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Anogenital Distance as a Predictor of Dysmenorrhea

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ABSTRACT

Most women experience menstrual pain (dysmenorrhea) before and during menstruation. The prevalence of dysmenorrhea in Indonesia reaches 64.25%, consisting of 54.89% primary dysmenorrhea and 9.36% secondary dysmenorrhea. The incidence of dysmenorrhea among women of reproductive age ranges from 45% - 95%. Primary dysmenorrhea is experienced by 60% - 75% of adolescents. Many risk factors for dysmenorrhea have been identified, one of which is the anatomy of the reproductive organs. Anogenital distance (AGD) is the distance from the midpoint of the anus to the clitoris. Intrauterine estrogen exposure causes a shortened AGD, so this is a predictor of endometriosis with symptoms of dysmenorrhea. This study aims to determine the difference between AGD in adolescents with dysmenorrhea and non-dysmenorrhea. The sample of this study was 93 students of the Faculty of Medicine, Riau University, Class of 2020 and 2021. The results showed that the average age of the respondents was 19 years. As many as 73% of respondents experienced dysmenorrhea. The median of AGD in the dysmenorrhea group was 0,33 and the non-dysmenorrhea group was 0.43. There was a significant difference in the mean AGD between the two groups. It can be concluded that the size of the AGD can be a predictor of dysmenorrhea.

Keywords: Dysmenorrhea, anogenital distance, menstruation

Introduction

Adolescent women have one of the characteristics of puberty in the form of menstruation. Menstruation is bleeding that occurs periodically which is a cycle from the uterus accompanied by the release (desquamation) of the endometrium (Larasati & Alatas, 2016). Most women have symptoms of painful menstruation (dysmenorrhea) when experiencing menstruation. Dysmenorrhea is lower abdominal pain that arises due to uterine cramps that occur during menstruation, around 45-95% of women who experience menstruation (Lin et al., 2021), Pain occurs at the same time as the first start of menstruation that lasts a few hours to several days. Abdominal pain can cause a decrease in a person's activity and learning ability because they have to rest for a long time.

The prevalence of dysmenorrhea in the world is still very high, according to data from the World Health Organization (WHO) there are 1.7 million people with dysmenorrhea. Women who experience dysmenorrhea (90%), and women around (10-15%) who experience severe dysmenorrhea (Delistianti et al., 2019). The prevalence of dysmenorrhea in Indonesia reaches 107,673 people (64.25%) consisting of primary dysmenorrhea of 59,671 people (54.89%) and 9,496 people (9.36%) experiencing secondary dysmenorrhea (Oktorika et al., 2020). The results of research by Wulandari et al. (2018) on young women in Lima Puluh Kota Pekanbaru found 34.6% mild pain, 48.1% moderate pain, and 17.3% severe pain. Dysmenorrhea is related to family history 27.8% of mothers suffer from dysmenorrhea and 18.4% of their sisters suffer from dysmenorrhea (NICE, 2018).

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Dysmenorrhea is classified into primary and secondary. Primary dysmenorrhea in cases of menstrual pain is associated with anovulatory cycles and usually appears 6-12 months after menarche and there is no pelvic pathology, while secondary dysmenorrhea is a case of menstrual pain that lasts a long time and appears around 12 months after menarche with increasingly intense pain and associated with pelvic pathology (Sachedin & Todd, 2020).

The most common cause of secondary dysmenorrhea is endometriosis, which represents 33.5% of all secondary dysmenorrhea, based on previous studies that many factors have been found to diagnose endometriosis non-invasively such as blood, urine, and endometrial features biomarkers, however, the level of accuracy through this method is low, only around 0.56-0.74% (Crestani et al., 2020). Research conducted by Sanchez-Ferrer et al. (2019), shows that a short Ano Genital Distance (AGD) is associated with an increased risk of endometriosis in women based on clinical examination and ultrasound. Previous studies have also stated that dysmenorrhea occurs due to the production of excessive levels of prostaglandins (American College of Obstetricians and Gynecologists, 2018).

Ano Genital Distance (AGD) is a sexually dimorphic characteristic that is dependent on intrauterine androgen exposure and is measured from the anus to the genital tubercle. Previous research said that AGD is expressed as having a dependence on the duration of intrauterine androgen exposure, which was found to be around 50-100% longer in males than in females (Kulaksiz & Toprak, 2022). Previous researchers stated that AGD in female fetuses is shorter than in male fetuses. This statement is used as an initial marker to determine the sex of the fetus in the first trimester of pregnancy. There are two methods for measuring AGD, the measurement from the clitoris-anus (AGDAC) and the measurement from the fourchette posterior-anus (AGDAF) (Crestani et al., 2020). Research by Crestani et al. (2020) concluded that the measurement of AGD can be used as an alternative non-invasive diagnosis medium for endometriosis. Endometriosis is a disease in women of reproductive age characterized by the presence of endometrial tissue outside the uterine cavity and is associated with pelvic pain and infertility. The prevalence of endometriosis affects approximately 10% of women of reproductive age and hurts the quality of life related to chronic pelvic pain, dysmenorrhea, and infertility.

Until now, research on the relationship between dysmenorrhea and AGD is still very limited. This study aims to determine the relationship between AGD and dysmenorrhea in adolescents, in this case, the students of the Faculty of Medicine, University of Riau.

Material and Methods

This study was an analytical study to compare AGD in the dysmenorrhea and non-dysmenorrhea groups. The research sample was 93 students from the Faculty of Medicine, University of Riau, Class of 2020 and 2021. The measurements were carried out independently by the respondents after being educated and given picture guidelines. There are two methods for measuring AGD, the measurement from the clitoris-anus (AGDAC) and the measurement from the fourchette posterior-anus (AGDAF). AGD ratio is the ratio of AGDAF and AGDAC (Figure 1).

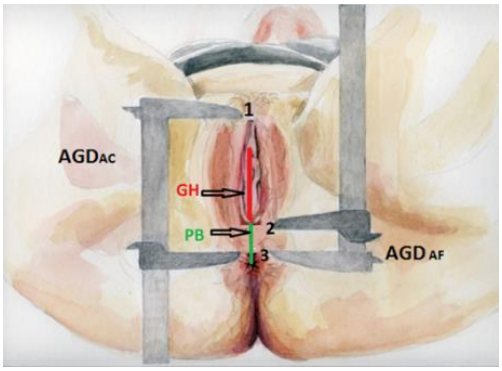

Figure 1. The measurement of AGDAC and AGDAF

Results and Discussion

Of the 123 respondents who took part in the study, 93 respondents had complete data. Mean age was 19 years old. Of these respondents, it was found that 73.1% experienced dysmenorrhea. The results of AGD measurements can be seen in Table 1.

From Table 1 it can be seen that there is a significant difference in the average AGD between the dysmenorrhea and non-dysmenorrhea groups. This is in line with research conducted by Sanchez-Ferrer et al. Short anogenital ratio is associated with the risk of dysmenorrhea cause of endometriosis in women based on clinical and ultrasonography. Ano Genital Distance (AGD) is a sexually dimorphic characteristic that depends on intrauterine androgen exposure. Ano Genital Distance is the distance measured from the anus to the genitals (Crestani et al., 2020; Buggio et al., 2020). Experimentally, AGD at birth reflects the presence of androgen hormone exposure during prenatal life and is considered to be a sensitive lifetime marker of androgen exposure (Kulaksiz & Toprak, 2022). However, the regulatory mechanism in female fetuses is unclear; in addition to the influence of androgen receptors, the mechanism may be related to estrogen and progesterone and cause dysmenorrhea.

Dysmenorrhea is divided into primary dysmenorrhea and secondary dysmenorrhea. Primary dysmenorrhea is the most common gynecological disease in menstruating women and usually begins during adolescence, but only occurs after ovulation has occurred. Pain that is felt due to excessive pathological uterine contractions which the results of clinical examination do not feel any lesions in the small pelvis, while secondary dysmenorrhea is caused by the discovery of lesions in the smaller pelvis such as endometriosis, chronic pelvic inflammation, uterine fibroid cervical stenosis, and abnormalities anatomy and function of other reproductive organs (Taylor et al., 2020; Barcikowska et al., 2020). Studies say that shorter AGD have a higher risk of endometriosis, while long AGD are associated with an increased risk of PCOS (Buggio et al., 2020).

Conclusion

Anogenital distance ratio can be used as a risk factor for dysmenorrhea.

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