J Bras Patol Med Lab. 2021; 57: 1-7.

10.5935/1676-2444.20210028

Follow-up of squamous atypia's and the evaluation of the conducts according to the recommendations of the Ministry of Health

Seguimento das atipias escamosas e avaliação das condutas segundo as recomendações do Ministério da Saúde

Mateus F. Delabeneta[1]; Dayane B. Costa[1]; Jacqueline Plewka[1]; Maiara Aline Santos[2]; Maurício Turkiewicz[2]

1. Universidade Estadual do Oeste do Paraná, Cascavel, Paraná, Brazil. 2. Labcell Citologia Diagnóstica, Cascavel, Paraná, Brazil.

ABSTRACT

Introduction: Cervical cancer is considered a public health problem, ranking fourth among the most common types of cancer worldwide. **Objective:** The present study aimed to gather information on the follow-up, and to verify adherence to the management recommended by the Brazilian Ministry of Health (MH) of women with cervical cytopathological results of atypical squamous cells of undetermined significance (ASC-US) and atypical squamous cells, cannot exclude a high-grade squamous intraepithelial lesion (ASC-H), as well as to evaluate the quality of cytopathology tests of the laboratory that provides services to the Brazilian Unified Health System (SUS). **Methods:** Cervical cytopathology results of squamous atypia were researched between the years 2016 and 2017 in standardized requirements from the MH. The performance of the laboratory that carried out the cytopathology tests were analyzed using indexes recommended in the Internal Quality Monitoring (IQM) of the MH [Quality Management Manual (QMM)]. **Results:** 42,478 cytopathology tests were evaluated, 893 of these presented ASC-US results, and 199 ASC-H results. In women with ASC-US results, 73.2% repeated the cytopathology test, of which 18.7% remained the altered result, and 81.3% were negative for malignancy. Following the recommendation of the MH, 81.9% of women repeated the test outside the recommended period. In women with ASC-H, 51.8% underwent histopathological examination as recommended by the MH, of which 73.8% were altered. **Conclusion:** According to the MH Guidelines, most (81.9%) women with ASC-US repeated the cytopathology test outside the recommended period, and 48.2% of those with ASC-H did not undergo the histopathology test. The laboratory presented all QMM indicators as recommended by the MH.

Key words: Pap smear; loss of follow-up; quality management.

RESUMO

Introdução: *O câncer cervical é considerado um problema de saúde pública e ocupa o quarto lugar entre os tipos de câncer mais frequentes em todo o mundo.* ***Objetivo:*** *Este trabalho se propôs a levantar as informações do seguimento e verificar a adesão às condutas preconizadas pelo Ministério da Saúde (MS) das mulheres com resultado citopatológico cervical de células escamosas atípicas de significado indeterminado (ASC-US) e células escamosas atípicas não podendo afastar lesão de alto grau (ASC-H), bem como avaliar a qualidade dos exames citopatológicos do laboratório prestador de serviço ao Sistema Único de Saúde (SUS).* ***Métodos:*** *Resultados citopatológicos cervicais de atipias escamosas foram pesquisados entre 2016 e 2017 nas requisições padronizadas do MS. O desempenho do laboratório que realizou os exames citopatológicos foi analisado por meio dos índices recomendados no monitoramento interno da qualidade (MIQ) do MS [Manual de Gestão da Qualidade (MGQ)].* ***Resultados:*** *Foram avaliados 42.478 exames citopatológicos; destes, 893 apresentaram resultado de ASC-US e 199, de ASC-H. Das mulheres com ASC-US, 73,2% repetiram o exame citopatológico; 18,7% permaneceram com exame citopatológico alterado e 81,3% tiveram resultado negativo*

First submission on 02/26/20; last submission on 03/02/20; accepted for publication on 03/02/20; published on 05/20/21

para malignidade. Seguindo a recomendação do MS, 81,9% das mulheres repetiram o exame fora do período preconizado. Das mulheres com ASC-H, 51,8% realizaram o exame histopatológico conforme orientação do MS; 73,8% deles estavam alterados. ***Conclusão:*** *Segundo as diretrizes do MS, a maioria das mulheres com ASC-US (81,9%) repetiram o exame citopatológico fora do período recomendado, e 48,2% das pacientes com ASC-H não realizaram o exame histopatológico. O laboratório apresentou todos os indicadores do MIQ conforme orientação do MS.*

Unitermos: *exame de Papanicolau; perda de seguimento; gestão da qualidade.*

RESUMEN

Introducción: *El cáncer de cuello uterino se considera un problema de salud pública y ocupa el cuarto lugar entre los tipos de cáncer más comunes en todo el mundo.* ***Objetivo:*** *El presente estudio tuvo como objetivo recabar información sobre el seguimiento y verificar la adherencia al manejo recomendado por el Ministerio de Salud de Brasil (MS) de mujeres con resultados de la citopatología de cuello uterino de células escamosas atípicas de significado indeterminado (ASC-US) y células escamosas atípicas, no se descarta una lesión intraepitelial escamosa de alto grado (ASC-H), así como evaluar la calidad de las pruebas de citopatología del laboratorio que presta servicios al Sistema Único de Salud (SUS).* ***Métodos:*** *Se investigaron resultados de citopatología cervical de las atipias escamosas entre los años 2016 y 2017 en requisitos estandarizados del MS. El desempeño del laboratorio que realizó las pruebas de citopatología se analizó utilizando los índices recomendados en el Control de Calidad Interno (CCI) del MS [Manual de Control de Calidad (MCC)].* ***Resultados:*** *Se evaluaron 42.478 pruebas de citopatología, de estos 893 presentaron resultados ASC-US y 199 resultados ASC-H. De las mujeres con resultados ASC-US, el 73,2% repitió la prueba de citopatología, de los cuales el 18,7% siguió siendo el resultado alterado y el 81,3% tuvo resultado negativo para malignidad. Siguiendo la recomendación del MS, el 81,9% de las mujeres repitieron la prueba fuera del plazo recomendado. En las mujeres con ASC-H, el 51,8% se sometió a examen histopatológico según lo recomendado por el MS, de los cuales el 73,8% estaban alterados.* ***Conclusión:*** *De acuerdo con las directrices MS, la mayoría (81,9%) de las mujeres con ASC-US repitieron la prueba de citopatología fuera del período recomendado y el 48,2% de las pacientes con ASC-H no se sometieron a la prueba de histopatología. El laboratorio presentó todos los indicadores MCC recomendados por el MS.*

Palabras clave: *Papanicolaou; pérdida de seguimiento; gestión de la calidad.*

INTRODUCTION

Cervical cancer is considered a public health problem, as it is the fourth most common cancer among women worldwide; 570 thousand new cases were diagnosed in 2018, representing 3.2% of all cancers – 85% of these cases occur in developing countries[1-3]. In Brazil, it is the third most common type of cancer in the population, and the second among women, with estimated 16,590 cases for the period 2020-2022, and an estimated risk of 15.43 cases for every 100 thousand women. In the State of Paraná, for the year 2020, it is estimated that 990 cases will occur[4, 5].

The Guidelines for the Early Detection of Cervical Cancer (2016) recommend the procedures for cytological, colposcopic, and histopathological changes detected in the screening process for this neoplasm, thus increasing the efficiency of the cervical cancer prevention process in the Brazilian Unified Health System (SUS)[6].

According to the Brazilian Nomenclature for Cytopathology Reports [Nomenclatura Brasileira para Laudos Citopatológicos (NBLC)] (2012)[7], changes in the squamous epithelium can be classified as atypical squamous cells of undetermined significance (ASC-US); atypical squamous cells, cannot exclude a high-grade squamous intraepithelial lesion (ASC-H); low-grade squamous intraepithelial lesion (LSIL); high-grade squamous intraepithelial lesion (HSIL); high-grade squamous intraepithelial lesion, cannot exclude microinvasion (HSIL-micro); and invasive squamous cell carcinoma (carcinoma)[7].

ASC-US and ASC-H are the most common changes in cervical cytopathology tests. In Brazil, in 2019, they represented 45.9% and 11.7%[8], and in Paraná, 46.7% and 12.8%[8], respectively.

These categories cover cytological criteria with more significant cytomorphological changes than those observed in inflammatory processes, but insufficient for the diagnosis of the intraepithelial lesion[6, 9, 10], therefore, the agreement between cytologists in these changes is around 35% to 45%[6, 11].

The follow-up of women with ASC-US results is performed due to the increased risk for lesions when compared to patients who have a normal cytopathology test, as well as women with ASC-H results, in which there is a possible presence of high-grade lesions[12, 13].

Quality Management Manual for the Cytopathology Laboratory (QMM) (2016) encompasses the external and internal quality monitoring processes – (EQM) and (IQM), respectively[14]. IQM is carried out through the evaluation of indices generated by the results of cytopathology reports issued by the laboratory; implementing and maintaining the quality of the exams is one of their responsibilities. This process helps to identify quality failure or deviations in the internal process and allows establishing corrective actions to guarantee the quality and reliability of cytopathology tests[15].

The objective of this study was to gather information on the follow-up and adherence to the management recommended by the Ministry of Health for women with ASC-US and ASC-H result in the cervical cytopathology test, treated at SUS in a municipality in western Paraná, besides assessing the quality of these cytopathology tests by the analysis of the quality indicators of the post-analytical phase of the IQM.

METHODS

A retrospective study based on results of cervical cytopathology and histopathology tests performed in a cytopathology laboratory that serves the municipalities of western Paraná. The study was approved by the Research Ethics Committee, under protocol number 892,452.

Women who presented altered cervical cytopathological results of ASC-US and ASC-H, between 2016 and 2017, were selected according to the requisitions of the MH and the Brazilian Cancer Information System [Sistema de Informação do Câncer (SISCAN)]; information such as date of sample collection and date of patient birth, were requested.

Considering the flowcharts recommended by the MH/Instituto Nacional de Câncer (Inca) in the guidelines[6], patients with ASC-US results were stratified by age group and time interval to repeat cytopathology test: 25 years, repeating cytopathological examination in three years; between 25 and 29 years, repeating in 12 months; and ≥ 30 years, repeating in six months.

We verified whether there was a relationship between ASC-US cytology repetition time and the proportion of altered results. In women with ASC-H results, the MH guidelines do not recommend a flowchart with special situations; therefore, there was no stratification into groups.

We also analyzed the performance of the laboratory that carries out cytopathology tests for SUS following the five IQM indicators[14], whose formulas for calculating the indicators are described below:

1. positivity index (PI): ratio of the number of altered tests to the total of satisfactory tests × 100. Percentage of expected positivity between 3% and 10%; low percentage between 2% and 2.9%; and very low percentage below 2%;

2. percentage of atypical squamous cells (ASC) among the altered tests: ratio of the number of tests with ASC-US and ASC-H results to the total of altered tests × 100. The expected reference percentage is less than 60%;

3. percentage of ASC-compatible tests among satisfactory tests: ratio of the number of ASC-US and ASC-H tests to the total satisfactory tests × 100. A maximum of 4% to 5% of all tests are expected classified as ASC;

4. ASC/squamous intraepithelial lesion (SIL) ratio: ratio of the number of ASC-US and ASC-H tests to the number of LSIL and HSIL tests. It is recommended that the ASC/SIL ratio should not exceed three;

5. percentage of tests compatible with a high-grade squamous intraepithelial lesion (HSIL) among satisfactory tests: ratio of the number of HSIL tests to the number of satisfactory tests × 100. It is recommended that the value is greater than 0.4%.

The data were tabulated and analyzed using the Microsoft Excel® software; the statistical calculation was performed in the *R* statistic software (https://www.rproject.org/).

RESULTS

In this study, 42,478 cervical cytopathology tests were analyzed between 2016 and 2017. Regarding the adequacy of the cytopathological material, 98.95% (42,028) samples were considered as satisfactory and 1.05% (405) as unsatisfactory for oncotic evaluation.

Considering the relationship between ASC-US and satisfactory tests, 893 (2.12%) tests with cytopathology results of ASC-US were found; the percentage of altered results was 33.65 %. One hundred and ninety-nine tests showed ASC-H results, of which one test was satisfactory (0.47%); the percentage of altered cytopathology results was 7.47%.

According to the guidelines, in the stratification by age groups 16.3% (174) of the women with ASC-US results were younger than 25 years old; 14.1% (98), between 25 and 29 years old, and 69.6% (621), ≥ 30 years.

In our study, among the patients with ASC-US results, 73.2% (654) repeated the cytopathology test; of these, 18.7% (122) remained with the altered cytopathology result, and 81.3% (532) of the results were negative for malignancy in the second cytomorphology analysis.

Five hundred and thirty-six women repeated the exam outside the period recommended by the MH: for women under 25 years old – 97.1% (100) before the time interval/period, 1% (one) in time, and 1.9% (two) after the recommended time; 71.6% (48), 7.5% (five), and 20.9% (14), respectively, for patients between 25 and 29 years old; and 34.1% (165), 23.1% (112), and 42.8% (207), respectively, for women ≥ 30 years old.

There was no relationship between repetition time and proportion of altered cytopathology tests results: 1.44% of women who repeated the test within the recommended time had their tests results altered; those who repeated it outside the recommended period and had the test results altered totaled 0,93% ($p < 0.009$).

In compliance with the MH guidelines for squamous atypia, 122 patients whose first result was ASC-US also had the second cytopathology test result altered [ASC-US (28), LSIL (eight), HSIL (nine), ASC-H (two), and carcinoma (one)]; 53.3% (65) of them underwent histopathology test, as shown in **Table 1**.

Considering women with ASC-H, 34.7% (69) repeated the cytopathology test and 13.5% (27) did not perform or repeated the tests; 51.8% (103) underwent histopathology test, as recommended by the MH.

From the 103 women who underwent the histopathology test, 58.3% (60) presented altered results: (cervical intraepithelial neoplasia) CIN I – 16.7% (28); CIN II – 31.7% (19); CIN III – 20% (12); and invasive squamous cell carcinoma – 1.7% (one). The average time between the result of the cytological screening test and the histology test of women with ASC-H results was approximately 142 days.

Table 2 presents the quality indicators (IQM) of the laboratory accredited to SUS recommended by the MH/Inca.

TABLE 1 – Correlation of cytopathology tests and histopathology tests

	Histopathology tests				
Cytopathology tests	Normal	NIC 1	NIC 2	NIC 3	Total
ASC-US	5 (15.2%)	25 (75.8%)	1 (3%)	2 (6%)	33 (100%)
LSIL	8 (50%)	8 (50%)	0 (0%)	0 (0%)	16 (100%)
HSIL	3 (25%)	3 (25%)	3 (25%)	3 (25%)	12 (100%)
ASC-H	1 (33.3%)	1 (33.3%)	0 (0%)	1 (33.3%)	3 (100%)
Carcinoma	0 (0%)	1 (100%)	0 (0%)	0 (0%)	1 (100%)

ASC-US: atypical squamous cells of undetermined significance; LSIL: low-grade squamous intraepithelial lesion; HSIL: high-grade squamous intraepithelial lesion; ASC-H: atypical squamous cells, cannot exclude a high-grade squamous intraepithelial lesion.

TABLE 2 – Internal quality monitoring indexes in the years 2016 and 2017

	2016	2017	Mean	RV
IP%	5.93%	6.67%	6.30%	3%-10%
ASC/abnormal	43.27%	41.04%	42.15%	< 60%
ASC/satisfactory	2.56%	2.73%	2.65%	< 5%
ASC/SIL	0.96%	0.76%	0.86%	< 3%
HSIL	0.80%	1.08%	0.94%	> 0.4%

ASC: atypical squamous cells; SIL: squamous intraepithelial lesion; HSIL: high-grade squamous intraepithelial lesion; RV: reference value.

DISCUSSION

Regarding the suitability of the cytopathology material, 98.95% of samples were satisfactory for tumor analysis. These results corroborate the data found in the literature, which ranges from 92.2% to 99.6%[16-18]. Brazil, in 2014, the percentage of satisfaction by region was: North – 97.7%, Northeast – 98.92%, Southeast – 99.3%, South – 99.59%, and Midwest – 99.07%[19]. In our study, we found 1.05% of unsatisfactory samples; in the literature, reported data range from 0.4% to 7.8%[16-20].

When analyzing the prevalence of ASC-US among satisfactory tests, we obtained the percentage of 2.12%, and 33.65% concerning the altered results. A study carried out in the Northeast region found a 1.96% prevalence of ASC-US among satisfactory tests, and 36.94% among altered results[17]. In a study carried out by the Center for Anatomical Pathology of the Adolfo Lutz Institute (Núcleo de Anatomia Patológica do Instituto Adolfo Lutz), the prevalence were 4.71% satisfactory and 3.26% altered[16].

Considering the satisfactory tests, we found the percentage of 0.47% in women with ASC-H results, and 7.47% among altered tests results. In a similar study, the prevalence was 1.27% among satisfactory and 23.89% among altered[17]. However, other studies

have different prevalence when satisfactory tests are considered: 4.4%[18]; 0.66%[16]; 0.27%[16].

We found 81.3% of negative results for malignancy in the total of repeated tests in patients who had previously presented ASC-US. Similar data (83.3%[21]; 77.7%[22]; 77.5%[23]) were observed in the literature.

In women younger than 25 years of age, 97.1% repeated the test before the recommended period (three years). This approach increases the number of LSIL diagnoses – which are highly likely to regress – as well as the number of colposcopy and the possibility of overtreatment[6]. Moreover, it compromises the prevention program for this neoplasia due to the performance of complementary tests outside the MH recommendations for this age group. For women older than 30 years of age, 42.8% underwent the test six months after the ASC-US initial result; in these patients, the chances of HSIL are greater, and if the lesion is not identified in time, it can progress to more severe conditions[22].

In our series, we found that 53.3% of women with ASC-US results underwent histopathology test, a result higher to that observed by Rosendo *et al*. (2018)[22], with 28.8%. Most patients (75.8%) with ASC-US cytological results presented histopathologic CIN I, according to data in the literature[6, 22, 23]. This type of alteration represents the cytomorphological expression of transient infection produced by the human papillomavirus (HPV) and has a high probability of regression; it is not considered a precursor lesion to cervical cancer[6].

We also highlight the finding of 9% of ASC-US with subsequent histopathologic CIN II/III. In the literature, the prevalence ranges from 0.8% to 49.9%[23-26]. These precursor lesions (CIN II/III) are usually asymptomatic and curable in most cases when treated properly[6].

We verified the presence of carcinoma in 0.1% of the altered cytology tests. The guidelines warn of the presence of cancer in 0.1%-0.2% of women with cytological results of ASC-US[13].

Some authors hope to find a greater chance of a precursor lesion to cervical cancer[26] in patients with ASC-H results. In our study, 51.8% of women with ASC-H underwent histopathology test, while 37.7% repeated the cytopathology test. The repetition of the cytopathology test causes a delay in confirming the diagnosis and, consequently, in the treatment, besides generating unnecessary expenses with the performance of the cytopathology monitoring, since the test recommended by the MH is colposcopy[27].

Among the women with ASC-H who underwent histopathology, 51.8% of them presented CIN II/III results, a fact also observed in other studies, in which the prevalence ranged from 12.2% to 68%[24, 27-29]. We detected the presence of a carcinoma among histopathology tests (1.7%), a result consistent with studies showing cancer in 1.3 to 3% of women with ASC-H cytology[28, 30].

Cytopathological examinations must be performed by qualified, referred, and trained professionals. False-negative results vary from 6% to 56% and occur in the pre-analytical and analytical phases[6, 14]. Aiming to reduce bias in the methodology, quality control programs must be implemented, such as IQM and EQM, since it reduces and corrects errors in the analytical process. We found in our study that all quality indicators obtained from the laboratory providing services to SUS were within the proposed reference values MH/QMM.

We highlight mainly the PI (6.3%), which expresses the prevalence of cellular alterations in the tests and sensitivity of the screening process in detecting lesions in the examined population. HSIL (0.94%), a true cervical cancer precursor lesion, is the main target of secondary prevention of this cancer. The values of the parameters established by the QMM, as well as those observed by other authors are: PI 7%[31]; 7.2%[32], and 3.6%[8]; HSIL 0.6%[35]; 1%[31], and 0.47%[8]; all figures were registered in Paraná in 2019.

The other ASC/altered, ASC/satisfactory, ASC/SIL indicators that were within the parameters recommended by the MH demonstrate the ability that the laboratory has when defining the cytomorphological criteria, thus guaranteeing the quality and reliability of the results regarding the standards established by the national and international literature[6, 32].

CONCLUSION

Among the women who had ASC-US as a result of the first cytopathology test, 73.2% repeated the test; however, 81.9% did it outside the period recommended by the MH. In the case of patients with ASC-H results, 42.8% did not follow the procedures recommended by the MH for the cervical cancer prevention program.

All IQM indexes of the evaluated laboratory were in accordance with QMM/MH recommendations. Considering the natural history of this neoplasm, the MH guidelines and the performance of quality cytopathology tests, recognized by the IQM of the cytopathology laboratories, according to the QMM, are important tools that help the actions of the managers of this cancer prevention programs through integration between the analytical and post-analytical phases.

REFERENCES

1. World Health Organization. International Agency for Research on Cancer. Globocan. Geneva: WHO [Internet]. 2012; 1(1): 1-2. Available at: http://globocan.iarc.fr/.

2. Ferlay J, Ervik M, Lam F, et al. Observatório global do câncer: câncer hoje. Agência Internacional de Pesquisa sobre o Câncer. [Internet]. 2018; 22(1): 3. Available at: https://gco.iarc.fr/today/data/factsheets/cancers/23-Cervix-uteri-fact-sheet.pdf.

3. Bray F, Ferlay J, Soerjomataram I, Siegel RL, Torre LA, Jemal A. Global cancer statistics 2018: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. CA Cancer J Clin. 2018; 68(6): 394-24. PubMed PMID: 30207593.

4. Brasil. Ministério da Saúde. Instituto Nacional de Câncer. Incidência do câncer no Brasil: estimativa 2020-2022. Rio de Janeiro: Inca; 2020.

5. Brasil. Ministério da Saúde. Instituto Nacional de Câncer. Atlas da mortalidade. Rio de Janeiro: Inca; 2020. Available at: https://mortalidade.inca.gov.br/MortalidadeWeb/.

6. Brasil. Ministério da Saúde. Instituto Nacional de câncer: coordenação de prevenção e vigilância. Diretrizes brasileiras para o rastreamento do câncer do colo do útero. 2 ed. Rio de Janeiro: Inca; 2016.

7. Brasil. Ministério da Saúde. Secretaria de assistência à saúde. Instituto Nacional de Câncer. Coordenação de prevenção e vigilância. Nomenclatura brasileira para laudos cervicais e condutas preconizadas: recomendações para profissionais de saúde. 3 ed. Rio de Janeiro: Inca; 2012.

8. Brasil. Ministério da Saúde. DATASUS. Sistema de Informação do Câncer (SISCAN). Available at: http://tabnet.datasus.gov.br/cgi/webtabx.exe?SISCAN/cito_colo_residbr.def. [Accessed on: 25 Feb 2020].

9. Nayar R, Wilbur DC. The Bethesda system for reporting cervical cytology: a historical perspective. Acta Cytol. 2017; 61(1): 359-72. PubMed PMID: 28693017.

10. Nayar R, Wilbur DC. The Pap Test and Bethesda 2014. Acta Cytol. 2015; 59(2): 121-32.PubMed PMID: 25931431.

11. Stoler MH, Schiffman M. Interobserver reproducibility of cervical cytologic and histologic interpretations: realistic estimates from the ASCUS-LSIL triage study. JAMA. 2001; 285(11): 1500-5. PubMed PMID: 11255427.

12. Grenko RT, Abendroth CS, Frauenhoffer EE, Ruggiero FM, Zaino RJ. Variance in the interpretation of cervical biopsy specimens obtained for atypical squamous cells of undetermined significance. Am J Clin Pathol. 2000; 114(5): 735-40. PubMed PMID: 11068547.

13. American College of Obstetricians and Gynecologists. ACOG practice bulletin nº 99: management of abnormal cervical cytology and histology. Obstet Gynecol. 2008; 112(6): 1419-44. PubMed PMID: 19037054.

14. Brasil. Ministério da Saúde. Instituto Nacional de Câncer. Manual de gestão da qualidade para laboratório de citopatologia. Rio de Janeiro: Inca; 2012.

15. Bortolon PC, Silva MAF, Corrêa FM, et al. Avaliação da qualidade dos laboratórios de citopatologia do colo do útero no Brasil. Rev Bras Cancerol. 2012; 58(3): 435-44.

16. Fernandes NCCA, Lorente S, Yamamoto LSU, et al. Frequência dos diagnósticos citopatológicos cervicovaginais detectados no Núcleo de Anatomia Patológica do Instituto Adolfo Lutz nos anos de 2012 e 2013. Bol Inst Adolfo Lutz. 2015; 25(1): 20-3.

17. Pedrosa TFM, Filho SDM, Peres AL. Perfil das mulheres com alterações cervicais em uma cidade do nordeste brasileiro. J Bras Patol Med Lab. 2019; 55(1): 32-7.

18. Trindade GB, Menenti AS, Simões PW, Madeira K. Avaliação do rastreamento do câncer do colo do útero e sua periodicidade em um município de Santa Catarina. Revusp. 2017; 50(1): 1-10.

19. Ministério da Saúde. Instituto Nacional do Câncer José Alencar Gomes da Silva. Avaliação de indicadores das ações de detecção precoce dos cânceres do colo do útero e de mama – Brasil e regiões, 2013. Rio de Janeiro: Inca; 2015.

20. Stabile AS, Evangelista DHR, Talamonte VH, et al. Estudo comparativo dos resultados obtidos pela citologia oncótica cervicovaginal convencional e pela citologia em meio líquido. Rev Einstein. 2012; 10(4): 466-72.

21. Machado PE, Alves MBM, Irie MMR, Zrzebiela FF, Reche PM, Borato DCK. Controle interno de qualidade em citopatologia: o dilema da subjetividade. Rev Bras Anal Clin [Internet]. 2018. Available at: www.rbac.org.br/artigos/controle-interno-de-qualidade-em-citopatologia-o-dilema-da-subjetividade/.

22. Rosendo DA, Lorente S, Santos CM, Ferreira GM, Canello LM, Colonelli DE. Células escamosas atípicas de significado indeterminado (ASC-US): seguimento de exames analisados no Instituto Adolfo Lutz. Rev Bras Anal Clin. 2018; 50(3): 265-9.

23. Galão AO, Ramos-Lima LF, Vettorazzi J, Mattos JC, Naud P. Prevalência e seguimento de exame citopatológico de colo uterino com atipias em células escamosas de origem indeterminada em um hospital universitário brasileiro. Rev HCPA. 2012; 32(3): 296-302.

24. Cytryn A, Russomano FB, Camargo MJ, et al. Prevalence of cervical intraepithelial neoplasia grades II/III and cervical cancer in patients with cytological diagnosis of atypical squamous cells when high-grade intraepithelial lesions (ASC-H) cannot be ruled out. São Paulo Med J. 2009; 127(5): 283-7.

25. Song JS, Hwang I, Gong G. Outcome of "atypical squamous cells" in cervical, cytology: follow-up assessment by loop electrical excision procedure. Korean J Pathol. 2012; 46(4): 359-64. PubMed PMID: 23110028.

26. Cytryn A. Risco de lesão intraepitelial de alto grau e câncer cervical com diagnóstico de células escamosas atípicas, quando não se pode excluir lesão intraepitelial de alto grau. [dissertation]. Programa de Mestrado em Saúde da Criança e da Mulher, Fundação Oswaldo Cruz, Instituto Fernandes Figueira; 2008.

27. Araújo ES, Barbosa FM, Ázara CZS, Ferreira TXAM, Tavares SBN, Amaral RG. Avaliação do seguimento de mulheres com exames citopatológicos alterados de acordo com as condutas preconizadas pelo Ministério da Saúde do Brasil em Goiânia. Rev Bras Cancerol. 2014; 60(1): 7-13.

28. Selvaggi SM. Reporting of atypical squamous cells, cannot exclude a high-grade squamous intraepithelial lesion (ASC-H) on cervical samples: is it significant? Diagn Cytopathol. 2003; 29(1): 38-41. PubMed PMID: 12827715.

29. Simsir A, Ioffe O, Sun P, Elgert P, Cangiarella J, Levine PH. Effect of Bethesda 2001 on reporting of atypical squamous cells (ASC) with special emphasis on atypical squamous cells-cannot rule out high grade (ASC-H). Diagn Cytopathol. 2006; 34(1): 62-6. PubMed PMID: 16355376.

30. Alli, PM, Ali, SZ. Atypical squamous cells of undetermined significance-rule out high-grade squamous intraepithelial lesion: cytopathologic characteristics and clinical correlates. Diagn Cytopathol. 2003; 28(6): 308-12.

31. Paula AC, Souza NG, Prado TC, Ribeiro AA. Indicadores do monitoramento interno da qualidade dos exames citopatológicos do laboratório Clínico da PUC, Goiás. RBAC [Internet]. 2017. Available at: www.sgponline.com.br/rbac/sgp/doi/article.asp?cod_fluxo=534&cod_versao=567&ObjSubmisao=1.

32. Araujo Jr MLC, Santana DA, Almeida LB, Quintana SBS, Regina e Silva G, Fonseca RCSP. Quality in cytopathology: an analysis of the internal quality monitoring indicators of the Instituto Nacional de Câncer. J Bras Patol Med Lab. 2015; 51(2): 102-7.

CORRESPONDING AUTHOR

Mateus Foltz Delabeneta ID 0000-0003-3591-4155
e-mail: mateus_foltz@hotmail.com