

第251回原医研セミナー

第15回放射線災害・医科学研究 機構・拠点研究推進ミーティング

以下のとおり開催いたしますので、ご参加くださいますよう、ご案内いたします。

開催日時：2023年11月28日（火）17時30分～

開催方法：オンライン

接続先：Zoom(ミーティング)ID：890 6191 5257

Zoom URL：

<https://us02web.zoom.us/j/89061915257?pwd=Uk93L2JWWDJ3dnFkYmkvSjFGN21DZz09>

Zoom パスワード：538773（上記 URL をクリックして参加する場合は入力不要です）

タイトル：Internal radiation exposure from 137Cs and its association with dietary habits and upper gastrointestinal endoscopic findings in Zhytomyr region, Ukrain.

発表者：長崎大学 原爆後障害医療研究所 共同研究推進部（原研センター）
大学院生 Yesbol Sartayev 先生

People living in areas around Chernobyl Nuclear Power Plant (CNPP) have been exposed to low dose 137Cs which has over 30 years half-life chronically. Residents eat contaminated locally grown food and wild forest foodstuff that most likely contain 137Cs, despite more than 3 decades have passed since the accident. Therefore, we assessed the status of the internal exposure dose by measuring the internal concentration of 137Cs using the whole-body counter, the dietary habits, and possible impact of low dose chronic internal radiation onto GI organs in residents living around CNPP. All data were collected at Korosten Medical Center in Zhytomyr region, Ukraine. Participants of our study were adults who underwent screening for internal radiation on Whole-body Counter. In this presentation, we introduce results of our previous studies.

タイトル：Trend of quality of sleep after the Great East Japan Earthquake in Fukushima

発表者：福島県立医科大学 疫学講座 大学院生 蒲 東真州先生

Aim: The aim of this study was to determine the association of evacuation with the quality of sleep in Fukushima prefecture before and after the Great East Japan Earthquake.

Methods: Data from specific medical examinations of residents in Fukushima prefecture between 2008 and 2017 from the National database were used. The questionnaire included the question: "Do you sleep well and enough?" A response of "No" was defined as low sleep quality. A cumulative total of 3,866,754 persons between 2008-2017 who answered the questionnaire were included in this study. Then Fukushima was divided into four regions: Mountainous, Central, Coastal, and Evacuation areas. We calculated the age-

adjusted prevalence of low sleep quality stratified by age ($\geq 60, < 60$), and the sex and prevalence ratio was compared between the periods 2008-2011 and 2012-2017, before and after the disaster, using Poisson regression to derive the prevalence ratio. In addition, Joinpoint regression was conducted to analyze the inflection point and calculate the Average annual percentage change (AAPC) through the period.

Results: The proportion of low sleep quality increased by 6.2 points in the Evacuation area after the disaster. The rate increased continuously until the year 2017. The inflection points were detected in all age and sex groups around 2010-2011, with an average AAPC (95% confidential interval) of 3.8 (1.3-6.4) in males and 3.0 (1.7-4.4) in females. For the age group, AAPC was 5.2 (2.4-8.0) for those aged ≥ 60 and 3.7 (2.0-5.4) for those aged < 60 , indicating a more significant effect on the older age group. The probability ratio of the entire population in the Evacuation area between 2008-2010 and 2011 was 1.21 (1.18-1.24).

Conclusions: There was a significant increase in the population with low sleep quality, especially in the Evacuation area. This can suggest that the GEJE affected the sleep quality of Fukushima residents. A comparison between trends of sleep in Japan is needed to see whether this trend is specific to Fukushima or not. Further observation is required to investigate the effect of sleep quality on lifestyle-related diseases.

文部科学省 科学研究費助成事業 新学術領域研究 「シンギュラリティ生物学」 から

タイトル：高スケーラブルイメージング技術を用いた脳の理解と疾患病態の解明

発表者：大阪大学 大学院薬学研究科 神経薬理学 教授 橋本 均先生

生体組織・器官を網羅的かつアンバイアスに観察・解析することは、仮説（定説）に依らない研究の起点として重要であると考えられる。しかし、一定以上の大きさの生体試料の全細胞を、細胞レベルからサブセラーの空間分解能で観察することは、既存顕微鏡の分解能と撮影速度間のトレードオフによる技術的制約のため、挑戦的な課題であった。ところで、脳では局在する機能が高次に統合されているため、上のコンセプトに基づく研究アプローチはとくに重要である。そこで私たちは、高速で高スケーラブルに全脳イメージングを行うシステム block-Face Serial microscopy Tomography (FAST) を開発し、全脳の構造や神経活動を個体群間で比較する方法を整備してきた。さらにこれを用いて、疾患モデルや治療薬による神経細胞の構造や活動の変化パターンを解析する研究を行っている。本研究法と、放射線を用いた生体イメージング技術との間で、どのような相互補完が可能か、参加者の先生方と議論を深めたい。