

WINTER TIME HEMORRHAGIC FEVER WITH RENAL SYNDROME IN MONTENEGRO – NEW CHALLENGE

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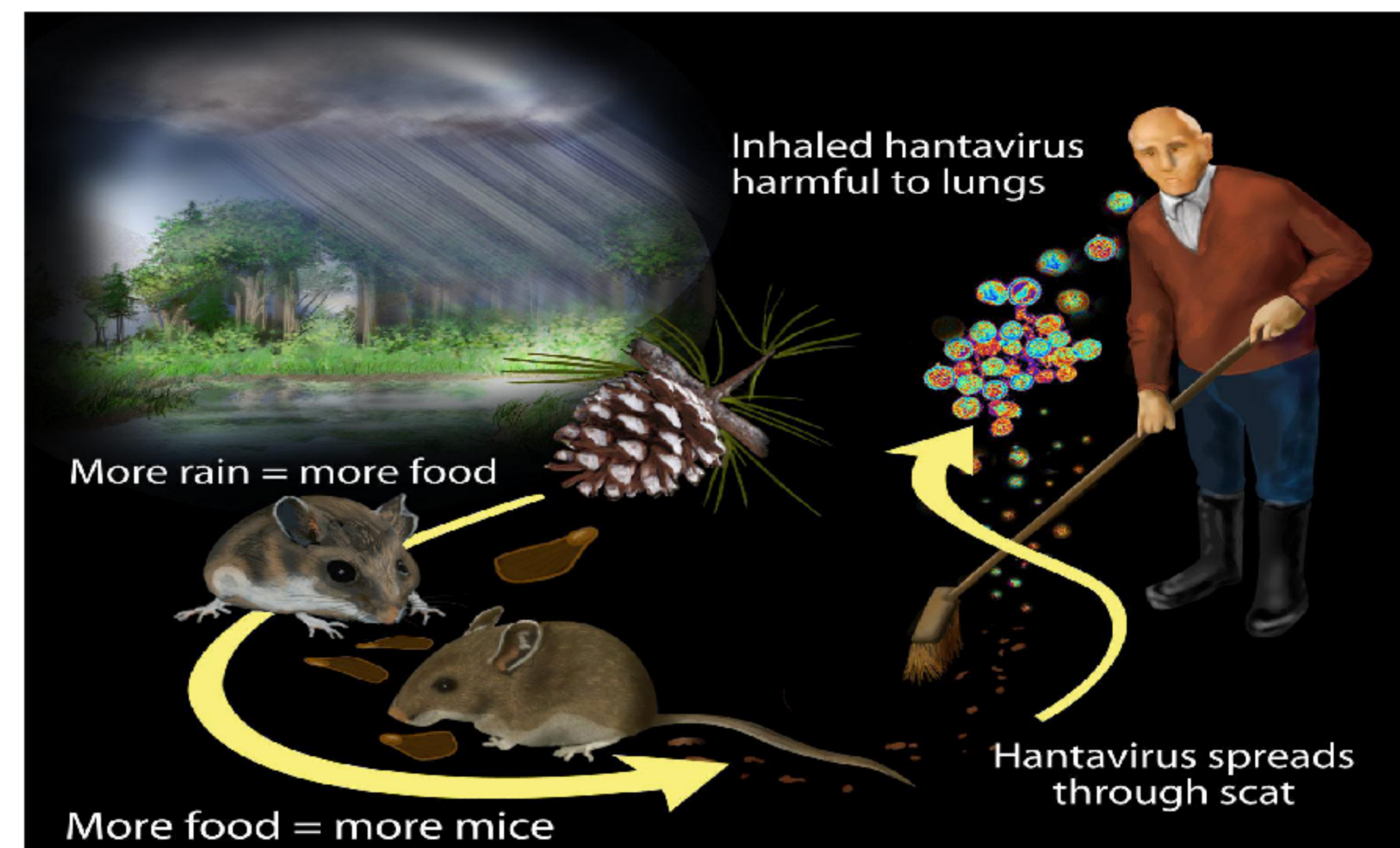


Introduction and aims:

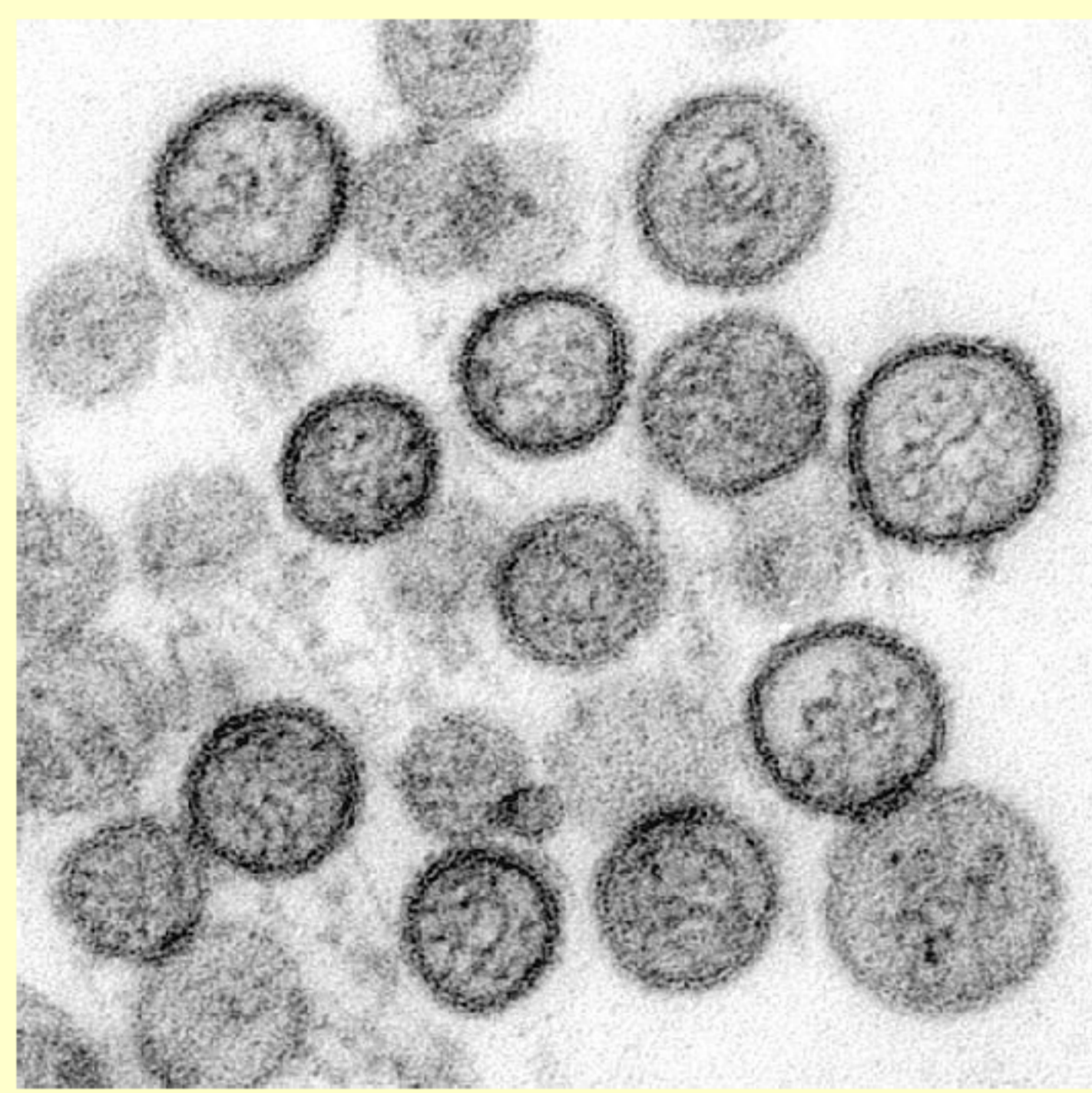
Hemorrhagic fever with renal syndrome (HFRS) is zoonosis with sudden onset characterized by high fever, AKI – acute kidney injury and hemorrhage. It is caused by serotypes of hantaviruses. Rodents are major reservoir in nature. Humans become infected through contact with urine, saliva, or feces from infected rodents via inhalation of virus contaminated aerosol. The seasonal distribution of the disease in the summer and early autumn could be accounted by human activities in the mountainous regions of Montenegro, as well as by rodent activity (picture 1.).

The objective of the study was to analyze the epidemiological features of winter cases of HFRS in Montenegro.

Methods:

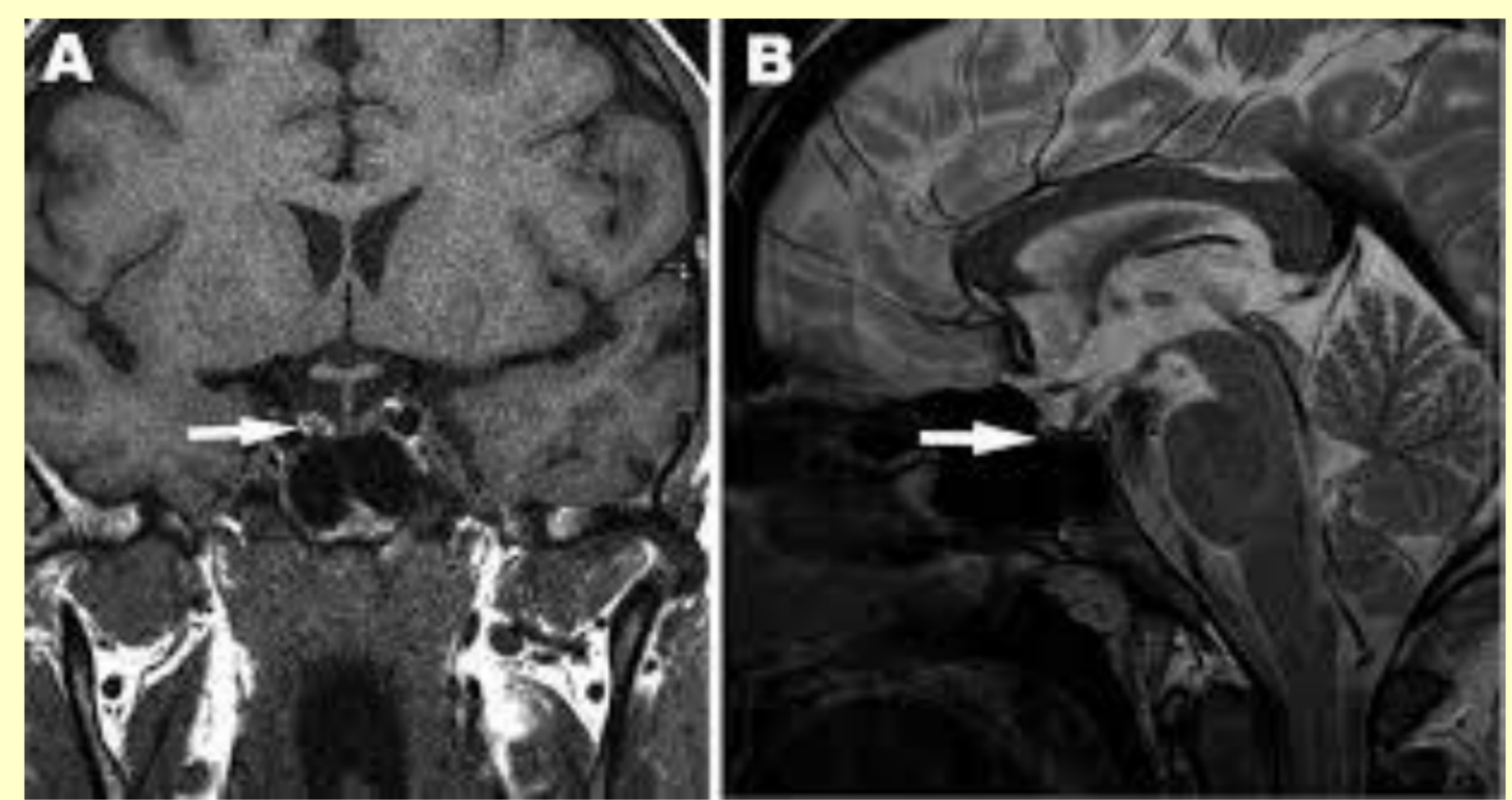


Picture 1. Spatiotemporal trends and climatic factors of HFRS



Picture 2. DOB and HTN viruses

Picture 3. Magnetic resonance images showing hemorrhage of the pituitary gland and pituitary atrophy caused by HFRS



Results:

In the last decade in Montenegro, 169 people were diagnosed with HFRS with typical clinical presentation and by serological confirmation. The average incidence rate was 2,6 per 100 000 and varied from 16,3 per 100 000 (the highest value) and to 4,7 per 100 000 or zero patients in some years. The case fatality rate was 4,8 %. The seasonal distribution of the disease was in the summer or early autumn. The most common means of transmission was aerosol route, or professional exposure such as working in forest, hunting. Serological analysis revealed that the most frequent serotypes in Montenegro were DOB (Dobrava Belgrade) and HTN (Hantaan) (picture 2.). In the last year of the followed up period we had four cases of HFRS winter period (January and February), which was very uncommon. In all four patients (3 males and one female) HTN serotype of the virus was serologically confirmed. All four patients had fever, abdominal back pain, hemorrhage, visual impairment, oliguria, hematuria, AKI, proteinuria, trombocytopenia. Three of four patients were treated with RRT – renal replacement therapy – hemodialysis and recovered renal function in the next period of follow up. In one case symptomatic therapy with diuretics was enough to maintain the adequate diuresis and acid base balance. In one male patient there was severe complication with hemorrhages and necrosis in the pituitary gland followed by SIADH syndrome - Syndrome of inappropriate antidiuretic hormone secretion and consequent polyuria (picture 3.). In one patient there was transitory liver function lesion noticed and in one clinically significant transient cardiac bradycardia. In all of these four patients renal function after intensive nephrological treatment was recovered and they are under constant nephrological follow up. The route of transmission in one case was the hunting in high mountains in the winter period, and in three cases exposure to the infected aerosol in the domestic or professional environment. The year in which we had the winter cases of HFRS was a year with mild winter and warmer temperatures, better suited for breeding of rodents even in non-standard natural cycles.

Conclusions:

Spatiotemporal dynamics of HFRS is changing and seasonal variation of HFRS are more common and expected in the future. It is likely that winter cases of HFRS will become more common in the near future and nephrological control measures should be brought to more attention.

References:

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