) up to the month 12 (mean 81.2). The mean OES at 12 month follow up was 28 (22 to 35). Visual Analogue Scale scores were greatly improved after 1 month and was not correlated with fracture union. Conservative treatment of IADH fractures in the elderly, low demand and high comorbidities patients, provides moderate results but avoids complications from surgical intervention, thus it remains a viable option.

## EU-Pillar1-04

### TERIPARATIDE TREATMENT AFTER OSTEOPOROTIC PUBIC BONE FRACTURE: RADIOLOGICAL AND CLINICAL OUTCOMES

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Giannakopoulos A., Pastroudis A.  
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**Aim:** Teriparatide (TPD) has been shown to reduce the incidence of fractures in osteoporotic patients and also to have a positive impact in fracture-healing. Pubic bone osteoporotic fractures often lead to increased morbidity, mortality and loss of mobility. The purpose of this study was to study the effects of TPD treatment in patients with osteoporotic pubic bone fractures.

**Material-Method:** Twelve patients (8 female and 4 male) with mean age of 79.3 years have been admitted in our clinic between 2015 and 2017 following an acute osteoporotic pubic bone fracture. The fracture was diagnosed and evaluated with plain X-rays and computed tomography (CT). During their hospitalization, bone mineral density (BMD) was measured with a Dual Emission X-ray Absorptiometry (DEXA) scan. All patients received a once-daily dose of 20mg TPD together with 1000mg calcium and 800 IU cholecalciferol. The follow up was done at 1, 2, 3, 6 and 12 months after the fracture. Radiological outcome was assessed with plain X-rays and functional outcomes with Visual Analogue Scale (VAS). Bone Turnover Markers -BTM (CTX and P1NP) were measured during their hospitalization and 2 months after the fracture and a new DEXA scan was performed at 12 months after the fracture.

**Conclusions:** Radiological healing of all fractures was achieved by the third month after the fracture (mean time 2 months). VAS scores improved significantly at 1 month after the fracture (from 85.3 to 36.4,  $p < 0.03$ ). BTMs mean values showed a significant increase 1 month after the fracture, CTX from 0.42 to 0.67 ng/ml and P1NP from 48 to 91.3 ng/ml, both being statistically significant ( $< 0.02$ ). BMD at 12 months showed a small increase but was not statistically significant. During the follow up no complications occurred related to the treatment. Treatment with TPD after a pubic bone fracture results in significant pain reduction, faster mobilization of the patient and increased fracture healing rate. Although the BMD has no significant increase, the proven effect of TPD on fracture prevention and on the clinical outcome makes its use an option to optimize the management of pubic bone osteoporotic fractures.

## EU-Pillar1-05

### CONSERVATIVE TREATMENT OF VANCOUVER B PERIPROSTHETIC FRACTURES: A TWO YEAR RADIOLOGIC AND CLINICAL FOLLOW UP

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Giannakopoulos A., Pastroudis A.

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**Aim:** The number of hip hemiarthroplasties (HA) or total hip arthroplasties (THA) is steadily increasing together with the aging and osteoporotic population. One of their major complications are these of the periprosthetic fractures. Sometimes, these fractures in combination with a frail and with high comorbidities patient pose the question of the necessity of surgical treatment. The aim of this study is to retrospectively evaluate the radiological and clinical findings of patients with minimally displaced Vancouver B type fractures treated conservatively.

**Material-Method:** In a single orthopedic department, between 2013 and 2016, 13 patients (8 female and 5 male) with a mean age of 81.3 years, were admitted for a minimally displaced Vancouver B type fracture (10 around a HA and 3 around a THA). For these patients, conservative treatment was decided due to multiple comorbidities. Initially they were restricted to mobilization in the bed for 6 weeks, followed by assisted mobilization without weight bearing for a total duration of 3 months. The follow up was at 1 month after the fracture and then every month until fracture consolidation followed by every 3 months until 24 months after the fracture. The patients were evaluated based on plain X-Rays, Harris Hip Score, Visual Analogue Scale and complications rate.

**Conclusions:** Fracture union was observed in 11 of the fractures with median fracture time 5 months (2 to 7). Mean Visual Analogue Scale (VAS) scores, showed great improvement between the first - 78.4mm and third month 35.5mm after the fracture ( $p<0.03$ ). The average Harris Hip Score at the end of the follow up was 68.2. The clinical outcome was similar for both patients with HA and THA. One patient died due to hemorrhagic stroke at 13 months after the fracture. Although conservative treatment of periprosthetic Vancouver B type fractures in the elderly and low demand patients with high comorbidities provides modest results, it remains a viable option as it avoids the immediate and interim complications of surgical treatment.

## EU-Pillar1-06

### DO FRAGILITY FRACTURES AFFECT DIETARY HABITS AND ADHERENCE TO MEDITERRANEAN DIET?

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**Aim:** Mediterranean diet has been associated with reduced bone mass loss in late adulthood. In addition, several studies have shown that it may have a positive effect on a variety of health indices, and co-morbidities. Therefore, the adherence to Mediterranean diet could have a beneficial effect on bone health, and improve the quality of life of patients with fragility fractures. The aim of the current study was to identify potential differences among dietary habits between people that experienced a low impact fracture, and those who did not.

**Material-Method:** A total of 116 people participated in the study (111 females, 5 males), 57 (52 – 65) years old, with a Body Mass Index of 26.95 (24.08 – 29.38) kg/m<sup>2</sup>. BMD was estimated using dual X-ray absorptiometry (Lunar, GE Healthcare) and T-score between lumbar vertebrae L1 to L4, and femoral neck, were calculated using the on-board software. T-score<sub>L1-4</sub> was -1.30 (-2.04 – -0.40), and T-score<sub>Fem</sub> -1.30 (-1.90 – -0.60). Dietary intake was estimated using a food frequency questionnaire. The adherence to Mediterranean diet was calculated using the PREDIMED 14-item tool, and participants' score was 9 (8 – 10).

**Conclusions:** Five cases of high impact fractures were identified, and excluded from the analysis. The final sample comprised of 81 control subjects and 30 patients with fragility fractures. No significant difference was found in T-score<sub>L1-4</sub> between control subjects and fragility fracture patients [-1.30 (-2.10 – -0.17) vs. -1.34 (-1.92 – -0.77); U=1158.5, p=0.707]. Similarly, no difference was found in T-score<sub>Fem</sub> [-1.20 (-2.00 – -0.45) vs. -1.43 (-1.72 – -0.98); U=1141.5, p=0.623]. All participants used olive oil as the main culinary oil, and showed minimal use of butter, cream or margarine, and 82.88% exceeded a daily intake of 4 tablespoons. Few participants consumed fish, legumes or wine on a regular basis. A higher percentage of fragility fracture patients showed higher adherence to Mediterranean diet ( $\geq 10$ ), however, PREDIMED score [8.5 (7 – 10)] did not differ significantly from the one in the control group [9 (8 – 9); U=1167.5, p=0.747]. A modification of dietary habits may be present in a subset of low impact fracture patients. However, essential steps according to a healthy balanced diet would be more efficient in improving adherence to a Mediterranean diet, and potentially beneficial in the secondary prevention of fragility fractures.

## EU-Pillar1-07

### MANAGEMENT OF ONGOING DIRECT ANTICOAGULANT TREATMENT IN PATIENTS WITH HIP FRACTURE. A RETROSPECTIVE STUDY FROM A TERTIARY HIP FRACTURE CENTER

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This work is part of a project of Italian Health Ministry and Regione Toscana, RF-2010-2316600

**Aim:** The present study was designed to investigate the effects of ongoing treatment with direct oral anticoagulants (DOACs) on time to surgery and clinical outcomes in patients with hip fracture.

**Material-Method:** In this observational retrospective study clinical records of patients admitted for hip fracture from January 2016 to January 2019 were reviewed. Demographic data, comorbidities and functional status before trauma were retrieved. As control group we evaluated patients not on anticoagulants matched for age, gender, type of fracture and ASA score.

**Conclusions:** 74 patients were in treatment with DOACs at hospital admission. Time to surgery was significantly longer in patients treated with DOACs than in control group (3.6 ±2.7 vs. 2.15 ±1.07 days, p<0.0001) and treatment within 48 hours was 47% vs. 80 % in control group (p<0.0001). The adherence to the suggested time from last drug intake to surgery was 46 %. Neither anticipation nor delay in surgery did result in increased mortality, length of stay or complication rates with the exception of larger perioperative blood loss (Hb levels < 8 g/dl) in DOACs patients ( 34% vs 9% p<0.0001). Present results suggest that time to surgery is significantly longer in DOACs patients in comparison to controls. Adherence to guidelines suggestions about time to surgery since last drug intake is still limited. Adherence to guidelines may decrease time to surgery in patients in treatment with DOACs who need surgery for hip fracture.

## EU-Pillar1-08

### PERIOPERATIVE MYOCARDIAL INFARCTION/MYOCARDIAL DAMAGE IS ASSOCIATED WITH HIGH HOSPITAL MORTALITY IN ELDERLY PATIENTS UNDERGOING HIP FRACTURE SURGERY

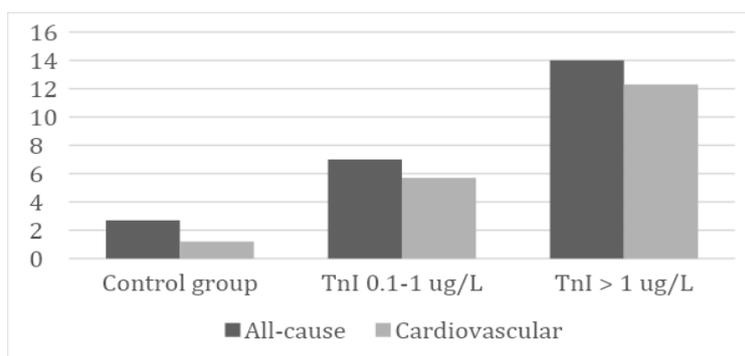
Rostagno, C.<sup>1</sup>, Cartei, A.<sup>1</sup>, Rubbieri, G.<sup>1</sup>, Ceccofiglio, A.<sup>1</sup>, Magni, A.<sup>1</sup>, Forni, S.<sup>2</sup>, Civinini, R.<sup>3</sup>, Boccaccini, A.<sup>4</sup>

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**Aim:** Cardiovascular complications in patients undergoing non cardiac surgery are related with longer hospital stay and higher in-hospital mortality.

**Material-Method:** The electronic records of 1970 consecutive hip fracture patients were reviewed. From the study were excluded patients <70 years, with myocardial infarction <30 days, sepsis and active cancer. Troponin and ECG were obtained at admission and 12, 24 and 48 hours after surgery. Echocardiography was made before and within 48 hours after surgery. Myocardial damage was defined by peak troponin I levels > 99th percentile.

**Conclusions:** 1854 / 1970 patients were included. 754 had troponin increase. Peak troponin was between 0.1- 1 µg/L in 593. 191 had peak troponin I ≥1 µg/L. 98 died in hospital (5%). Mortality was significantly higher in both groups with troponin increase in comparison to controls (7%, 14% and respectively 2.9%).



Evidence of myocardial ischemia, allowing diagnosis of myocardial infarction, was found in 48%. Ischemic changes were more frequent with higher troponin values, however mortality did not differ between patients with and without evidence of ischemia. Myocardial damage/infarction is associated with increased mortality after hip fracture surgery. Elevated troponin values but not ischemic changes are related to worse outcome.

## EU-Pillar1-09

### DEVELOPMENT AND VALIDATION OF A NEW SCORE SYSTEM

#### TO PREDICT IN-HOSPITAL MORTALITY AFTER HIP FRACTURE: THE CAREGGI SCORE

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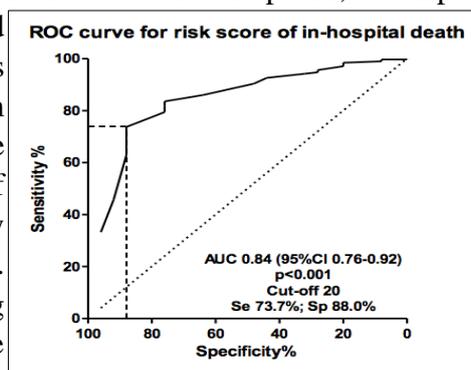
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**Aim:** To develop and validate a new predictive score system to assess in-hospital mortality risk in patients with hip fracture who need surgical intervention.

**Material-Methods:** In development phase we retrieved electronic record of 756 consecutive patients aged >70 years referred to for hip fracture between 1st January and 31st December 2016. Demographic, clinical and laboratory data were inserted into a univariate logistic regression analysis and the statistically significant results parameters inserted into a multivariate logistic regression analysis in order to find factors independently related to in-hospital mortality. In the validation phase were prospectively included 206 patients from 1 April to 31 July 2019. For each patient the developed mortality risk score (Careggi score) was calculated at admission. The development phase showed male sex, motility before trauma (pointed 0 to 3- 0 bedridden, 3 able to walk >100 meters without aid), atrial fibrillation and renal failure independently related to in-hospital mortality. In order to assign to each patient a risk score, the numeric value of each variable was multiplied times their own logistic coefficient (in turn multiplied by 10 in order to round it to the nearest integer), and the sum of these results gave, for each patient, a risk score of in-hospital death. Namely, gender was multiplied by 12, previous motility by -7, AF by 15 and renal failure by 12. All variables were dichotomic (0 or 1) except for previous motility which ranged 0 to 3; therefore the score ranges -21 to 39. To avoid negative numbers, a constant (25) was then added to this score, so that it can range 4 to 64.

**Conclusions:** Survivors had a median score 16 (4-23) whereas non survivors had 30 (28-38),  $p < 0.001$ . A ROC curve was then plotted and with the Youden's method an optimal cut-off of >20 was found to better discriminate patients with worse prognosis. This cut-off yielded 88% sensitivity (95% CI 69 to 97%) and 74% specificity (95% CI 71 to 77%). In the population of the validation phase, in-hospital mortality was 2.9% (6 out of 206 patients). 5/6 patients deceased had a score > 20 in comparison to only 1 out of 200 patients discharged alive. Careggi score was compared with Nottingham hip fracture score and showed a better predictive value. A simple predictive score system may be useful to assess the risk of mortality in patients undergoing hip fracture surgery. Mortality in patients undergoing hip fracture surgery is close to 5%. Identification of patients at high risk of mortality during hospitalization may be helpful to avoid futility in treating these patients.



## EU-Pillar2-01

### QUALITY OF LIFE IN WOMEN WITH OSTEOPOROTIC FRACTURE ON THE SPINE AFTER ONE YEAR EXERCISE

Koevska, V., Mitrevska, B., Cjerakaroska –Savevska, C., Gocevska, M., Kalcovska, B., Manoleva, M.

Institute for Physical Medicine and Rehabilitation, Medical faculty, University "Ss. Cyril and Methodius"- Skopje, R.N. Macedonia

**Aim:** Women with PO often have a low energy fracture of the spine throughout their lives. Clinically manifested by pain and deformity of the spine, which can lead to decreased physical activity. Patients are more limited in performing everyday activities and their social activities. If appropriate therapeutic procedures are not taken, this can lead to worsening their quality of life. The aim of this study was to examine the effect of physical therapy on the quality of life in patients with osteoporotic fracture of the spine after one year follow-up.

**Material-Method:** 92 patients, randomly selected, with diagnosed osteoporotic fracture of the spine, that were treated 12 months at the IPMR-Skopje. The first three weeks for pain received physical modalities and pain killers. None of the patients had previous surgical treatment of osteoporotic fracture of the spine. The exercise program consisted of aerobic and isometric exercises for paravertebral, abdominal and upper and lower extremity muscles, coordination and balance exercises. Patients regularly took bisphosphonates, calcium and vitamin D. Quality of life was determined by the specific Qualiffo-41 questionnaire at the beginning and after one year. Patients were mean age  $60.64 \pm 6.7$  years, and 48.91% of them had completed secondary education. The difference in average BMI at admission and after one year was not statistically significant ( $p = 0.7$ ).

**Conclusions:** The score of the Qualeffo-41 questionnaire showed significant improvement in patients in the domain of pain ( $0.00003$ ), physical function ( $p=0.003$ ), social activation ( $p=0.043$ ) and perception for their own health ( $p=0.021$ ).

Variable		(mean $\pm$ SD )	min-max	p variable
Pain	reception	$55.31 \pm 22.1$	0 – 100	t=4.4 p=0.00003**
	Control	$43.66 \pm 24.4$	0 – 100	
Physical function	reception	$34.86 \pm 18.9$	0 – 80	t=3.07 p=0.003**
	Control	$27.09 \pm 18.9$	0 – 86	
Social activate	reception	$49.54 \pm 25.7$	0 – 100	t=2.05 p=0.043*
	Control	$42.91 \pm 28.7$	0 – 100	
Mental reception	reception	$62.59 \pm 24.7$	1– 100	t=2.35 p=0.021*
	Control	$54.99 \pm 26.9$	1 – 100	
Perception of own health	reception	$41.81 \pm 11.6$	16 – 78	t=1.35 p=0.18
	Control	$39.97 \pm 9.7$	22 – 70	

The physical therapy consisting of physical procedures and specific exercise program reduces the pain and improves the quality of life in female patients with osteoporotic spinal fracture. In the treatment, except drug therapy and proper nutrition, suitable program of exercise is necessary.

## EU-Pillar2-02

### PHYSICAL THERAPY IN SURGICALLY TREATED PERTROCHANTERIC FRACTURES

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Institute for physical medicine and rehabilitation, Medical Faculty, University "Ss. Cyril and Methodius", Skopje, Republic of North Macedonia

**Aim:** Pertrochanteric fractures are about four times more common in thigh fracture neck fractures and most commonly occur in patients older than 65 years. Geriatric patients have a higher mortality and morbidity rate than the young population, and this requires a different approach to treatment, which should reduce mortality and increase postoperative success. The aim of the study was to evaluate the effects of treatment and physical rehabilitation with kinesitherapy and magnetotherapy versus kinesitherapy and therapy with interference currents of patients with surgically treated pertrochanteric fracture with DHS, according to the protocol results monitoring.

**Material- Method:** The study represents a prospective randomized clinical trial. Include two cohorts, with 90 participants with surgically treated pertrochanteric fracture with DHS. Respondents are divided into two groups: Examined cohort - 45 patients is treated with kinesitherapy and magnetotherapy and control group - which has 45 patients treated with kinesitherapy and therapy with interference currents. Respondents were followed for one year, during which were performed three examinations, from the first review which is input for selected patients who meet the criteria for inclusion in research.

**Conclusions:** For  $p < 0,05$ , in the examined group found a significant difference between Harris hip score in the three times of physical examination. Upon discharge, after 6 and 12 months, for  $p < 0,05$ , the analysis indicated a statistically significant difference between the two groups in terms of Harris hip score.

	discharge	6 months	12 months
Mann- Whitney U	620	451	385
Z	(3.168)	(4.535)	(5.085)
Asymp.Sig. (2-tailed)	0.002*	0.0001*	0.0001*

On physical examination after discharge, after 6 and 12 months, Harris hip score in the examined group with magnetic therapy was significantly greater and the condition of patients was significantly better compared, with the same, in the group treated with kinesitherapy and interference currents. It can be concluded that postoperative rehabilitation of pertrochanteric fractures with fixation of dynamic implant-DHS, therapy of choice is kinesiotherapy and magnetic therapy, from which there is an improvement both in functional status, in the stimulation of osteogenesis and quality of life in adult patients.

## EU-Pillar2-03

### MAIN MEDICAL DISPUTES IN THE REHABILITATION SETTING AFTER FRAGILITY FRACTURES

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**Aim:** To identify the main medical issues that physicians face when treating patients that have suffered from a fragility fracture whether the patients reside at home or in an inpatient rehabilitation facility.

**Material - Method:** Bibliographic research of the last 10 years in scientific search engines, "PubMed", "Google Scholar", "Uptodate" and "Cochrane Library". Keywords used were "rehabilitation, fragility fractures".

**Results:** It was found that medical management predominantly includes pain management, pressure ulcer prevention, anticoagulation, nutritional supplements and delirium prevention and appropriate treatment. Other probable issues include anemia, constipation and urinary tract complications. It was also documented that within the first month after the discharge from hospital in patients with a hip fracture, readmission rates were 14%, with pneumonia the most frequent reason. Specific co-morbidities, such as fluid and electrolyte disturbances, cardiac arrhythmias, congestive heart failure and chronic obstructive pulmonary disease, are associated with a high rate of readmission.

**Conclusions:** Pain management, pressure ulcer prevention, thromboprophylaxis, nutrition and delirium prevention and treatment are the most common medical concerns in patients with fragility fracture during the rehabilitation phase.

## EU-Pillar3-01

### PREVENTION OF OSTEOPOROTIC FRACTURES IN PATIENTS OVER 65 YEARS BY AN OUTPATIENT CLINIC BASED ON A MULTIDISCIPLINARY TEAM

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2. Patras University

**Aim:** In the Rehabilitation Department of Patras University Hospital, an outpatient clinic was established that targets the individual needs of the geriatric patient with the aim to reduce the impact of fragility fractures both to patients and health care system. There are important consequences in terms of morbidity and mortality for people over 65 years of age after an osteoporotic fracture. Although prescription of an antiosteoporotic drug is common practice, this approach is inappropriate not only for the complex needs of this particularly vulnerable population, but also for the prevention of any future fractures.

**Material-Method:** In our setting the Comprehensive Geriatric Assessment (CGA), is used as the baseline for evaluation and treatment. The protocol is as follows:

1. Step one - medical visit, interview and thorough clinical examination. Prescription of blood test focusing on geriatric pathology that could have bone effects
2. Step 2 – based on the results of blood test, prescription of an appropriate treatment
3. Step 3 –functional (assessment) evaluations by a team using validated screening and diagnostic tools (Frailty/Fried criteria; Hand grip/Dynamometer; Sarc F; MNA; MMSE; GDS; SPPB; miniBEST; IADL Lawton Brody; Katz Index; FES; Pelma analysis; Fall check list)
4. Step 4 – Joint team meeting to discuss the results and plan appropriate interventions and outcome monitoring

**Conclusions:** No of visits (total): 237/ 8 months, No of patients that the multidisciplinary assessment changed the treatment planning: 48, No of fallers detected 38, No of patients undergone fall prevention program 27, Compliance of frail fallers: 4/30, Cost is under evaluation

Lessons: 1.Multidisciplinary assessment can change treatment plan, 2.The treatment compliance of frail older people is very low due to social parameters (literacy levels, social exclusion, financial restrictions), which need to be taken into account when designing the intervention. Main messages:

- Geriatric patients with osteoporosis requires a multidisciplinary team approach based on the CGA.
- Osteoporosis in the geriatric population is part of a complex nosological entity that includes sarcopenia, disequilibrium, but also malabsorption and polypharmacy, but also social parameters are important determinants.

## EU-Pillar3-02

### OSTEOPOROSIS AFTER STROKE – WHAT DO WE KNOW?

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**Aim:** Osteoporosis and subsequent fractures are well-recognized complications of stroke. However, diagnostic approach and therapeutic strategies for osteoporosis after stroke have been rarely discussed or defined in the current guidelines. To review epidemiology, pathophysiology, diagnostic approach, and therapeutic strategies for osteoporosis after stroke.

**Material-Method:** Pubmed research and selection according to relevance and suitability of articles in English, published in the last 20 years, using the MeSH term “stroke” intersected with the term “osteoporosis”.

**Conclusions:** Stroke is a leading cause of adult disability, and up to two-thirds of stroke survivors have limitations in mobility. Previous studies have suggested an up to 4- to 7-fold increase in the risk of fractures in those with stroke compared to healthy controls. The high risk of post-stroke fractures seems to be related with a decline in bone mineral density and with the high risk of falls in these patients. The pathogenesis of osteoporosis after stroke remains unclear. Paresis, reduced mobility, and reduced bone load seem to play a major role. Other factors such as nutritional and iatrogenic ones may also play an important part. Osteoporosis as a complication of stroke is described in stroke guidelines but is not accompanied by recommendations for testing or treatment, other than falls prevention strategies. Osteoporosis clinical practice guidelines do not explicitly address stroke in their risk stratification systems. Patients with recent stroke are infrequently screened and treated for osteoporosis, which may increase the risk of fractures. It is important to define strategies to identify and treat patients who are at increased risk of fractures after stroke.

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## EU-Pillar3-03

### CORRELATION BETWEEN VITAMIN D DEFICIENCY AND HIP FRACTURE SEVERITY IN SENIORS IN GREECE

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**Aim:** Several studies support that vitamin D levels are associated with hip fracture severity.

**Material-Method:** This cross-sectional study included 61 consecutive individuals over 65, with mean age 83.39, admitted to authors hospital for osteoporotic hip fracture over a year. Demographic data, fracture type, fracture severity were evaluated, while 25-hydroxy vitamin D was measured by the enzyme-linked immunosorbent assay. We defined the severe subcapital fractures those with grade 3 or 4 according to Garden classification, while severe intertrochanteric fractures were defined those with grade A2.2, A2.3 and all A3 fractures according to AO/OTA classification. Intertrochanteric hip fractures predominated, after being found to be 44, while subcapital hip fractures were 17. The vast majority of men had intertrochanteric fracture (9/10), while women in 30% of cases had subcapital (15/50) fractures. We found out that intracapsular fractures ( $8,09 \pm 4,74$  ng/ml) are associated with more severe vitamin D deficiency compared with the intertrochanteric fractures ( $9,3 \pm 8,5$  ng/ml). The severe hip fractures were 40 of 61, to wit 65,6%. The vitamin D levels in patients with severe fracture were  $8,1 \pm 7,6$  ng/ml, while in cases with not comminuted fractures the vitamin D levels were higher ( $10,7 \pm 7,4$  ng/ml). It is noteworthy that 31 out of 40 cases (77,5%) of severe comminuted fractures revealed vitamin D levels less than 10 ng/ml and only 9 cases had vitamin D levels more than 10 ng/ml. On the other hand, the group with stable hip fractures had 47,6 % of cases with vitamin D more than 10 ng/ml and only 52,4 % less than 10 ng/ml. Correlation between fracture severity and status of vitamin D levels according to Horlick classification (<10ng/ml, 10-20ng/ml, 20-30ng/ml, >30ng/ml) with Spearman's equation is very close to statistical significance, as the p-value was found to be 0,059.

**Conclusions:** Although vitamin D levels are not very different between patients with intracapsular or extracapsular hip fractures, a more severe vitamin D deficiency seems to be associated with more severe osteoporotic hip fractures. A prior vitamin D supplementation could restrict the severity of these fractures. Comminuted fractures are associated with fixation difficulties rehabilitation restrictions and finally functional disability. Authors suggest vitamin D measurements regardless of annual insolation, to identify and counsel the elderly with an increased risk of a severe comminuted hip fracture.

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## EU-Pillar3-04

### CORRELATION BETWEEN POLYPHARMACY AND FALLS IN SENIORS WITH HIP FRACTURE IN GREECE.

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**Aim:** Polypharmacy is closely related with elderly's falls, while falls are associated with increased morbidity, mortality, undesirable events, unplanned admissions to emergency departments, whereas fear of falling leads to isolation and resignation. The aim of the study is to investigate the possible association of polypharmacy and falling among older patients.

**Material-Method:** We randomly selected 61 elderly patients (51 women, 10 men) with an average age of 83,39 years who were hospitalized in our clinic for hip fracture due to falling. As a control group, we randomly selected 60 patients (38 women and 22 men) with an average age of 72,98 years who were hospitalized in our department for degenerative diseases. In the hip fracture group, we had  $4,77 \pm 2,9$  drugs per day per patient, while in the control group the average was  $3,6 \pm 1,85$ . It is worth noting that only 31,1% of patients with hip fracture received less than four medications, while the subjects in degenerative disease group only 41,7 % received four or more medications. Hip fractured patients are closely related with falls, as the hip fracture is a consequence of at least one fall. It is worth noting a trend we have seen for polypharmacy of all patients. The correlation of the number of drugs consumed of each group showed a p-value of 0,085, a value very close to statistical significance and this should be noted.

**Conclusions:** Several studies have linked polypharmacy with falls and for this reason polypharmacy until 2000 was considered as an independent risk factor for falls. However, more important seems to be the type of drugs that potentially can cause falls, like anticholinergics or sedatives. Our study also shows the increased use of drugs in the group of patients with falls and hip fractures. Elderly people who receive more than three drugs or drugs that induce falls should be considered as "candidates" for fall and should be properly recognized and consulted. Evaluation of elderly's medication is mandatory when physicians manage such patients.

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## EU-Pillar3-05

### CLINICAL FRAILITY SCALE AS A PREDICTOR OF SHORT TERM FUNCTIONAL RECOVERY IN PATIENTS WITH HIP FRACTURE

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**Aim:** The prevalence of frailty in patients with hip fracture is high, but little is known about the choice of the best frailty tool in terms of prediction of functional recovery. The aim of this preliminary study was to determine the most predictive validated frailty tool in older people with hip fracture and to determine whether frailty can predict functional recovery during the hospital acute phase.

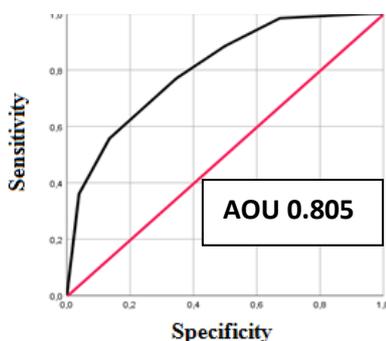
**Material-Method:** This study was observational prospective cohort study. Participants aged 65+ admitted to Hip Fracture Units in Florence, were assessed pre surgery (T0), and post surgery. Each participants underwent a comprehensive geriatric assessment and frailty was defined using: Clinical Frailty Scale (CFS), Frail Scale (FS), Reported Edmonton Frail Scale (REFS), Postal Frailty Screening (PFS). The outcome was functional recovery, evaluated by a score of postoperative performance on the Cumulated Ambulation Score (CAS). Data recorded included pre-recovery Barthel Index (BI), Charlson Comorbidity Index (CACI), Handgrip strenght test (HG), ASA score, Mini Nutritional assessment short-form (MNA-sf), delirium.

**Conclusions:** Sample included 114 patients (mean age  $85 \pm 8$  years, female 75.4 %) (**Table 1**). CFS was the most predictive frailty tool, with a 88% sensitivity and a 50% specificity (AUC = 0.80, cut off >3) (**Figure 1**). Dividing the sample according to premorbid BI, while BI itself had the highest predictive value when premorbid level was <80%, CFS was the best predictor of functional outcome in the 80%+ subsample (AUC= 0.67) (**Figure 2**). Frailty defined by CFS can predict short-term functional recovery during acute phase following hip fracture. This appears particularly relevant for subjects with a higher pre-morbid functional independence.

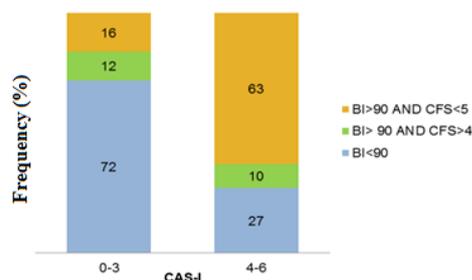
**Table 1.** Sample characteristics

Age mean $\pm$ DS	85 $\pm$ 8
Female, N (%)	86 (75)
Barthel Index $\geq$ 80, N (%)	70 (61)
Charlson Comorbidity Index	5 (4.6)
ASA score $\geq$ 3, N (%)	68 (58)
SPMSQ $\geq$ 8, N (%)	16 (15)
AD8 $\geq$ 2, N (%)	86 (75)
Postoperative Delirium, N (%)	24 (20)
MNA-sf <12, N (%)	83 (73)
Handgrip deficient, N (%)	33 (73)

**Figure 1.** ROC Curve Clinical Frailty Scale and Cumulated Ambulation Score



**Figure 2.** Walking at discharge versus the combination of Barthel Index and CFS



## EU-Pillar3-06

### RELATIONSHIP BETWEEN VITAMIN CYANOCOBALAMIN (B12), 25-OH-VITAMIN D3 (D3) AND ANTICHOLINERGIC DRUGS WITH FEAR OF FALLS AND FALLS. RESULTS FROM A GERIATRIC PATIENT SAMPLE FROM THE CLINIC OF FALL PREVENTION, OSTEOPOROSIS AND SARCOPENIA (I.P.P.O.S) OF THE UNIVERSITY GENERAL HOSPITAL OF PATRAS (U.G.H.P)

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**Aim:** Balance disorders and falls are common in the geriatric population and have multifactorial etiology. The present study investigates whether the levels of vitamins D3 and B12 as well as drugs with anticholinergic action are related to balance, fear of falls and falls, in the effort of a comprehensive evaluation of falls in the elderly.

**Material-Method:** The level of vitamin D3 and vitamin B12 were evaluated in 96 patients of both sexes and age  $\geq 65$ , with and without fractures, from Jan. 2018 to Dec. 2019 during their first visit to the IPPOS. The number of falls of the last year was also recorded and the Anticholinergic-Cognitive-Burden score (ACBscore) was calculated. Balance was evaluated with the Mini-Balance-Evaluation-Systems-Test (Mini-BEST) and the fear of falls with the Falls Self-Efficacy Scale (FES-I).

**Conclusions:** The Linear Bivariate Correlation showed no statistically significant relationship between level of vitamin B12, MiniBest and FES-I values with the number of falls. Statistically negative correlation was found between level of vitamin D3 and the number of falls ( $r_s(93) = -0.274$ ,  $p = 0.008 < 0.05$ ). Multiple Linear Regression analysis, with the Enter method, showed that from the factors under study, vitamin D3 can predict ( $p = 0.028 < 0.05$ ) with statistical significance, the number of falls. FES-I is related negatively to the Mini-Best ( $p < 0.000$ ) and positively to falls ( $p < 0.03$ ), while it was not related to the Vit.D3 ( $p < 0.297$ ), Vit.B12 ( $p < 0.371$ ) and marginally to the ACBscore ( $p < 0.052$ ). The study confirms the literature data, which correlates falls with higher FES-I values and with lower Mini-Best values. Vitamin D3, while associated with falls, does not appear to affect balance (Mini Best) or fear of falls (FES-I). Vit.B12 levels do not appear to affect balance and falls. The use of anticholinergic drugs (ACBscore) is marginally not related to the fear of falls, but that can be attributed into the limits of statistical error. In the present study, vitamin D3, balance and fear of falls appear to be the main factors responsible for falls and therefore should be the main areas of intervention at the prevention of falls.

## EU-Pillar3-07

### INVESTIGATION OF LOW-ENERGY FRACTURE RISK FACTORS IN A SAMPLE OF ELDERLY PEOPLE LIVING IN THE COMMUNITY IN GREECE

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4. Orthopedic Surgeon, Professor of Medicine, University of Patras

**Aim:** The aim of the study was to investigate the effect of factors, such as poor eyesight, fear of falls, depression and demographic characteristics, on low-energy fractures in elderly people living in the community.

**Material-Method:** The study was synchronous and was conducted in a random sample of 62 people over 65 years of age, who attended the program of an Open Care Center for the Elderly of the Municipality of Patras in the spring of 2020. The main scales used were: the NEI VFQ-25 (National Eye Institute Visual Function Questionnaire), the FES-I Scale (Falls Efficacy Scale - International) and the GDS-15 scale (Geriatric Depression Scale-15). This research is co-financed by Greece and the European Union (European Social Fund- ESF) through the Operational Programme «Human Resources Development, Education and Lifelong Learning 2014- 2020» in the context of the project “A Holistic Interdisciplinary Approach to Treating Patients with Fragility Fractures” (MIS 5047167).

**Conclusions:** 78.1% of the sample were women and the mean age was 72.15 years (SD ± 6.04). 70.3% were married and the average value of years of education was 7.39 (SD ± 3.66), while 87.5% were not working. The screening showed that 40,6% had suffered a fracture. Of those with a fracture history, all were women (n = 24) and Spearman's correlation coefficient r showed no connection with ocular problems and depression. However, Spearman's correlation coefficient showed a positive correlation in terms of fear of falls (r = , 335, p <, 05), gender (r = , 396, p <, 01) and a negative correlation with monthly income (r = -, 41, p <, 01). The corresponding control in the fracture-only group showed only one correlation, which was a negative correlation with the caregiver relationship (r=-,490, p<,05), indicating that lonely individuals are more vulnerable to fractures.

In the relevant literature the most important risk factors for low-energy fractures are age, sex, body mass index, previous low-energy fractures, history of parent hip fracture, bone density, secondary osteoporosis, corticosteroid treatment. smoking, alcohol and frequent falls (Akesson et al, 2013; Svedbom et al, 2013). This study showed that one in four older people over the age of 65 had experienced at least one low-energy fracture. Female gender, fear of falling and low social status, as reflected in low income and lack of social support, are risk factors for low-energy fractures.



## EU-Pillar3-08

### THE EFFECTS OF A 12 WEEK OTAGO EXERCISE PROGRAMME ON MUSCLE STRENGTH, BALANCE AND FEAR OF FALLING IN A SAMPLE OF COMMUNITY ELDERLY WOMEN

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**Aim:** To explore the effects of an acknowledged, elderly-specific exercise programme, the Otago exercise program (OEP) on muscle strength, balance and fear of falling (FoF) among Greek healthy women 60 years old and over.

**Material-Method:** 51 elderly women (mean age  $72.87 \pm 5.83$  years) from an Open Care Center for the Elderly in city, Greece agreed to participate in the study. They enrolled in a group-based OEP, run twice a week for 12 weeks, under the supervision of two specialized in this area physiotherapists. The OEP is an evidence-based progressive exercise programme designed for the elderly (developed, evaluated, and disseminated in New Zealand), comprising three domains; muscle strengthening, balance training, and walking. The measures completed pre and post intervention included knee muscle strength, as measured isokinetically with Biodex isokinetic dynamometer for knee flexors and extensors, hand grip strength (HGS) measured with a hand held dynamometer (Saehan), balance capacity as measured with the Berg Balance Scale and Falls Efficacy Scale-International (FES-I) and walking capability measured with the Timed-Up and Go (TUG) test. Ethical approval was given by the Ethics Committee of the School of Health and Welfare of the Technological Educational Institute (TEI) of Western Greece.

**Conclusions:** Exercisers showed significant improvement in measures of HGS, balance, walking capability and FoF at the completion of the programme. Participation in the OEP resulted in statistically significant differences in TUG scores ( $p < 0.001$ ), FES-I score ( $p = 0.03$ ), Berg Balance scale ( $p = 0.009$ ) and HGS ( $p < 0.001$ ). Lower extremity strength was improved, however, statistically significant differences were noted only in left knee flexion strength ( $p < 0.001$ ) and right knee extension strength ( $p < 0.05$ ). Findings suggest that an organized twice-weekly, 12-week exercise programme can improve balance outcomes and FoF amongst elderly community-dwelling people. Elderly women, should be encouraged to participate in community-based group exercise programs to maintain overall health and wellness and prevent future falls. Future studies should be conducted in a larger sample size and compare OEP against other recognized exercise programmes in order to further determine their benefits.