Labor Pain in Different Dilatations of the Cervix and Apgar Scores Affected by Aromatherapy: A Systematic Review and Meta-analysis

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Labor pain (LP), as a physiological process, is known as one of the most severe pains. Aromatherapy is one of the methods to reduce LP in the first phase of labor. It is an important approach for enjoyable birth and decreases the severity of pain in today's society. Accordingly, this study aimed to systematically review the relieving effect of aromatherapy in LP and Apgar score. We used international databases such as EMBASE, Web of Science, Scopus, Google Scholar, PubMed, Cochrane Library, ProQuest, and to conduct a systematic search for all relevant articles. Cochran's Q-test and I-2 statistic were applied to assess heterogeneity, a random-effects model was used to estimate the unstandardized mean difference (UMD), and a meta-regression method was utilized to investigate the factors affecting heterogeneity between studies. A total of 27 studies were included in the meta-analysis (sample size: 2,566). Overall, aromatherapy leads to relieving LP during delivery (UMD: 1.75; 95 CI: 1.13-2.37). Based on cervix dilation, aromatherapy significantly affects LP when cervix dilation is 8-10 cm (UMD: 6.18; 95 CI: 4.51-7.85) and 0-4 cm (UMD: 5.31; 95 CI: 3.74-6.87); but it had no effects on 1- and 5-min Apgar scores. No publication bias was observed (P=0.113). Mother's age, publication year, sample size, and cervix dilation had no significant effects on heterogeneity (P>0.05). Aromatherapy had a positive impact on relieving LP, and the greatest and least effect was witnessed in dilatation of 8-10 cm and 0-4 cm, respectively. Moreover, it had no effects on 1- and 5-min Apgar scores.

Keywords: Apgar score; Aromatherapy; Cervix dilation; Delivery length; Labor pain; vaginal delivery