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SYSTEMATIC REVIEW: INCIDENCE RISK FACTORS UTERINE GAS GANGRENE IN CERVICAL CANCER WITH TYPE 2 DIABETES MELLITUS

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ABSTRACT

Cervical cancer is one of the most common cancers among women and ranks fourth after breast, colorectal, and lung cancer. The incidence of cervical cancer in Indonesia in 2021 in 36,633 cases, with a death rate of 21,003. Gas gangrene is a disease that is identical to the incidence of Type 2 diabetes mellitus with characteristics namely necrosis of the muscles/myonecrosis and is a very lethal infection in network inner tenderness, often caused by gram-positive bacteria such as Clostridium perfringens. Knowing the risk factors for uterine gas gangrene in cervical cancer patients with Type 2 DM. This research is a Systematic Review using the Preferred Reporting Items for Systematic Reviews and Meta-analyses method or commonly called PRISMA, and this method is carried out systematically by following steps or protocols for proper research. Sources were taken from the PubMed site, and the Google Scholar site with journals published in 2018-2022, and screening was carried out to obtain 17,899 results. Journal clustering was carried out, and the number of journals indexed by Scopus Q1 was 18 journals, Q2 14 journals, and Sinta S1 indexed 2 journals, so 34 journals were extracted. Most journals discuss age and lifestyle related to risk factors for cervical cancer. Risk factors for cervical cancer are determined based on age, HbA1C, lifestyle, and cervical cancer associated with uterine gas gangrene and Type 2 Diabetes Mellitus

Keywords: Cervical Cancer, Uterine Gas gangrene, Clostridium perfringen, Type 2 Diabetes Mellitus.

INTRODUCTION

Globally, cervical cancer continues to be among women's most common cancers, the fourth most common after breast, colorectal, and lung cancer. The prevalence of cervical cancer worldwide is estimated at 570,000 cases and 311,000 deaths in 2018. Most new cases and

deaths (approximately 85% and 90%, respectively) occur in low- and middle-income countries, where access to cervical cancer screening and prevention is minimal. Tragically, Cervical cancer is the leading cause of cancer death in women in developing countries (Bhatla et al., 2021; et al.,2022; HOGI, 2018; Bedellet al.,2019).

The World Health Organization (WHO) defines high-risk cervical cancer regions as East, Southern, Central Africa, and Melanesia. In fact, in Africa and Central America, cervical cancer is the leading cause of cancer-related death among women (Vuet al., 2018).

In Indonesia, cervical cancer had the highest prevalence in 2013, estimated at 0.8‰. Based on the estimated number of people living with cervical cancer in Indonesia, the most cases were found in East Java Province, with 21,313 people with a total of 98,692 patients (Putriet al.,2019). Nearly 90% of deaths due to cervical cancer occur in a population with a weak economy (HOGI, 2018).

The incidence of cervical cancer in Indonesia in 2021 was 36,633 cases, with a mortality rate of 21,003 (Globocan, 2021). The Indonesian Ministry of Health in 2012 stated that diabetes mellitus was included in the top ten non-communicable diseases with the highest number.

Obtained in 2017, diabetes mellitus was ranked as the highest metabolic disease in America, with as many as 37,300 cases showing a significant increase in cases from the previous year (NHC, 2019). Events in Australia are incident related Gangrene uterine has only around 800 cases per year, according to statistics in October 2021. In other countries like India, with reduced access to health services and antibiotics, the incidence is higher, with a mortality rate of more than 30% of 4000 people in India in 2019 (Buboltz, 2022). Human Papillomavirus (HPV) is critical to developing neoplasm cervix and can be detected in 99.7% of cases of cervical cancer. The most common histological Types of cervical cancer are squamous cell carcinoma (69% of cervical cancer) and adenocarcinoma (25%) acquired in patients with gangrene uterine (HOGI, 2018).

Gas gangrene is a disease that is identical to the incidence of Type 2 diabetes mellitus with characteristics namely necrosis of the muscles/myonecrosis and is a very deadly infection of the inner soft tissue, often caused by gram-positive bacteria such as Staphylococcus aureus, Clostridium perfringens (Buboltz, 2022). Diabetes mellitus is a metabolic disease in which sufferers have high blood sugar levels. These conditions cause patients to have symptoms such as increased urinary frequency, increased thirst, and increased hunger (Shop, 2014). Type 2 diabetes mellitus occurs due to insulin resistance due to disorders uptake of glucose and decreased production of pancreatic beta cells resulting in reduced insulin secretion and activity. Type 2 DM patients can be at risk for chronic complications such as CHD & stroke, kidney failure, diabetic retinopathy, and gangrene (Erin, 2015).

Uterine gas gangrene, caused by Clostridium perfringens, is a serious, often life-threatening, infection frequently found in the peripartum period and is also associated with the legalization of therapeutic abortion. This case is also typical in cases of gynecological malignancy. However, there are also cases of benign uterine tumors (leiomyomas). One case was caused by the closure of the uterus due to an infection of Clostridium perfringens associated with leiomyomas, called benign degeneration of the uterus (Kremer, 2017).

Management of a patient's gas gangrene uterine must be immediate and aggressive, and collaborative, including the selection of appropriate antibiotics, the need for surgery involving surgical, obstetrical, and anesthetic teams as well as internal medicine specialists and clinical microbiology specialists for the determination of antibiotics based on empiric therapy and germ resistance cultures (Buboltz, 2022). It was found that in the majority of reported cases, there were patients with gangrene uterine, which causes further tissue damage to the integrity of the mucosa, so actions such as a tissue biopsy of the uterus are needed to determine the extent of malignancy in the cervix (Sivasubramanian, 2021). In addition, the provision of local astringents, such as boric acid and tannic acid, and antibacterial agents, such as ointment

neobakrin, can be given as treatment for gangrene uterine with cervical cancer. This can be given in combination with chemotherapy treatment in cervical cancer patients, with further monitoring by surgeons and ob-gyns for further treatment (Ronald, 2017).

Surgery treats cervical cancer found in a patient's gangrene uterine. Surgical treatment for causes of gas gangrene uterine is performed at stage V. If infection gangrene does not reach the endometrial lining, debridement of wound care can be done according to the treatment gas gangrene uterine grade IV, followed by giving antibiotics according to the results of the bacterial examination obtained (Johnson et al., 2019). Antibiotics often used are Penicillin, clindamycin, tetracycline, chloramphenicol, and metronidazole. Pain-reducing drugs are also needed in patients undergoing surgery or debridement uterine gangrene with cervical cancer (Ananya, 2019).

Diabetes is a metabolic disease that occurs very frequently in Indonesia. Recently, the prevalence of Type 2 diabetes has increased rapidly due to the obesity epidemic. Previous studies have shown that diabetes can increase tumorigenesis and tumor development. It is known that diabetes is a risk factor for cancer. Many epidemiological studies have demonstrated the predictive role of diabetes in the prognosis of several cancers, such as breast, ovarian, and colorectal cancer. Considering the prognostic role of diabetes, many studies have also investigated its predictive role in the prognosis of cervical cancer (Kohet al.,2019; Gates et al.,2021). Some studies report that diabetes is associated with poor survival in cervical cancer patients, but others show that diabetes has no significant effect on cervical cancer prognosis. Therefore, the role of diabetes in predicting the prognosis of cervical cancer is still controversial. To address this issue, we conducted a systematic review to comprehensively evaluate the predictive role of diabetes/hyperglycemia in cervical cancer prognosis (Shu, 2017).

Based on the background that has been described, the formulation of the problem is "What are the risk factors for events uterine gas gangrene in cervical cancer who have Type 2 Diabetes Mellitus" based on the literature?". The purpose of this study was to (1) Know the risk factors for events uterine gas gangrene in cervical cancer who have Type 2 diabetes mellitus. (2) Knowing the concept description of uterine gas gangrene. (3) Knowing the conceptual description of cervical cancer and type 2 diabetes mellitus. (4) Analyzing the conceptual description of uterine gas gangrene in cervical cancer with Type 2 diabetes mellitus.

The results of this study can be used as an objective source of information regarding risk factors for events uterine gas gangrene in cervical cancer who have Type 2 Diabetes Mellitus. The results of this study can add insight into medical science in dealing with risk factors for uterine gas gangrene in cervical cancer patients with Type 2 Diabetes Mellitus. In addition, it is hoped that this research can be used as a research object in medical education in Indonesia. The results of this study can add insight into medical science about patients with uterine gas gangrene with cervical cancer who have Type 2 Diabetes Mellitus. In addition, it is hoped that this research can be used as a research object in medical education in Indonesia. It is hoped that this research can provide insight for researchers in applying the knowledge gained during their education period and serve as material for further research.

Methods

This research is a systematic review using the Preferred Reporting Items for Systematic Reviews and Meta-analyses or PRISMA, which is carried out systematically by following the correct research steps or protocols. The systematic review is one method that uses review, review, structured evaluation, classification, and categorization of evidence-based what has been produced before. Steps in the systematic implementation review are very planned and structured, so this method is very different from the one to convey literature studies. Procedure from Systematic Review It consists of several steps, namely 1) compiling Background and

Purpose, 2) Research Question, 3) Searching for the literature, 4) Selection Criteria, 5) Practical Screen, 6) Quality Checklist and Procedures 6) Data Extraction Strategy, 7) Data Synthesis Strategy

Procedure from Systematic Review

1. Arrange Background and Purpose

The first stage is done in the systematic review, namely setting the background and objectives. Background and purpose of systematic this is about the risk factors for people living with cervical cancer uterine gas gangrene followed by type 2 diabetes mellitus.

2. Identification of problems

In this study, researchers examined the problem through journals from reports on previous research results. The problem of this research is the risk factor for cervical cancer patients with uterine gas gangrene followed by type 2 diabetes mellitus.

3. Data Search

In this study, researchers conducted a data search through easily accessible journal portals websites such as PubMed and Google Scholar. Based on the theme taken by researchers about the risk factors for cervical cancer patients with uterine gas gangrene followed by type 2 diabetes mellitus, then the researcher conducted a search for journal data using the keyword "cervical cancer, uterine gas gangrene, type 2 diabetes mellitus, and cervical cancer were followed uterine gas gangrene". The journals obtained at this stage were 107,648 journal articles.

4. Screening / Selection Criteria

The topics examined in this study were risk factors for cervical cancer patients with uterine gas gangrene followed by type 2 diabetes mellitus. With this topic, the literature accessed in this research process was screened based on the following criteria:

a. Journals are published within 5 years (2018-2022).
b. Indexed journal Scopus 1 and 2 and Sinta 1 and 2, which relate to "risk factors for cervical cancer, uterine gas gangrene, type 2 diabetes mellitus, and cervical cancer were followed by uterine gas gangrene".

5. Quality Assessment

Quality assessment in this study is by exclusion and inclusion of research that will be included in the systematic review based on quality. These criteria can cancel the journal that has been obtained for further analysis. Assessment is carried out on journals with whether the journal is published within a predetermined time, namely 2018-2022, and whether the topic of the problem in the journal is the characteristics of people living with cervical cancer with symptoms of iron deficiency anemia. The screened journals are 17,899 journals published in the last 5 years. And a fully accessible journal with 13,500 articles.

Data extraction can be done if all data that meet the requirements have been classified for all existing data. After process screening, the data extraction results can be known with certainty how many still meet the requirements for further analysis. Extracting data from individual studies to get essential findings. In Systematic review, this data extraction is carried out by looking at the overall 9 published articles that have been selected and then writing down the essential findings from the articles so that the results of this extraction can proceed to the next stage, namely data synthesis.

6. Data synthesis

Synthesize results with meta-analysis (forest plot) or narrative techniques (metasynthesis). The narrative is the method used in synthesizing this research, and this method classifies the extracted data. In this stage, essential data is grouped and then studied in depth with data, facts, and information obtained from the research article to draw conclusions that answer the objectives.

Method of collecting data

1. Research Database Source

The data used to search for literature is through selection based on cervical cancer criteria, which involves medical research and social health. Next, review the literature relating to cervical cancer and uterine gas gangrene. Articles were searched using PubMed and Google Scholar as databases. The search for research articles relevant to this research topic is carried out using the following keywords: cervical cancer, characteristics of cervical cancer, uterine gas gangrene, type 2 diabetes mellitus, and cervical cancer with uterine gas gangrene.

2. Publication time

The journals taken are journals published in 2018-2022

3. Inclusion and exclusion criteria

a. Inclusion criteria

1) Research articles published in 2018-2022
2) The dependent variable in the research article is uterine gas gangrene, followed by type 2 diabetes mellitus.
3) The independent variable in the research article is cervical cancer
4) Scopus 1.2 and Sinta 1.2 indexed articles

b. Exclusion criteria

1) Research articles with incomplete text
2) Article-based literature review /systematic review
3) Does not discuss dependent variables/articles that are not related
4) Articles with incomplete content

4. Publication Search Strategy

Search publications on Pubmed and Google Scholar using the selected keywords: cervical cancer, characteristics of cervical cancer, and iron deficiency anemia.

Table 1. Publication Search Strategy on the Google Scholar and PubMed databases

Step	Strategy
1	Search Strategy Publication Step search through the database
2	Step search through the database about Cervical cancer, uterine gas gangrene
3	Step search through the database about Cervical cancer
4	Step search through the database about Uterine gas gangrene, Diabetes mellitus type 2
5	Step search through the database about Cervical cancer risk factors

4.3 Summarize in the Bibliography Summary

The journals found were selected based on the title and abstract information to see whether the article met the author's inclusion criteria to serve as an in-depth literature review; there were 9 journals analyzed. The essence taken from the research is the research title, researcher's name, and year of publication, place of research, sample, method, and research results.

4.4 Analysis and Synthesis

The analysis is the decomposition of a subject into its various parts and the study of the parts themselves and the relationships between the parts to obtain a proper understanding and understanding of the meaning of the whole. In comparison, synthesis is a blend (mixture) of

various meanings or things so that they form a harmonious whole. The narrative is the method used in synthesizing this research. This method classifies the extracted data and analyzes the content contained in the research objectives and results. The analysis used is journal content analysis.

Results

Research result

This chapter will describe the results and analysis using 34 journals related to cervical cancer risk factor variables uterine gas gangrene followed by type 2 diabetes mellitus with 26 fully accessed journals. Journal obtained at screening and extracted into a paraghraph to make it easier to explain the journal's contents. Based on the results of journal clustering, the number of journals indexed by Scopus Q1 was 18 journals, Q2 14 journals, and Sinta S1 indexed 2 journals. Hence, there were 34 journals extracted and used as work references for systematic review.

Data analysis

Data information regarding cervical cancer as an independent variable analyzed is presented in the form of a paragraph containing the title of the journal, year of publication, the author of the purpose in the journal, samples, and criteria, research instruments, between data or research methods and research results in the journal.

1. **Research Title**: Trends of cervical cancer at global, regional, and national level: data from the Global Burden of Disease study 2019
Writer: Xingxing Zhang, Qingle Zeng, Wenwen Cai and Weiqing Ruan (2021)
Purpose: To find out about cervical incidence, mortality, and DALYs showing a decreasing trend at global, regional, and national levels from 1990 to 2019. With **Population and Sample**: Regions and countries are classified into five categories: low, low-mid, medium, high-medium, and high. Data is available from 21 geographic regions and 204 countries/regions worldwide.
Research Instruments: The subject term, 'cervical cancer,' was explored using the Global Health Data Exchange Query Tool (GHDx) (http://ghdx.healthdata.org/gbd-results-tool), including the following parameters: time interval, age group, and geographical location. **Data analysis**: Data on cervical cancer is abstracted from the Global Burden of Disease study, 2019. Trends in cervical cancer burden are assessed based on the estimated annual percentage change (EAPC) and standardized age level (ASR).
Results: Cervical cancer occurs at various ages. Data shows that the 50–54-year age group has the most significant number of cases, suggesting infection at a younger age and slower progression to cancer. Cervical cancer morbidity is closely related to socioeconomic level; it is the highest in developing countries.
Q: Q1
2. **Title**: The prevalence, trends, and geographical distribution of human papillomavirus infection in China: The pooled analysis of 1.7 million women.
Writer: Bo Zhu, Yunyong Liu, Tingting Zuo, Xiaoli Cui, Mengdan Li, Jing Zhang, Huihui Yu1, Haozhe Piao (2019)
Purpose: To explore (a) temporal trends and geographic patterns in epidemic HPV infection and (b) differences between China and foreign countries.
Population or Sample: 45907 studies were identified through screening of the literature database. 68 studies were found.
Instrument: An extensive search strategy was carried out in several literature databases on 31 October 2018. The literature databases included PubMed, Web of Science, Chinese Scientific Journal Full-text Database (CQVIP), China's National Knowledge Infrastructure, and wanfang data.

Research methods: The Stata software package (Version 12.0; Stata Corp., College Station, TX) was used in the pooled analysis. A randomized effect model (DerSimonian-Laird) was used to collect study-specific estimates to obtain an overall summary of the prevalence of HPV infection.
Research result: The type of HPV in Chinese women is quite typical. HPV infection plays an essential role in the occurrence of cervical cancer, which is influenced by geographical area, economic conditions, cultural habits, and population migration
Q: Q2

3. **Title**: Knowledge, Attitude and Practices Towards Cervical Cancer and its Screening Among Women from Tribal Population: a Community-Based Study from Southern India
Writer: Supriti Ghosh, Sneha D. Mallya, Ranjitha S. Shetty, Sanjay M. Pattanshetty, Deeksha Pandey, Shama Prasada Kabekkodu, Kapaettu Satyamoorthy1, Veena G. Kamath (2020)
Purpose: 1140 women aged 20-65 years from three tribes.
Population and Sample: A community-based cross-sectional study of the Social Science Statistical Package (SPSS) version 16 was used for data entry and analysis. Categorical data has been presented in terms of frequency and proportion. Univariable and multivariable logistic regressions were performed to estimate the strength of the association between knowledge scores and participants' socio-demographic variables and expressed as odds ratios (OR) and adjusted OR (AOR) with the appropriate 95% confidence interval (CI). A p-value < 0.05 was considered statistically significant.
Instrument: a pre-designed semi-structured questionnaire was administered to collect basic demographic information and questions related to knowledge, attitudes, and practices toward cervical cancer
Research methods: A community-based cross-sectional study Social Science Statistical Package (SPSS) version 16 was used for data entry and analysis. Categorical data has been presented in terms of frequency and proportion. Univariable and multivariable logistic regressions were performed to estimate the strength of the association between knowledge scores and participants' socio-demographic variables and expressed as odds ratios (OR) and adjusted OR (AOR) with the appropriate 95% confidence interval (CI). A p-value < 0.05 was considered statistically significant.
Results: The mean age of the participants was 39.8 ± 10.1 years. Although 82.9% of participants reported having heard of cervical cancer, 51% knew that the disease could be prevented, and only 2.3% knew it could be detected early. More than 75% of participants did not have adequate knowledge about cervical cancer. However, most of them (99.9%) have a favourable attitude toward cervical cancer screening. None of them had undergone cervical cancer screening prior to the study. The knowledge score was significantly related to the age group, marital status, education level, socioeconomic status, and ethnic community of the participants (p <0.05).
Q: Q2

4. **Title**: Health seeking behaviour and its determinants for cervical cancer among women of childbearing age in Hossana Town, Hadiya zone, Southern Ethiopia: community based cross sectional study
Writer: Yitagesu Habtu, Samuel Yohannes and Tariku Laelago (2018)
Population and Sample: The study population was women of childbearing age (15–49 years) randomly selected from the source population. Five hundred and ninety-five women of childbearing age are included in the study.
Purpose: The purpose of this study was to determine health-seeking behaviour and determinants for cervical cancer in cities Hosanna

Instrument: a questionnaire from a similar publication modified according to the research objective to suit the local setting. This instrument was compiled and tested in 5% of our sample size before data collection.
Research methods: Community-based cross-sectional study design. A systematic random sampling technique was used to select the research unit. Structured and pre-tested questionnaires were used to collect data. Collected data were cleaned and entered by EPI info version 3.5.4 and analysed by SPSS version 16. We considered P-value < 0.05 to decide the statistically significant relationship between independent and dependent variables.
Results: The prevalence of health-seeking behaviour for cervical cancer among study participants was only 14.2%. Lack of knowledge of respondents [AOR: 7.25, 95% CI: (1.87, 28.08)], never received any information [AOR: 52.03, 95% CI: (13.77, 196.52)] and did not actively seek information about cervical cancer [AOR: 14,23, (95% CI: (3,49, 57,95)] was significantly associated with not seeking health for the prevention and control of cervical cancer.
Q: Q2

Discussion

Risk factors for cervical cancer patients with Uterine Gas Gangrene followed by type 2 diabetes mellitus by age

Cervical cancer occurs at various ages. One data show that the 50–54-year age group has the most significant number of cases indicating infection at a younger age and slow progression to cancer (Zhanget al., 2019). The incidence rate of cervical cancer patients related to type 2 diabetes mellitus is the most common. It usually occurs at the age of 45 but can also arise at the age of 20. Around 20-25% of sufferers have this condition (Annisa, 2021).
The results were found in the age group, and it was found that the prevalence of HPV infection in the age group <20 years and <25 years was relatively high, then there was a marked decrease. When the age reaches ≥ 60 years, the prevalence of HPV infection increases again. Although the prevalence of HPV infection in young women is high, most HPV infections probably clear up automatically within 1-2 years, so the prevalence of HPV infection will decrease. Uterine gas gangrene rises from a bacterial infection Clostridium perfringens, the source of sepsis being a large necrotic tumor causing cervical cancer. The prevalence of UGG occurrence with cervical cancer ranges from 3 to 5% of all uterine malignancies. Decreased immune ability is mainly related to infectious conditions in trauterine gas gangrene effect with increasing age in older women, especially in premenopausal and postmenopausal women. The ability to eliminate previous and new infections weakens, so the high prevalence of HPV infection also occurs in older women (Zhuet al., 2018).

Risk factors for cervical cancer patients with Uterine Gas Gangrene followed by type 2 diabetes mellitus based on HbA1C

Infection from HPV has become the leading cause of cervical cancer. HPV-negative cervical cancer accounts for about 3 - 8% of all cases. The annual screening report in Belgium (2021) shows that 15% of cervical cancers are due to type 2 diabetes mellitus with HbA1C values above 10. Risk factors identified of 918 women screened for HGSIL in the previous study, 113 tested positive for HPV followed by type 2 diabetes mellitus with HbA1C levels ranging from 10-18 at the age of 30-45 years, but some are found at the age of 25 years (Chaoyan, 2022).
Results were found in patients with uterine gas gangrene with type 2 diabetes mellitus. The patient's HbA1c level was 8.8% - 12%, and blood sugar at admission was 316 - 380 mg/dL. Patients have a low serum albumin concentration (1.7 g/dL), a high serum ammonia concentration (154 µg/dL), and increased lactate levels (10.3 mmol/L). No ketonuria was noted, but significant pyuria was observed (Takano, 2018).

Mechanisms where uterine gas gangrene and diabetes associated with cervical cancer involve complex interactions, and several features of diabetes may explain oncogenic tendencies, including hyperglycemia, hyperinsulinemia, chronic inflammatory states, and compromised immune systems. Hyperglycemia is associated with increased susceptibility to viral infections and cell-mediated immunodeficiency, which can interfere with the clearance of HPV infection, thereby promoting the development of precancerous and cancerous lesions. Hyperglycemia can increase tumor angiogenesis by increasing microRNA-467, an inhibitor of the anti-angiogenic protein thrombospondin-1. Hyperglycemia accelerates glycolysis and encourages cancer cell proliferation by increasing glucose transporter-1 in cancer cells (Mary, 2018).

Risk factors for cervical cancer patients with Uterine Gas Gangrene followed by type 2 diabetes mellitus based on lifestyle

Risk factors associated with the reduced incidence of cervical cancer in young women are due to increased coverage of vaccination against common subtypes of HPV; however, the downward trend has been slow, which may be related to behavioral factors, including smoking, oral contraceptive use, and promiscuous sexual behavior (Zhanget al.,2019).

The high prevalence of HPV infection in younger women may be related to unhealthy sexual habits such as early sex life, excessive frequency, and excessive sexual partners (Zhuet al., 2018). Hyperglycemia and hyperinsulinemia in patients with Type 2 DM may reduce hepatic production of IGF-1 binding protein and increase free IGF-1 levels: increased IGF-1 levels in T2D patients and overexpression of IGF-1R in CC cells activate the IGF axis and possibly produce Poor prognosis is closely related to HPV infection in cervical cancer. Obesity, eating excess fatty foods, and not exercising regularly affect the severity of the prognosis of cervical cancer patients with type 2 diabetes mellitus (Anastasi, 2018).

Early sexual intercourse in women who had first sexual intercourse at the age of <18 years had a 2x-fold risk, while those aged 18-20 years had a 1.5-fold risk compared to women who had first sexual intercourse at the age of> 21 years. Women with multiple partners, with 2 sexual partners, will have 2x the risk, while women with 6 or more sexual partners will have 3x the risk compared to women with 1 sexual partner. A history of sexually transmitted diseases also contributes to exposure to HPV infection (HOGI, 2018).

Risk factors for the occurrence of uterine gas gangrene with Type 2 DM

As we know, diabetes mellitus is a disease caused by insulin disorders. As explained by WHO that "Diabetes mellitus is a collection of anatomic and chemical problems resulting from several factors where there is absolute or relative insulin deficiency and impaired insulin function." Diabetes mellitus is divided into two types, namely diabetes mellitus type 1 and diabetes mellitus type 2. Based on the statement international Diabetes Federation (IDF) in 2019, Indonesia is one of the ten countries with the highest number of people with Diabetes Mellitus in the world, in seventh place with a total of 10.7 million sufferers. One of the effects of this disease is the emergence of uterine gas gangrene. Risk factors for uterine gas gangrene in Asian countries, namely 7.5% to 12%. The emergence of this impact in patients with diabetes mellitus accompanied by infection will increase the possibility of performing a laparotomy or collaborating with an obstetrician to perform a hysterectomy due to septicemia from Clostridium perfringens. Death by uterine gas gangrene followed by type 2 diabetes mellitus that is not controlled is estimated to have taken 1.5 million lives (Narmawan, 2019).

Research Limitations and Medical Implications

1. Some journals are not fully accessible/Full Text, so the writer needs a long time to find the journal.
2. The author needs time to collect journals related to the problem to be used as a reference source that is appropriate to the problem.

3. Authors need more time to analyze and understand the journal's contents and collect journals or books related to the problem to be used as appropriate reference sources.
4. The Limited number of journals related research variables on risk factors for people living with cervical cancer uterine gas gangrene followed by type 2 diabetes mellitus.
5. The researchers found journals that included detailed results about the risk factors for people living with cervical cancer uterine gas gangrene followed by type 2 diabetes mellitus.

The study results the show that cervical cancer is related to the incidence of uterine gas gangrene and type 2 diabetes mellitus. Based on the results of this study, it is hoped that medical staff will gain insight into the risk factors for people living with cervical cancer with uterine gas gangrene followed by type 2 diabetes mellitus.

Conclusion

Based on research results in indexed journals Scopus and Sinta about systematic review event risk factor uterine gas gangrene in cervical cancer who have type 2 diabetes mellitus, it can be concluded that the majority of journals discuss age and lifestyle related to risk factors for cervical cancer and that risk factors for cervical cancer are determined based on age, HbA1C, lifestyle. As well as cervical cancer related.

What is already know on this topic

One of the effects of this disease is the emergence of uterine gas gangrene. Risk factors for uterine gas gangrene in Asian countries, namely 7.5% to 12%. Diabetes increases the risk of septicemia from Clostridium perfringens, which may necessitate a laparotomy or hysterectomy in infected patients. It showed that cervical cancer is related to the incidence of uterine gas gangrene and type 2 diabetes mellitus.

What this study adds

Recommendation for the next research need more journal about related research variables on risk factors for people living with cervical cancer uterine gas gangrene followed by type 2 diabetes millitus to analyze and understand more.

Competing interests

The authors declare no competing interest.

Authors' contributions

Raden Mohamad Javier as first author search previous article as primary source, Dela Hesti Pratiwi and Dani Pratama Febrianto search article by scopus that related problem that we write in this study. Andisa Fadhila Rialdi,Muhammad Arfan Umar and Nadia Ramadhani search supported source that related problem. Gafrinda Kautsari and Badrul Munir analyze some article that had been collected. Ananingati Ananingati and Moch. Aleq Sander analyze the similarity and the difference of each article. All author synthesis from data analysis result the article until it can be conclude.

Tables and figures

Table 1: Publication Search Strategy on the Google Scholar and PubMed databases

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