

Matrix Metalloproteinase-9 in cervicovaginal fluid at human term parturition

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The purpose : The purpose of this study is to investigate 1) whether MMP-9 concentration in cervicovaginal fluid is associated with labor and rupture of membrane at term 2) whether elevated MMP-9 is associated with cervical ripening, and then 3) whether elevated MMP-9 can be used for prediction of success of term labor induction.

Methods : The subjects of this prospective study, consisted of uncomplicated singleton primiparous women from 37 to 42 weeks of gestation, were grouped into; spontaneous labor (group 1, N=42), premature rupture of membrane (group 2, N=24), and induction with no labor (group 3, N=68). MMP-9 concentration was measured using commercial MMP-9 ELISA. Mann Whitney U test, Spearman correlation test, and multiple logistic regression analysis were used.

Results : 1) MMP-9 concentration in cervicovaginal fluid in labor or rupture of membrane at term was not increased. 2) Subjects with Bishop Score 4 or more had higher median MMP-9 concentrations in cervicovaginal fluid (median 469.62 [range: 35.27-3333.91] vs 28.6 [range: 0.05-2847.8], $P=0.002$). 3) In induction group, there was no difference in median MMP-9 concentration in cervicovaginal fluid between induction success group and induction failure group (median 35.35 [range: 0.05-3333.91] vs 43.05 [range: 0.05-1823.1], $P=0.476$). By multiple logistic regression analysis, lower BMI and lower birth weight at delivery remained significant factors affecting the success of labor.

Conclusion : Although elevated MMP-9 concentration in cervicovaginal fluid was associated with cervical ripening before labor, MMP-9 in cervicovaginal fluid was not associated with labor or rupture of membrane at term and did not predict success of labor induction.