

Safety of hair products during pregnancy

Personal use and occupational exposure

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ABSTRACT

QUESTION Several of my pregnant patients who are hairdressers have asked me if exposure to products they use is harmful to their unborn babies. They also want to know if their pregnant clients' personal use of hair products should be of concern.

ANSWER There is no evidence of teratogenic effects for pregnant women exposed to these products from occupational use (ie, hairdressing); however, it is recommended that pregnant hairdressers wear gloves to minimize exposure, work for no more than 35 hours per week, avoid standing for prolonged periods of time, and ensure that the salons where they work have adequate ventilation. Evidence suggests there is minimal systemic absorption of hair products, so personal use by pregnant women 3 to 4 times throughout pregnancy is not considered to be of concern.

RÉSUMÉ

QUESTION Des patientes enceintes qui exercent le métier de coiffeuse m'ont demandé s'il était dangereux pour leur enfant à naître qu'elles soient exposées aux produits des salons de coiffure. Elles voulaient aussi savoir si leurs clientes enceintes avaient des raisons de s'inquiéter si elles utilisaient elles-mêmes ces produits capillaires.

RÉPONSE Il n'y a pas de données probantes faisant valoir des effets tératogènes causés par ces produits utilisés professionnellement (p. ex. par les coiffeuses) sur les femmes enceintes; par ailleurs, on recommande aux coiffeuses de porter des gants pendant la grossesse pour minimiser leur exposition aux produits, de ne pas travailler plus de 35 heures par semaine, d'éviter d'être debout pendant des périodes prolongées et d'assurer une ventilation adéquate dans le salon où elles travaillent. Les données probantes révèlent une absorption systémique minimale des produits capillaires et, par conséquent, l'usage personnel par des femmes enceintes de 3 à 4 fois durant leur grossesse n'est pas considéré comme un sujet de préoccupation.

Chemicals in hair products colour, straighten, relax, curl, and bleach hair. Hair dyes are often divided into 5 categories: gradual hair colouring, vegetable dyes, temporary dyes, semipermanent dyes, and permanent dyes.¹ The most common chemicals used in permanent hair colours are phenylenediamine, 3-aminophenol, resorcinol, toluene-2,5-diaminesulphate, sodium sulfite, oleic acid, sodium hydroxide, ammonium hydroxide, propylene glycol, and isopropyl alcohol.² The chemicals used in hair straighteners or relaxers, bleachers, and permanents include sodium hydroxide, guanidine hydroxide, ammonium thioglycolate, ammonium hydroxide, petroleum, and hydrogen peroxide.^{3,4}

Harmful effects

Some of the chemicals used in hair products have been reported to be carcinogenic⁵; however, many of these chemicals have been eliminated from oxidative dye products since the early 1980s. There have been reports of hair products being associated with bladder cancer, non-Hodgkin lymphoma, multiple myeloma, acute

leukemia, and neuroblastoma in offspring. However, these results have been inconsistent; most studies conducted on personal or occupational use of hair dyes showed no increased risk of cancer.⁶⁻⁹

Exposure during pregnancy

Experimental animal studies showed risks of teratogenicity due to some of the chemicals found in hair products, namely phenylenediamine,¹⁰ aminophenols,¹¹⁻¹² and ethanolamine,¹³ when used in very high doses. Human studies, however, show that exposure to these chemicals from hair dyes or hair products results in very limited systemic absorption, unless there are burns or abscesses on the scalp. Therefore, these chemicals are unlikely to reach the placenta in substantial amounts to cause harm to the unborn fetus.¹⁴⁻¹⁸

Occupational exposure

As hairdressers are exposed to chemicals that have been suggested to be teratogenic, embryotoxic, and carcinogenic, Labrèche et al attempted to measure the

chemicals in the air at a number of hair salons. All chemicals measured were well below the threshold limits recommended by the American Conference of Governmental Industrial Hygienists.¹⁹ Hueber-Becker et al found that plasma levels of an oxidative hair dye were below the limit of detection in 18 hairstylists who each performed 6 hair-colour jobs in 1 day.²⁰

A study by John et al, who examined the working conditions of pregnant women in beauty salons, found that the risk of spontaneous abortions did not increase with the number of hair-dye jobs performed per week.²¹


Zhu et al compared 550 hairdressers with a nonexposed group and found no statistically significant differences in fetal loss, preterm birth, small for gestational age babies, congenital malformations, or achievement of developmental milestones among their children.²² A Swedish study also did not find an increased rate of birth malformations among offspring of hairdressers when compared with those of a nonexposed group.²³ In a later study, the same group found neither an increased risk of spontaneous abortion nor fertility concerns among hairdressers.²⁴

Personal exposure

A case-control study by Blackmore-Prince et al found no increased risk for preterm delivery or low birth weight in 525 pregnant black women exposed to chemicals used to straighten and curl hair.⁴ Another case-control study by Rosenberg et al also did not find an association with preterm deliveries and use of hair relaxers during pregnancy in 5944 black women.²⁵

There are no studies on occasional use of hair products during pregnancy. However, we have calculated that using these products 3 to 4 times during pregnancy would not be a concern, as they have minimal systemic absorption and women are exposed to them every 6 to 8 weeks at most during pregnancy.

Conclusion

In view of these data, use of hair products is unlikely to cause adverse fetal effects. With occupational exposure of hairdressers, the evidence suggests minimal systemic exposure to hair products; however, it is recommended that hairdressers wear gloves to minimize exposure, work for less than 35 hours per week, and avoid standing for prolonged periods of time. For the average pregnant woman, receiving hair treatments 3 to 4 times during pregnancy does not appear to increase risk of adverse effects on the fetus. 

Competing interests

None declared

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MOTHERISK

Motherisk questions are prepared by the Motherisk Team at the Hospital for Sick Children in Toronto, Ont. Dr Chua-Gocheo and Ms Bozzo are members and Ms Einarson is Assistant Director of the Motherisk Program.

Do you have questions about the effects of drugs, chemicals, radiation, or infections in women who are pregnant or breastfeeding? We invite you to submit them to the Motherisk Program by fax at 416 813-7562; they will be addressed in future Motherisk Updates.

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