As hormonal contraceptives have become increasingly popular, it is imperative to understand their possible effects on our bodies. Determining whether there is a relationship between different classes of birth control and the incidence of acne vulgaris is critical for better informing decisions on this topic. While pathogenesis is multifactorial, androgen-induced elevated sebum secretion has been proven to play a role in the development of acne vulgaris, a chronic inflammatory disorder of the pilosebaceous unit leading to open and closed comedones, and other inflammatory lesions. Exogenous progestins have been shown to promote androgenic activity, and acne vulgaris is a reported side effect of progestin-releasing intrauterine devices (IUDs) as well as oral contraceptive pills. However, the androgenic potential of progestins varies across different progestin formulations and doses, and randomized controlled studies have been conducted to specifically evaluate the development or exacerbation of acne vulgaris after implantation of a progestin-releasing IUD.

**Introduction**

Research analyzing the relationship between hormonal IUDs and acne vulgaris are limited and do not elucidate a clear role of exogenous progestin in the development of acne.

- However, a recent review article found that in the available literature, including patient-reported data and comparison studies of levonorgestrel-releasing IUDs versus copper-releasing IUDs, the potential for levonorgestrel-releasing IUDs to cause a flare of acne vulgaris was supported.
- Several studies found that respondents with IUDs noted a higher rate of acne worsening and another found that patients with hormonal IUD had an increased risk of clinical encounters with an ICD code for acne in the first year after implementation.
- Ultimately, another study found that hormonal IUD faced a higher removal rate for hormone related side effects like acne compared to copper IUDs.

**Objectives**

- Review the current literature about the association between different types of birth control and the incidence of acne vulgaris in adult females with a focus on progestin-releasing intrauterine devices (IUDs).
- Identify the incidence of acne vulgaris in adult female patients with progestin-releasing intrauterine devices (IUDs) at a rural level III academic medical center through a retrospective cohort study.

**Methods**

- Conduct a literature review: The first search was a PubMed search using the terms “progestin” and “acne” to establish the relationship between hormones and acne vulgaris. Secondly, PUBMED search was performed using the terms “Intrauterine Devices”, “birth control”, “acne”, and “dermatology”. We reviewed five primary literature articles each from a different dermatology journal, including a retrospective analysis and several cohort studies using females of reproductive age ranging from 12-45 years old as subjects. There are currently no randomized control trials that directly evaluate the effect of hormonal intrauterine devices on acne.
- Conduct a single center retrospective cohort study using deidentified patient data obtained through the Dartmouth Analytics Institute TriNetX and Clarity informatics technology. We will determine whether there is an association between progestin-releasing IUDs and incidence of acne vulgaris in adult female (age 18-45 years)patients at Dartmouth Hitchcock Medical Center Dermatology and OB/GYN clinics from 1/1/2010 to 12/31/2020.

**Results**

**Discussion**

There is limited evidence of progestin IUDs increasing the incidence of acne. Furthermore, this evidence is highly subjective and confounded by self-report bias. Anecdotally in the DHMC Dermatology Clinic, development of acne or the worsening of acne vulgaris after the placement of progestin-releasing IUDs has been observed, and we hypothesize that these devices are a triggering factor for acne vulgaris. We would like to show objectively, using a medical diagnosis of acne vulgaris as the standard, whether in our patient population the incidence of acne vulgaris is increased after implantation of progestin-releasing IUDs compared to baseline rates.

**Future Steps**

- A research ticket was submitted to the DH Analytics Institute requesting the data.
- Currently pending data retrieval of ICD codes and relevant health measures and will supplement with chart review as needed.

**References**

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