A Genetic Solution Revolutionizing Contraception

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Dear Editor,

For years, the rapidly multiplying population due to unplanned pregnancies has posed a cause of great concern to the world, especially to developing countries, adding to its economic burden; with the lack of proper healthcare facilities and unavailability of adequate funds to cater to the demands of the rising population. Pakistan's population has crossed 228,327,090 as of March 2022, ranking 5th in the list of countries by population[1]. Though the fertility rate of the country is declining per annum, it is but at a very slow rate, i.e., a 1.87% decline (3.30 births per woman) in 2022 as compared to 2021 (3.36 births per woman) [2].

Currently, there are thirteen contraceptive methods available for women, including barrier methods, hormonal, female condom, tubal ligation, cervical cap, diaphragm, subdermal implant, injectable, intrauterine device (IUD), patch, oral pill, ring, and sponge[3]. Contrasting to this number, up until now, male contraceptives offer merely 2 options: male condoms and vasectomy. Condoms pose a high failure rate of 16% and vasectomy, though reversible, is a surgical procedure, thus causing individuals to be reluctant of undergoing the process[3]. This forces women to undertake the majority of the contraceptive burden, which appears to be much more expensive than male methods of contraception, involving multiple clinic visits and recurring prescriptions. Because most contraceptive methods are associated with hormonal interference, they may also cause a myriad of negative consequences including venous thrombosis, acne, endometriosis and premenstrual dysphoric disorder causing women to be sceptical of contraception methods and discontinue them[4].

In recent years there has been a shift in attitude towards contraceptives in males. Male contraceptive pills have been under study for years but were associated with high failure rates. However, recently a group of scientists at the University of Minnesota has created a pill that targets the protein retinoic acid receptor alpha (RAR-α). This protein binds to retinoic acid, a form of vitamin A that plays an essential role in sperm formation and embryonic development. Displacing the RAR-α gene in male mice makes them sterile[5]. This pill is 99% effective in pregnancy prevention in mice without many adverse effects. Within four weeks of ceasing medication therapy, normal virility was restored. Human trials are scheduled to commence soon[5].

It is imperative that adequate and rapid funding is provided by the government to accelerate the process of introducing this pill to the market. Its importance and need should be sufficiently understood as it is a compelling necessity. If this finding proves effective, it could potentially revolutionize pregnancy prevention. It would serve to remove contraceptive responsibilities from women alone, provide higher contraception success rates and have lesser contraception-associated side effects. With the advent of a contraceptive pill for men, there would be more contraceptive options catering to the male gender that do not revolve around extremes such as surgical interventions.

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CONFLICT OF INTEREST
All authors agreed to the publication of this manuscript.

AUTHORS' CONTRIBUTION

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