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Efficacy and safety of quercetin and polyvinylpyrrolidone in treatment of patients with newly diagnosed destructive pulmonary tuberculosis in comparison with standard antimycobacterial therapy

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ABSTRACT

Objective/Background: The aim of this work was to study the efficacy and safety of quercetin and polyvinylpyrrolidone (QP) in the treatment of patients with newly diagnosed destructive pulmonary tuberculosis (TB) in comparison with standard antimycobacterial therapy.
Materials and methods: The study involved 124 patients aged between 20 years and 70 years with newly diagnosed destructive pulmonary TB. Patients were allocated to two groups. The first (control) group received standard antimycobacterial and pathogenetic therapy and included 31 (25.0 ± 3.89%) patients. The second (main) group of patients received QP therapy in addition to chemotherapy and included 93 (75.0 ± 3.89%) patients. All patients received standard chemotherapy, consisting of oral isoniazid (0.3 g), rifampicin (0.6 g), pyrazinamide (2 g), ethambutol (1.2 g), and/or an intramuscular injection of streptomycin (1 g) with a dose reduction after the intensive phase of therapy. The anti-TB drugs were procured through the centralized national supply system in Ukraine. QP was used at a dose of 0.5 g in 100 mL 0.9% sodium chloride solution intravenously once per day for 10 days, starting on admission to hospital.
Results: Intoxication symptoms in the second group were reduced after 1.33 ± 0.15 months, whereas in the first group, intoxication symptoms were reduced following 2.64 ± 0.20 months ($p < 0.001$). Moreover, respiratory symptom regression in the second group was observed after 1.43 ± 0.30 months, whereas in the first group, it was after 2.33 ± 0.30 months ($p < 0.05$). Bacillary excretion period evaluated within 3 months was reduced, as it was shown by 97.67 ± 1.63% in the main group compared to 72.41 ± 8.45% ($p < 0.05$) in the control group. In addition, the period of cavity healing was reduced to 2.86 ± 0.15 months in the main group compared to 3.43 ± 0.20 months ($p < 0.05$) in the control group. Residual radiological lung damage findings (mild or slight or even no signs) were observed in 84 (90.32 ± 3.07%) patients in the main group versus 22 (70.97 ± 8.15%) patients in the control group. Significant residual radiological lung damage findings were observed in nine (9.68 ± 3.07%) patients in the main group and in nine (29.03 ± 8.15%) patients in the

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control group ($p < 0.05$). In addition, QP increased anti-TB drug tolerance by 20.42% and had an immunomodulatory effect.

Conclusion: Administration of QP combined with chemotherapy in patients with newly diagnosed destructive pulmonary TB resulted in a rapid reduction in disease manifestation.

Conflicts of interest

The authors have no conflicts of interest to declare.

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