

THE ROLE OF DIFFERENT BIOMARKERS IN THE PROGNOSIS OF COVID-19 INFECTION

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OBJECTIVES

To assess whether ferritin, D-dimer, and MDW results of COVID-19-positive patients are effective in judging the severity of the infection.

METHODS

Our retrospective, quantitative, laboratory-based study was performed between February 18 and June 8, 2021, at Karolina Hospital of Mosonmagyaróvár, Hungary. Ferritin and D-dimer results were obtained from 464 patients 119 of them had MDW results in the database. Descriptive statistics, Kruskal-Wallis test with Post-hoc Bonferroni correction and one-sample Wilcoxon test ($p < 0.05$) were calculated with Microsoft® Excel® and SPSS 23.0 software.

RESULTS

Ferritin results' median for discharged patients ($n=177$) was 364 ng/ml 755 ng/ml for hospitalized ones ($n=182$), 755 ng/ml for patients requiring intensive care or those who died ($n=105$) ($p < 0.001$). Median MDW of the discharged ($n=43$) was 23.55, 26.16 for hospitalized ($n=50$), and 27.45 for patients in need of intensive care or died ($n=26$) ($p < 0.001$). Median D-dimer for discharged was 696 ng/ml, 865 ng/ml, for the hospitalized, and 1,455 ng/ml for patients requiring intensive care or died. The discharged ($p=0.005$) and ICU ($p < 0.001$) groups differed significantly. (Figure 1&2&3)

Ferritin results were grouped according to deviation from the reference value. Patients with normal ferritin level ($n=58$) spent 4.4 days in hospital, those with slightly elevated values ($n=151$) spent 4.61, patients with 3-5 times higher than the reference value ($n=103$) stayed 7.52 and patients with extra high ferritin levels ($n=152$) stayed 8.79 days ($p < 0.001$). Average length of stay in the ICU were: 0.4 for patients with normal ferritin results, 0.8 for those who had it 1-3 times higher, 1.4 for those with 3-5 times higher, 1.6 for patients with the highest ferritin score ($p < 0.001$). (Table 1, Figure 4&5,)

CONCLUSIONS

D-dimer did not show significant differences, however, ferritin and MDW levels did among patients admitted to hospitals.

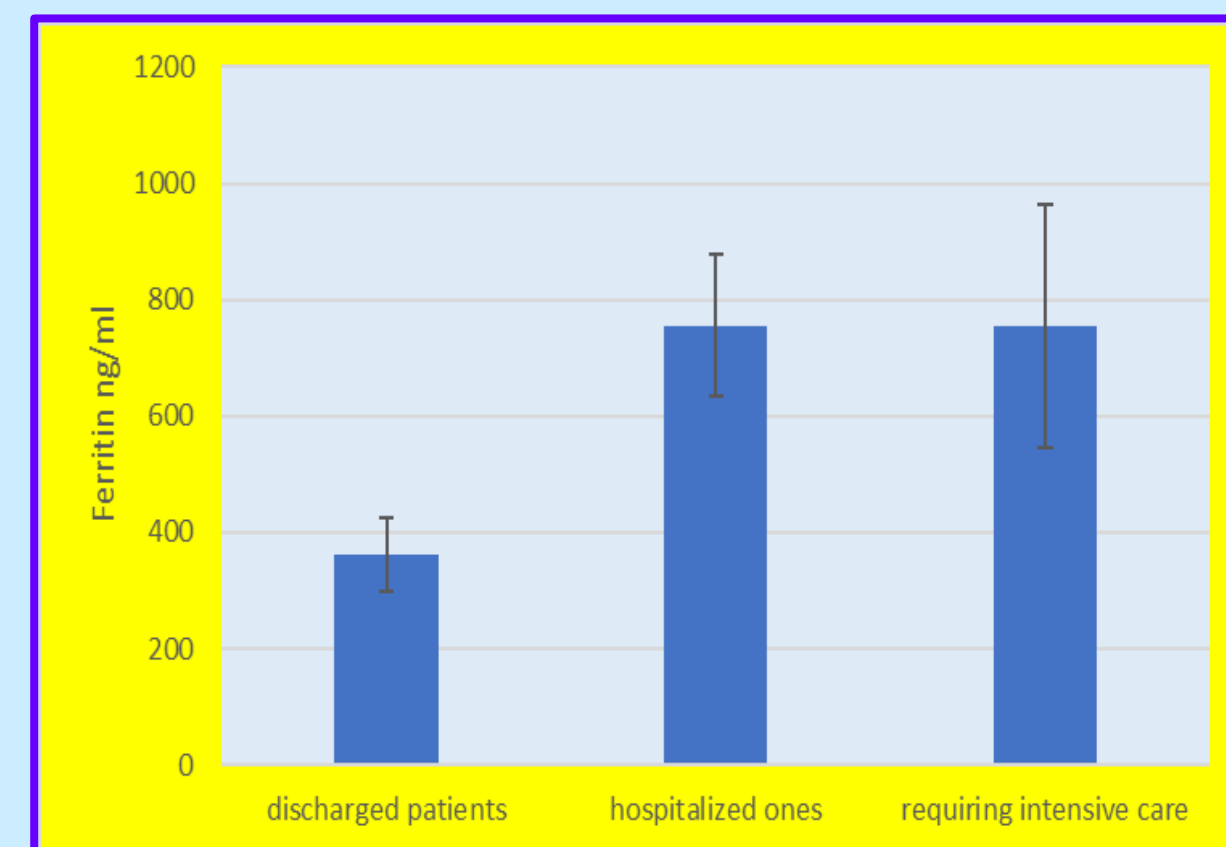


Figure 1.
Ferritin median results in Karolina Hospital of Mosonmagyaróvár, Hungary ($n=464$)

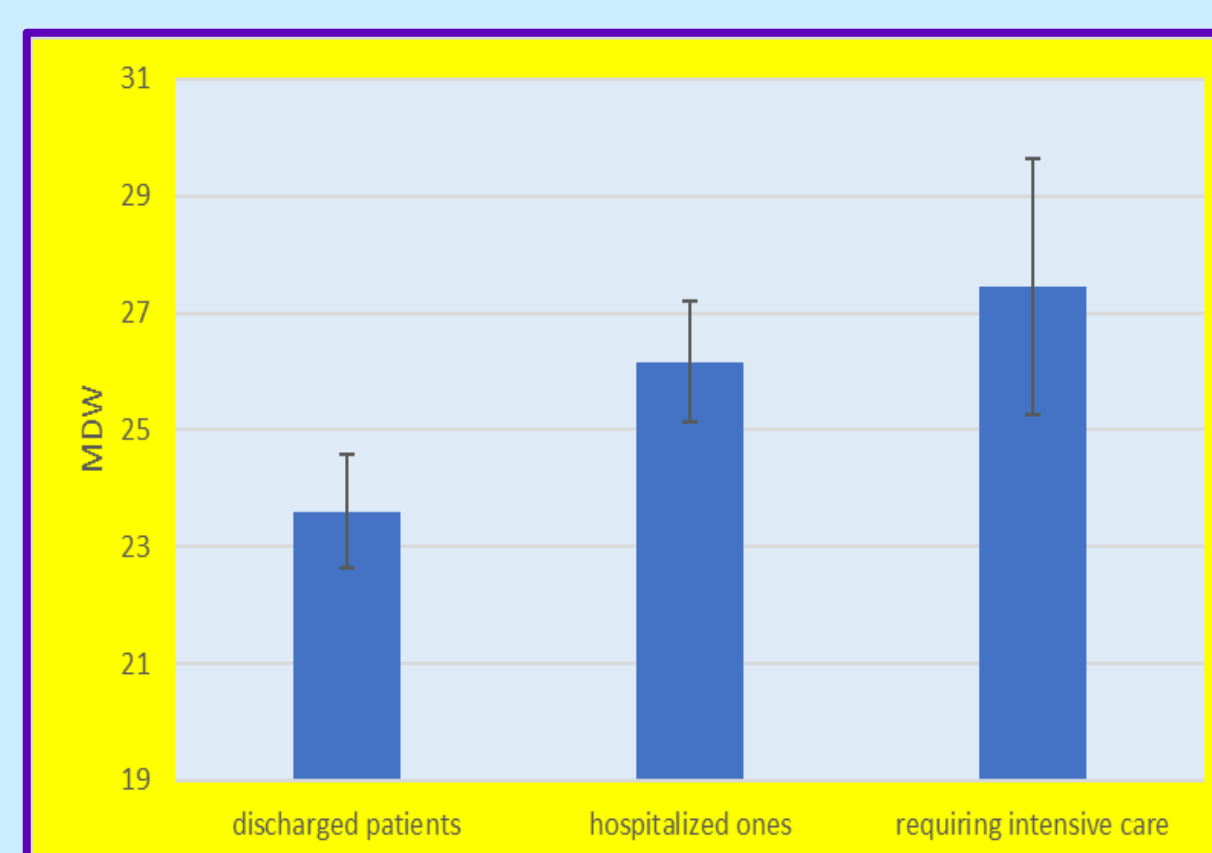


Figure 2.
MDW median results in Karolina Hospital of Mosonmagyaróvár, Hungary ($n=119$)

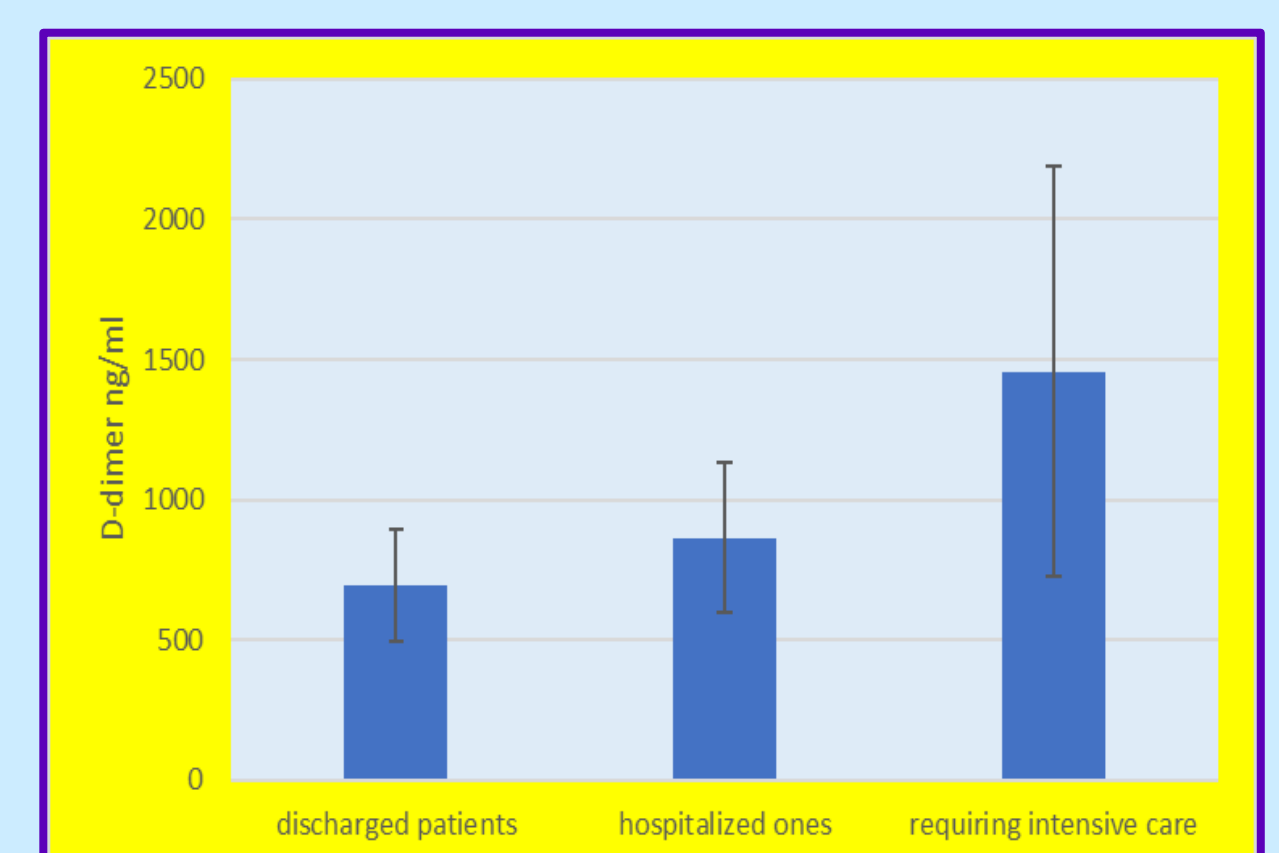


Figure 3.
D-dimer median results in Karolina Hospital of Mosonmagyaróvár, Hungary ($n=119$)

Groups by Ferritin (ng/ml) results				
	Normal	1-3*	3-5*	5-*
Men	20 – 250	251-750	751-1250	1251-
Women	10-120	121-360	361-600	601-

Table 1.
Difference in ferritin results grouped by gender

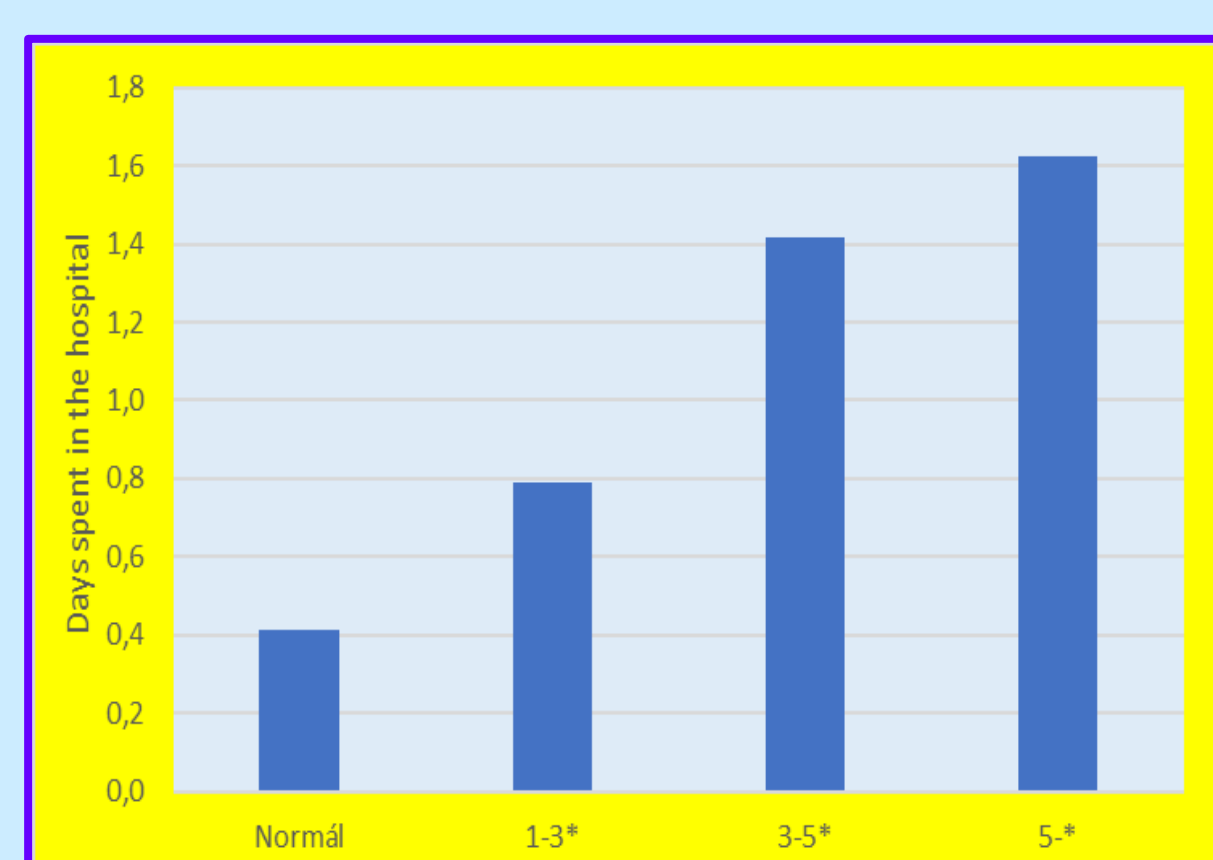


Figure 4.
Deviation from Ferritin reference value correlation with days spent in Karolina Hospital, Mosonmagyaróvár, Hungary ($n=464$)

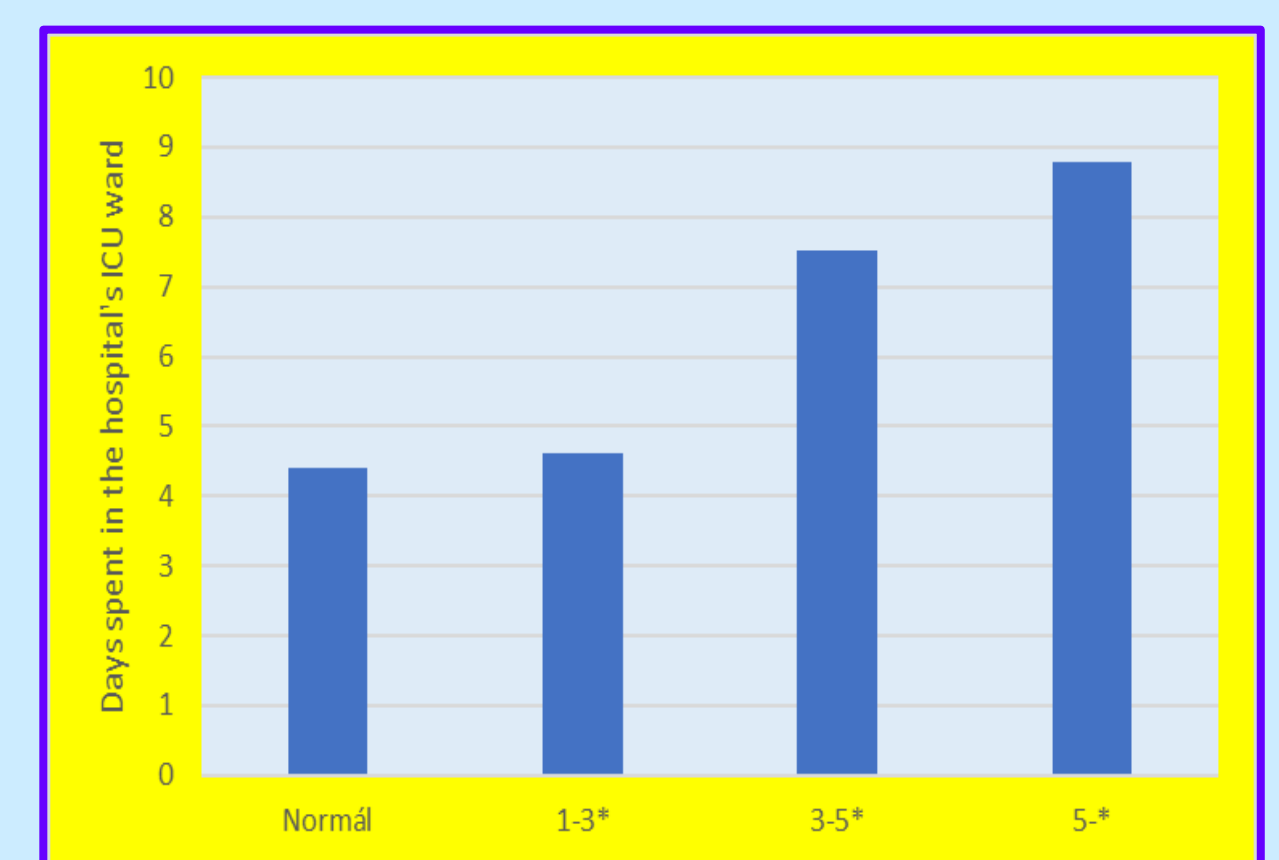


Figure 5.
Deviation from Ferritin reference value correlation with days spent in the ICU ward in Karolina Hospital, Mosonmagyaróvár, Hungary ($n=464$)

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