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# IDENTIFICATION OF VARIANTS OF THE SARS-COV-2 VIRUS CAUSING COVID-19 DISEASE IN THE ŚWIĘTOKRZYSKIE VOIVODESHIP

M. KARPETA[1,4], M. ZAWIERUCHA[1], J. RACHUNA[1,3], D. ŁUKAWSKA[1,4], K. ROZMIANIEC[1,4], Ł. MADEJ[1,2,3,4], P. LEWITOWICZ[1,2]

1. Regional Science and Technology Center, (Poland)
2. Collegium Medicum UJK, (Poland)
3. Faculty of Natural Sciences UJK, (Poland)
4. BBMRI.pl

REGIONALNE CENTRUM NAUKOWO-TECHNOLOGICZNE

## INTRODUCTION

COVID-19 pandemic has been a global problem for more than a year. An important aspect beyond the number of infections is the appearance of new variants of the SARS-CoV-2 virus. The rapid mutation of the virus makes it necessary to constantly monitor the occurrence of new variants and to study how the mutations that have already developed are spreading.

## AIM

The main objective of the study was to determine the degree of variability of the SARS-CoV-2 virus during the second wave of the virus pandemic in autumn 2020 and the third wave of the virus pandemic in spring 2021 in Swietokrzyskie voivodship (Poland).

## METHOD

The material used for the study was collected from men and women living in Swietokrzyskie Voivodeship, Poland. Samples were taken during the second wave of the pandemic that is September to December 2020 and the third wave of the pandemic that is February to April 2021. The presence of viral RNA was confirmed by RT-PCR. The RNA was prepared for sequencing with the Illumina® RNA Prep, Tagmentation (L) with Enrichment kit. Sequencing was performed using Illumina's MiSeq.

## RESULTS

Sequence analysis of the SARS-CoV-2 virus showed a high variability of mutants during the second wave of the pandemic. Variants such as B.1.1.153, B1.1.277, B.1.1 or B.1.221 were detected and accounted for the majority of infections in the Swietokrzyskie region. During the third pandemic wave, the dominant variant was B.1.1.7 the so-called British variant. Variant B.1.1.7 was responsible for 95% of infections in tested residents of the Swietokrzyskie voivodship.

*Fig 1. Description of SARS-CoV-2 lineages detected during the autumn wave and the spring wave (https://cov-lineages.org/lineage_list.html).*

| | Lineage | Description | Lineage | Description | |
|---|---|---|---|---|---|
| Autumn | B.1.1 | European lineage | B.1.1 | European lineage | Spring |
| | B.1.1.153 | Northern European Lineage | | | |
| | B.1.1.243 | Eastern Europe, Central Europe, UK | B.1.1.7 | Alpha | |
| | B.1.1.277 | European lineage | | | |
| | B.1.1.296 | UK lineage | | | |
| | B.1.177 | European lineage | B.1.160 | European lineage | |
| | B.1.221 | European lineage | | | |
| | B.1.258 | UK lineage | | | |
| | B.1.389 | England + Europe | B.57 | Largely Scottish | |
| | B.1.595.1 | USA | | | |
| | B.1.1.170 | UK/Denmark | | | |

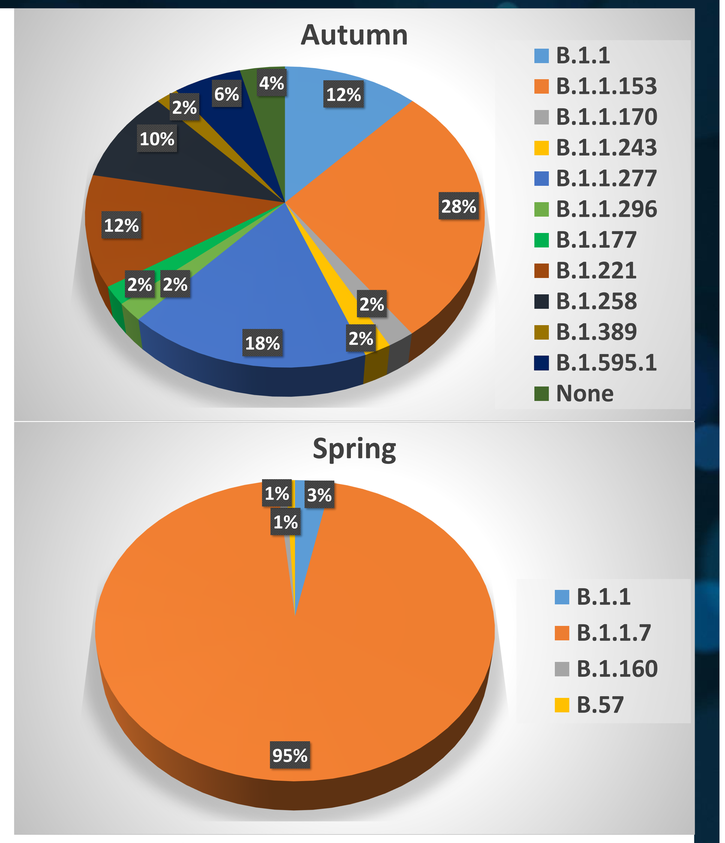



*Fig 2. Percentage of variants present in the population during the autumn wave and the spring wave in the Świętokrzyskie Voivodeship.*

## CONCLUSIONS

Lineage B.1.1.7 was dominant in the third wave of the pandemic which occurred between February and April in the Swietokrzyskie region. The autumn period showed a high variability of the variants occurring similar to the initial Wuhan variant.

## REFERENCES

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https://cov-lineages.org/lineage_list.html

## CONTACT INFORMATION

**Michał Karpeta**
Regional Science and Technology Center
Biobank Swietokrzyski
Podzamcze 45
26-060 Chęciny, Poland
E-mail: michal.karpeta@rcnt.pl

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