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Course of Chickenpox in Pregnant Women

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Abstract This article presents the results of a study conducted using retrospective and prospective methods. The aim of the research was to assess the incidence of chickenpox in recent years in the Republic of Uzbekistan, study the clinical course of the disease in pregnant women, and evaluate changes in coagulation parameters. A retrospective analysis of chickenpox incidence over the past ten years in Uzbekistan was carried out. According to the results, the incidence increased 1.9 times from 2012 to 2018, but sharply declined in subsequent years. In 2020, due to the COVID-19 pandemic and the resulting lockdown, the average incidence dropped to 7.4 cases per 100,000 population. However, in 2021, the incidence increased 2.5 times again and remains relevant to this day. Based on the prospective "case-to-case" study of 117 pregnant women treated with a confirmed diagnosis of chickenpox at the City Clinical Infectious Diseases Hospital No. 1 in Tashkent during 2021–2024, it was found that in 17.9% of cases, the disease took a severe course. In these cases, symptoms such as headache, sleep disturbances, nausea, and vomiting were more common. It was also revealed that severe chickenpox in pregnant women is associated with a tendency toward hypercoagulation.

Keywords Republic of Uzbekistan, Pregnant women, Chickenpox, Coagulation profile

1. Introduction

At the modern stage, the incidence of chickenpox among adults ranges from 300 to 800 or more cases per 100,000 people, while among children it reaches up to 7,000 cases per 100,000 children. Typically, chickenpox follows a mild course; however, in certain risk groups — including pregnant women — it can be severe and complicated. The risk of a pregnant woman becoming infected through contact with a patient with chickenpox is estimated at 12–24%. Nevertheless, considering the high level of seropositivity in the general population, the incidence of chickenpox among pregnant women is approximately 0.1–3 cases per 1,000 pregnancies [1,2,3,4]. Data in the literature regarding the course of chickenpox during pregnancy are limited.

Our study aimed to evaluate the recent trends in chickenpox incidence in the Republic of Uzbekistan (RU), investigate the clinical course of the disease in pregnant women, and analyze changes in coagulation parameters.

2. Material and Methods of Research

A retrospective analysis was conducted using official data on chickenpox incidence from the Republican Service for Sanitary-Epidemiological Wellbeing and Public Health for the period 2012–2021. Additionally, a prospective study was carried out involving 117 pregnant women diagnosed with chickenpox and treated at Tashkent City Infectious Diseases Hospital No. 1 between 2021 and 2024. The mean age of participants was 32.2 ±1.3 years.

The etiological confirmation of chickenpox was performed using the immunofluorescence test (IFT) for the detection of anti-Varicella-zoster virus IgM antibodies in blood serum. Blood samples were collected in the morning on an empty stomach the day following hospital admission.

Laboratory investigations included complete blood count, stool and urine analysis, and a comprehensive evaluation of coagulation parameters: prothrombin index (PTI), activated partial thromboplastin time (APTT), fibrinogen level, D-dimer, thrombin time (TT), antithrombin III, hematocrit, and platelet count.

Statistical analysis was conducted using MedStatistical software (medstatistic.ru/calculators). Odds ratios (OR) with a 95% confidence interval (CI) were calculated. Statistical significance was assessed using Fisher's exact test (for expected counts ≤5), Yates' correction (for counts between 5.1 and 10), and the Chi-square test (for counts >10). Differences between groups were analyzed using the Student's t-test, with p-values considered statistically significant at $p<0.05$.

3. Results and Discussion

Analysis of official data revealed that the highest chickenpox

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incidence in Uzbekistan occurred in 2018, reaching 27.8 cases per 100,000 population. Between 2012 and 2018, there was a steady increase in incidence, with a 1.9-fold rise compared to 2012 levels (14.5 cases per 100,000 population).

In 2019, a sharp 1.6-fold decrease in incidence was observed compared to the previous year.

In 2020, the incidence further declined to 7.4 cases per 100,000 population, marking the lowest level during the study period.

However, by 2021, the incidence rate increased again by 2.5-fold, reaching 18.4 cases per 100,000 population (Figure 1).

At the next stage of the study, clinical signs and laboratory results were analyzed among the group of patients included in the research. Pregnant women were mainly admitted to the hospital with complaints of skin rash (100.0%), fever (100.0%), loss of appetite (100.0%), nausea (12.8%), vomiting (6.8%), headache (23.9%), and sleep disturbances (50.4%). In the majority of pregnant women (82.1%), chickenpox had a moderate course, while in 17.9% (21 patients) a severe course was observed. No cases of mild disease were recorded among the pregnant women.

When analyzing symptoms according to disease severity, among 15 patients with nausea, 12 were diagnosed with severe chickenpox. Thus, the likelihood of nausea in severe cases was 41 times higher compared to moderate cases (OR=41.3; 95% CI=9.8–174.1; P<0.001). All 8 patients with vomiting had severe disease. Among the 28 patients with headache, 20 were diagnosed with severe chickenpox, with the likelihood of headache being 220 times higher in severe cases (OR=220.0; 95% CI=26.1–1860.0; P<0.001). Sleep disturbances were noted in 59 patients, and among them, 20 had severe disease. Sleep disturbances were 29 times more likely to occur in severe chickenpox cases (OR=29.2; 95% CI=3.8–226.9; P<0.001).

When analyzing laboratory results, all patients in the study group exhibited signs of anemia (100.0%) in their complete blood counts, with an average hemoglobin level of 94.3±1.7 g/L. Consequently, erythrocyte counts (3.4±0.28*10 ^{12}/L) and color index (0.8) were also low. In patients with a moderate course, the mean hemoglobin level was 102.2±2.43 g/L, while in patients with a severe course it was 85.8±1.52 g/L; the difference between the groups was statistically significant (P<0.001). No significant deviations from normal values were found in other blood parameters.

Coagulation parameters were also analyzed. In pregnant women with severe chickenpox, the following coagulation indicators were observed: fibrinogen level — 4.3±0.04 g/L, D-dimer — 493.4±21.3 ng/mL, prothrombin index (PTI) — 115.4±13.2%, activated partial thromboplastin time (APTT) — 24.3±2.1 seconds, thrombin time (TT) — 15.2±0.98 seconds, and antithrombin III level — 81.2±2.2%. In women with a moderate course, the mean fibrinogen level was 3.9±0.1 g/L, which was significantly lower than in those with a severe course (P<0.001). D-dimer concentration was also significantly lower (324.9±23.3 ng/mL; P<0.001).

The PTI remained within normal limits regardless of disease severity (95.3±11.1%), with no statistically significant difference between groups. The APTT was lower in severe cases (28.7±3.6 seconds) compared to moderate cases, but this difference was not statistically significant (P>0.05). Thrombin time remained within normal limits across all groups (16.6±0.1 seconds), and a similar trend was observed for antithrombin III levels (88.3±4.1%).

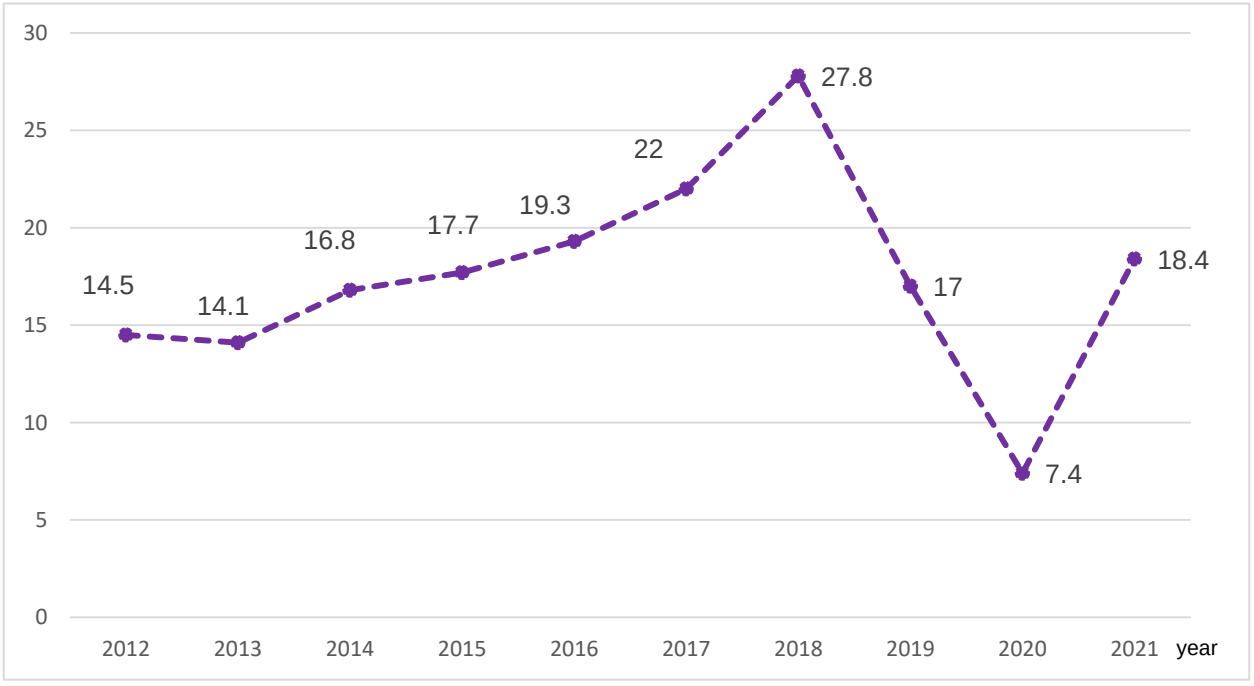

Figure 1. Incidence rate of chickenpox in the Republic of Uzbekistan from 2012 to 2021 (intensive indicator per 100,000 population)

According to a review of the literature, at the modern stage, the incidence of chickenpox among adults ranges from 300 to 800 or more cases per 100,000 people, while among children it reaches 7,000 cases per 100,000 children. In Uzbekistan, the average incidence is 17.4 cases per 100,000 population. A year-by-year analysis showed that from 2012 to 2018, the incidence of chickenpox increased 1.9-fold; however, in the following years, it sharply decreased, reaching an average of 7.4 cases per 100,000 people by 2020.

It should be noted that in March 2020, due to the COVID-19 pandemic, a lockdown was declared in Uzbekistan, and strict quarantine measures were maintained for about six months. Restrictions such as staying at home, avoiding contact with outsiders, and preventing mass gatherings significantly reduced the incidence of chickenpox. After the relaxation of strict quarantine measures, the incidence of chickenpox began to rise again and remains relevant to this day.

In pregnant women, chickenpox had a severe course in 17.9% of cases. The likelihood of experiencing symptoms such as sleep disturbances, headaches, nausea, and vomiting was significantly higher in those with a severe course compared to those with a moderate course. In particular, the presence of symptoms such as headache and vomiting had a high predictive value for the severe course of the disease, suggesting that when these symptoms are present, a severe form of chickenpox can be anticipated.

Laboratory tests revealed that anemia was detected in all patients, with significantly decreased hemoglobin levels and red blood cell counts. This condition was associated with the severe form of the disease, with hemoglobin levels dropping to as low as 85.8 ±1.52 g/L. In cases with a moderate course, the hemoglobin level was notably higher — 102.2 ±2.43 g/L.

Moreover, the presence of headaches, sleep disturbances, nausea, and vomiting in severe cases of chickenpox among pregnant women suggests a tendency toward hypercoagulation during the severe course of the disease.

4. Conclusions

1. The incidence of chickenpox in the Republic of Uzbekistan increased by 1.9 times from 2012 to 2018. However, in recent years, it sharply decreased, and in 2020, due to the COVID-19 pandemic and the lockdown, the average incidence per 100,000 population was 7.4 cases. In 2021, the incidence increased by 2.5 times and has remained elevated to this day.
2. In pregnant women, 17.9% of cases of chickenpox develop in a severe form. In severe cases of chickenpox, there is a higher likelihood of symptoms such as headaches, sleep disturbances, nausea, and vomiting. This can lead to a tendency for hypercoagulability in pregnant women with severe chickenpox.

REFERENCES

[1] Vishneva E.A., Namazova-Baranova L.S. Breakthrough chickenpox: will the new vaccination schedule change the situation? Pediatric pharmacology; 2011. 8(6): 20–22.

[2] Kuzmina T.Yu., Tikhonova Yu.S., Tikhonova E.P. Features of chickenpox in adults. Siberian Medical Review. 2013; 2: 72–76.

[3] Kharchenko G.A., Kimirilova O.G. The course of chickenpox in adults and children. Childhood infections – 2017 - № 1. - P. 56–60.

[4] Zheleznikova G.F., Lobzin Yu.V., Skripchenko N.V. Clinical significance of serum cytokine levels in chickenpox in children. Infection and immunity. 2015. No. 1.