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EFFECTS OF MATRIX METALLOPROTEINASE-9 AND CORTISOL IN THE EARLY PUERPERIUM

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Introduction

Matrix metalloproteinase-9 (MMP-9) belongs to the matrix family of metalloproteinases involved in the local proteolysis of the extracellular matrix and tissue remodelling, and cortisol is the stressassociated hormone [1,2]. The disorder of each one can induce delayed tissue healing or long depressive symptoms [2].

• Results and discussions

All adult mothers with a mean age of 29.97 years had a mean level of MMP-9 M = 144.57 ng/ml, SD = 33.67 ng/ml, and mean serum cortisol M = 24.79 μ g/dl, SD = 6.39 μ g/dl.

Material and method

In the early puerperium (in this case the first three days postpartum), clinical data and analyses of 40 mothers who gave birth in July 2022 at the Obstetrics and Gynaecology Clinic of the "Pius Brînzeu" County Emergency Clinical Hospital in Timișoara were collected.

Box-plot



See *Figure 1*.

Between them is a significant mean negative Pearson correlation r = 0.4 and p < 0.05. The Spearman correlation indicated a small insignificant negative relationship (p > 0.05) of cortisolemia with education (secondary school, sixth form, higher education), r = 0.24, depression, r = 0.03, postpartum anxiety, r = 0.15.

For additional correlations, see *Figure 2*.

- Cortisolemia, in simple linear regression, does not explain (p > 0.05) depression, $R^2 = 0.04$, $\beta = -0.02$, or anxious state, $R^2 = 0.03$, $\beta = -0.02$. Logistic regression has been shown to significantly predict cortisol and MMP-9 levels (p < 0.05).
- Serum concentrations of MMP-9 are similar to the literature and it has been proven that during childbirth and early puerperium the balance of MMP-9/tissue metalloproteinase inhibitors is altered, favouring tissue degradation and remodeling of the postpartum endometrium [3]; MMP-9 is also present in breast milk in concentrations that do not change significantly in relation to milk maturation [4].

147.8524

Figure 1. Boxplot showing data on mothers during the early postpartum period



Figure 2. Correlogram of maternal parameters

Cortisolemia is similar to data in the literature, which also show that hypercortisolemia is associated with transient depression, hypocortisolemia with chronic depression, and postpartum anxiety [5,6].

Conclusion

MMP-9 intervenes in the recovery and health of postpartum mothers, and cortisol is essential for their physical and mental health.

References

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