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MRPH

VIENNA SUMMER MEETING

25th – 27th July 2019



European Network of Medical Residents in Public Health



Summer Meeting

25th – 27th July 2019
Vienna, Austria

Abstract Book

Willkommen in Wien!

Dear EuroNeters,

One of the three pillars of the European Network of Medical Residents in Public Health is research. This means that EuroNet is dedicated to promoting and fostering research activities of public health residents in Europe. To achieve this EuroNet is constantly working to promote research through the dedicated Research Lead and the newly formed Research Team.

Additionally every EuroNet Meeting tries to allocate time for residents to present their own research projects not only as means to practice their skills but also to provide them with valuable international feedback. The Meeting in Vienna will be no exception and we are happy to present five abstracts from our participants.

As research activities are also important for career development of the residents, for the first time we will be issuing an abstract book that will be available online and presents a possibility for future citations and referencing.

The submitted abstracts present a diverse overview of scientific activities done by our participants from Austria, United Kingdom, Italy and Portugal. We hope for an interesting session and a lively debate.

Recommended citation:

European Network of Medical Residents in Public Health. *Abstract Book of the EuroNet Summer Meeting Vienna*. Vienna: EuroNet MRPH; 2019. Available at: <http://euronetmrph.org/vienna-abstract-book/>

Editors: Dr. Igor Grabovac & Dr. Joana Miranda

Lifestyles as Short-Term Protectors of New Onset Cerebro-Cardiovascular Disease

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Background

More people die annually from cerebro-cardiovascular diseases (CCVD) than from any other cause. However, few studies address short-term risk factors for these diseases. Since we believe it's easier to encourage healthy lifestyles based on their short-term effect on the well-being of individuals, our aim is to evaluate associations of Mediterranean diet adherence, regular physical activity, alcohol abstinence and no tobacco use, with short-term new onset of CCVD events from EpiDoC (Epidemiology of Chronic Diseases), a longitudinal population-based cohort.

Methods

A structured questionnaire during a baseline clinical appointment assessed prevalent CCVD, lifestyles and clinical risk factors such as hypertension, diabetes, dyslipidaemia and obesity. Follow-up assessment was performed through phone call interview; new onset of CCVD was defined as any disorder of the heart and blood vessels occurred during the follow-up period, between September 2011 and July 2016. Multivariate Cox proportional hazards models were used to analyse CCVD risk adjusted for clinical risk factors.

Results

A total of 10.152 participants consented being followed during the two waves performed. 357 new onset of CCVD events occurred during an average of 3.99 ± 0.73 years; 67.8% were women ($n = 242$) and 39.2% had at least 70 years old ($n = 140$). Doing some regular physical activity (at least once a week) was independently associated with a reduced risk of short-term CCVD incidence (HR 0.722 ± 0.099 ; IC95% 0.551-0.945). Diet, alcohol and tobacco use were not independently associated with the risk of short-term CCVD incidence.

Discussion

The World Health Organization (WHO) recommend that all adults should do at least 150 minutes a week of moderate-intensity physical activity, or 75 minutes a week of vigorous-intensity, or an equivalent combination of both. However, our results suggest that some physical activity participation, regardless if the weekly frequency does not meet WHO recommendations, reduces the risk of new onset of CCVD events at a population level, even in a high risk one. Besides, the adherence to the current recommendations is very difficult to achieve. Accordingly to WHO, 1 in 4 adults is insufficiently physically active. There's an urgent need for integrated strategies to reduce sedentary behaviours and increase levels of physical activity participation at a population level. However, we should avoid unnecessary barriers for this physical activity participation; hence the importance of recent studies in quantifying the dose-response association between leisure-time physical activity and health, and its translation at the population level. We agree that «some physical activity is better than none» and «additional benefits occur with more physical activity».

Presenting author: Marta Lemos

Format: Poster presentation

Antiresorptive treatment with bisphosphonates and denosumab reduce all-cause mortality risk after hip fracture

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Background

Excess mortality risk after hip fracture (HF) is well documented. However, less is known about effects of antiresorptive drugs on patient's survival. We aimed to compare for the first time denosumab (DMAB) against bisphosphonates (BPs) with respect to patients' survival after hip fracture (HF).

Methods

In this large population-based retrospective cohort study we used data from all patients in Austria aged ≥ 50 who sustained a HF between 2012-2016 and were followed for all-cause mortality until 2017. Cox proportional hazard ratios were calculated to assess all-cause mortality risk among HF patients with and without antiresorptive treatment.

Results

The cohort of 54,155 hip fractured patients (mean age 80.0, SD 10.5 years; 71.8% of women) were followed-up for a median (interquartile range) of 23.4 months (26.6). We identified 46,152 (85.2%) patients who did not receive any anti-osteoporotic treatment after their HF, 3,541 (6.5%) patients on oral BPs (oBPs; risedronate, alendronate), 3,332 (6.2%) patients on intravenous BPs (iBPs; zoledronic acid, ibandronate) and 1,130 (2.1%) on DMAB therapy. During the study follow up 18,610 (34.4%) patients died. Patients treated with DMAB, oBPs or iBPs had significantly longer mean survival time compared to patients without treatment (56.5, 52.4, 55.4 and 42.9 months, respectively, $p < 0.001$). Patients treated with DMAB, oBPs and iBPs had lower risk of mortality (HR=0.46, 95%CI 0.40-0.54, HR=0.66, 0.61-0.71; HR=0.54, 0.49-0.58; respectively, for all: $p < 0.001$) after adjustments for all co-medications.

Conclusions

Patients who were treated with DMAB or BPs after HF had longer survival than patients without treatment, highlighting the importance of initiation of antiresorptive treatment after HF.

Presenting author: Martina Behanova

Format: Pitch presentation

The effects of endurance training on cognitive functions and quality of life in elderly marathon runners

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Background

World Health Organization declared in 2012 that dementia is a Public Health priority. There is a continuing debate that how physical and mental health can be maintained at advanced age and which interventions might be cost-effective to prevent or delay age-related physical and mental degradation. It is well known that physical activity is beneficial to overall health and especially in regard to cognitive function. However, the effect of endurance type of exercises including long-distance running on cognitive function and mental health within the elderly population is unknown. Thus, we intended to elucidate if intensive endurance exercise among the elderly population (>60 years) is associated with improved cognitive performance and mental health.

Methods

Elderly active marathon runners over 60 years who trained more than 2 hours a week were recruited and matched with a physically inactive control individuals by age, sex, and years of education in 2008. Overall, 50 athletes and 49 control subjects were included for follow-up in 2012. Cognitive function was assessed using the German version of the Consortium to Establish a Registry for Alzheimer's Disease (CERAD) test. In addition, the short form, quality of life survey (SF-36) was applied to assess self-reported physical, mental and emotional health.

Results

Of 15 CERAD subtests one showed improvements after four years reaching statistical significance. However, while control subjects improved somewhat in 'wordlist recall' and 'wordlist savings' over time marathon runners performed worse (p for interaction = .005 and .021, respectively). Concerning self-reported health, scores, in all eight domains of the SF-36 marathon runners showed higher self-reported health than controls.

Conclusion

Results suggest that extensive endurance exercise is associated with improved subjective health and well-being in late age but does not unequivocally protect against age-related impairment of cognitive function in elderly persons.

Presenting author: Delgerdalai Batmyagmar

Format: Poster presentation

Rough sleepers and multiple complex needs - an example from England of the role of public health

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People who experience several problems at the same time can often lead chaotic lives and face ineffective contact with health and care services. They can often be a significant source of repeat demand for such services and have poorer health outcomes. Such complex needs can include a combination of offending behaviour, mental ill health, substance misuse and homelessness. As well as the complexity, there is a reported increase in the number of individuals affected, with a particularly notable increase in the number of rough sleepers in recent years in English cities.

In a large city in England, improving the health and wellbeing of individuals with multiple complex needs has been a strategic public health priority, and several projects have been established to address it. These include:

- a) Taking a cross-sector approach to ensure individuals receive coordinated support and identifying systems change priorities to allow them to reach their full potential and for services to fit them
- b) Establishing a meaningful co-production approach by working with individuals with lived experiences
- c) Supporting a multi-agency drop in advice and information shop for homeless individuals

The internationally recognized Housing First initiative is also being piloted. This approach starts with offering permanent, affordable housing as quickly as possible for individuals experiencing homelessness. Connections are then provided to supportive services and community-based support people need to keep their housing and avoid returning to homelessness, with housing provision independent of support.

This pitch will provide an overview of the approach taken by public health, lessons learnt and future directions.

Presenting author: Helen Green

Format: Pitch presentation

Machine Learning: a primer for public health professionals

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Machine Learning (ML) is one of the fastest growing technology and a cornerstone of the Fourth Industrial Revolution. It has been estimated that by 2021, 57 bln \$ will be spent on ML development, with a 2x investment rate year by year. This growth is mainly due to increased computing power, data production, and new advanced techniques (e.g., deep neural networks).

Healthcare can benefit significantly from ML, given the complexity of the challenges (at the patient, population, and system level), the high amount of data available, and the economic relevance of the sector. There is already a vast production of academic and industrial applications of ML in healthcare: patient risk prediction, medical imaging-based automatic diagnosis, drug adverse effects and interaction prediction, population stratification, polygenic and in general -omic risk assessment, healthcare service optimization, high-cost patients identification, patient readmission prediction, infectious disease outbreak surveillance and prediction, patient health believes and behaviour through social network analysis, healthcare record analysis, etc.

The concept behind ML is simple conceptually. It uses computer algorithms to find patterns in data and use these patterns to make predictions. However, there are several ML techniques, each with their strong and weak points, and many caveats to take into account.

While no one expects Public Health professionals to become experts in the use of ML techniques, it is essential that they acquire a basic knowledge of the methodologies, possible pitfalls, and implications in order to collaborate with and evaluate experts' work in a team-based approach.

We propose a small introductory workshop about ML, describing the basic functioning, terminology, typologies (e.g., supervised, unsupervised), algorithms (from regression to neural networks) and common problems to keep in mind (over-fitting, interpretability, bias, etc.). This workshop does not have the ambition to provide a deep understanding of ML, but only a starting point to a deep and fascinating technology which will profoundly impact our professional and personal life.

Presenting author: Angelo D'Ambrosio

Format: Oral presentation