

Contraceptive Jewellery—A Novel Birth Control

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ABSTRACT

Jewellery made women elegant, confident, and a part of daily life. The novel birth control technique can help comply with the drug regimen. The contraceptive jewellery aids women to adhere more with the use of contraceptives and enhance the accomplishment of contraception. Contraceptive hormones and other drugs were administered through a special backing on jewellery such as earrings, rings, necklaces, or wristwatches that provides a new path for birth control. It improves compliance with the drug regimens with regular dosages and aids universal earring back that can be paired with many different earrings. It works only with the skin-permeable drugs that require the administration of small quantities to fit into the patches and used for a week. It was excellent future innovative birth control measure, prompts compliance with drug regimen, and increases the rate of contraception.

Keywords: Birth control, Contraceptive jewellery, Drugs, Earring, Transdermal patch, Wrist watches.

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INTRODUCTION

Jewellery made women elegant, confident, and a part of daily life. The novel birth control technique can help comply with the drug regimen. The unintended birth was approximately 40% worldwide which needs additional contraceptive options to enable better family planning services.¹⁻³ The contraceptive jewellery aids women to adhere more with the use of contraceptives and enhances the accomplishment of contraception by using the transdermal patch technology to administer the drugs.^{1,4,5} Researchers from Georgia Institute of Technology executed pharmaceutical jewellery as a novel method for delivering contraceptive hormones, and other drugs were administered through a special backing on jewellery such as earrings, rings, necklaces, or wristwatches that provides a new path for birth control, according to the findings presented in the *Journal of Controlled Release*.^{1,6,7}

Mechanism of Delivery

The contraceptive hormones contained in patches were applied to the portion of the jewellery. It consists of three layers. The inner impermeable adhesive layer sticks to the jewellery (e.g., adhesive to hold in back of the earrings, bottom of the wristwatch, or inside the surface of a necklace or ring).^{1,2,8-10}

The middle layer contains the contraceptive drug in the solid form. The outer semipermeable layer is a skin adhesive to stick into the skin in which the drugs were absorbed by skin contact, allow the drugs to be absorbed into the bloodstream, and circulate through the body. The dose delivered by a patch is usually relative to the area of skin contact.^{1,2,11,12}

- The testing suggested that the patches provide necessary amounts of hormone in the bloodstream even the jewel was removed.^{13,14}

Advantage

- Improve compliance with the drug regimens with regular dosages
- Universal earring back can be paired with many different earrings
- It can be used for delivering the other drugs through the skin
- To prevent unintended pregnancies
- Rapid drug transfer, viz. close contact with the skin

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- It was more convenient and attractive to use
- Allow more discreet use of drug delivery technology.^{1,2,15}

Disadvantage

- Limited access to long-acting contraceptives such as injectables, implants, and IUDs.
- It works only with skin-permeable drugs that require the administration of small quantities to fit into the patches.^{1,2,16}

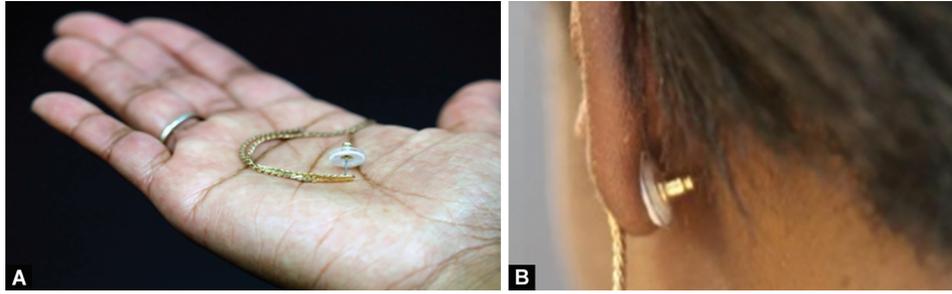
Duration: Change Once in a Week

Contraceptive Jewellery

Figure 1 shows the contraceptive jewellery, like a pharmaceutical watch, ring, choker necklace, and earring. A white contraceptive



Fig. 1: Contraceptive jewellery



Figs 2A and B: (A) Earring with a transdermal patch; (B) Vertical earring on a woman's ear

patch material is applied to a part of the jewellery to contact with the skin^{3,4,17}

Earrings with Transdermal Patch

Figure 2A shows the earring with a transdermal patch backing. The white ring is the patch containing the contraceptive hormone, and Figure 2B shows the vertical earring on a woman's ear.³

Research under Trial

The contraceptive jewellery provides sufficient amounts of hormone to provide contraception in the initial testing. It was tested in rats and pigs but not yet in human.^{1-3,16,18}

The pharmaceutical jewellery as transdermal patches made of microfibers that contain levonorgestrel as the contraceptive hormone was applied to pigs' ears and skin of hairless rats for 16 hours at a time, removed after eight hours to simulate, and finally removed during the sleep.^{1-3,7,15}

To find out the feasibility of this method, the researchers are paying more attention to the patches used on the back of the earrings. These patches were tested in two methods. In the first, the researchers applied the patch to pig skin and found that the levonorgestrel transferred by the patch ranged between 20 µg and 40 µg per day. It was compared positively with the accepted rate in human contraception.^{1-3,19}

To verify the long-term conversion, the researchers tested the earring patches. Patches with 0.7 cm² were applied on hairless 10 rats. During one week of examination, the levonorgestrel levels are quite stable and reached as high as 1,550 pg/mL, outpacing 200 pg/mL recommended for human contraception. After one week, the patches had transferred approximately 176 µg of levonorgestrel.^{1-3,14,20}

CONCLUSION

It can be used in the future as an innovative birth control measure, promotes effective compliance with drug regimen, and increases the rate of contraception.

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