Original Article

Care challenges of diabetes mellitus acute complications in adult emergency services

Dainai Moraes Oliveira[1], Soraia Dornelles Schoeller[2], Karina Almeida Hammerschmidt[3], Denise Maria Guerreiro Vieira da Silva[4], Cecília Arruda[5]

[1] Nurse. Student of the Professional Master's Program associated with the Medical Residency of Intensive and Palliative Care of the Universidade Federal de Santa Catarina. Florianópolis, SC, Brazil. E-mail: oliveiradai2@hotmail.com.

[2] Nurse, Ph.D in Health and Nursing Philosophy. Adjunct Professor at Universidade Federal de Santa Catarina. Florianópolis, SC, Brazil. E-mail: soraia.dornelles@ufsc.br.

[3] Nurse, Ph.D in Nursing. Adjunct Professor at Universidade Federal de Santa Catarina. Florianópolis, SC, Brazil. E-mail: karina.h@ufsc.br.

[4] Nurse, Ph.D in Nursing. Full Professor at Universidade Federal de Santa Catarina. Florianópolis, SC, Brazil. E-mail: denise.guerreiro@ufsc.br.

[5] Nurse, Ph.D in Nursing. Nurse at the University Hospital from Universidade Federal de Santa Catarina. Florianópolis, SC, Brazil. E-mail: cecilia2030@gmail.com.

Received: 07/20/2015.
Accepted: 12/01/2015.
Published: 06/30/2016.

Suggested citation:
Oliveira DM, Schoeller SD, Hammerschmidt KA, Silva DMGV, Arruda C. Desafios no cuidado às complicações agudas do diabetes mellitus em serviço de emergência adulto. Rev. Eletr. Enf. [Internet]. 2016 [cited __/__/__];18:e1163. Available from: http://dx.doi.org/10.5216/ree.v18.35523.

ABSTRACT

Diabetes mellitus imposes multiple challenges to affected people, their families and to the health system. The objective was to analyze strengths and fragilities of nursing attention for diabetes mellitus acute complications in an adult emergency service. A qualitative, descriptive-exploratory study, conducted between May and July of 2013, through semi-structured interviews with 18 nursing professionals at hospital at South of Brazil. To organize and analyze data, theme categories were given: structuring health services and, working teams; each one with their strengths and fragilities. It was noted that the challenge to qualify attention for diabetes patients goes beyond structuring the health attention network and establishing adequate assistencial routines for each institution. They are connected to technical knowledge of the professional team, development of communication abilities, and awareness about the importance of self-care and adherence to treatment.

Descriptors: Emergency Nursing; Diabetes Mellitus; Diabetes Complications; Nursing Service, Hospital.

INTRODUCTION

Diabetes mellitus (DM) is a complex chronic condition, characterized by hyperglycemia caused by changes in insulin secretion and/or action. It needs continuous healthcare using strategies to reduce multifactorial risks. The diagnosis is commonly based in plasma glucose values and, more recently on glycated

hemoglobin (A1C)[1]

The number of people with DM is growing due to population growth with higher life expectancy, urbanization, sedentary behavior, inadequate diet and obesity, as well as higher survival of people with diabetes. DM, as well as other non-communicable chronic diseases (NCCD) have been responsible for high numbers of premature deaths, reduced quality of life with high limitation in work and leisure activities[2-3]

The uncontrolled development of diabetes can lead to acute and chronic complications. Acute ones are normally caused by sporadic events, and chronic ones by bad glycemic control over time, both are responsible by high morbidity and mortality[4].

Main acute situations related to DM are severe hypoglycemia with cognitive changes and, diabetic ketoacidosis (CKA)[4]. Nursing needs to identify immediately and intervene because the consequences are severe, varying from coma to death[5].

Considering diabetes and its high association with morbidity and mortality, it is essential to prevent at the beginning (primary prevention); to identify non-diagnosed cases for treatment (secondary prevention); and to intensify the control in diagnosed patients, to prevent acute and chronic complications (tertiary prevention). For efficacy of actions, the three prevention levels should occur articulately in all levels of health attention[6-7].

Urgency and emergency fields are important components for health assistance. The Health Ministry (HM) established the Health Attention Networks (HAN), intended to organize the attention system in integrated networks, to answer health conditions of the Brazilian population with effectiveness, efficacy, safety, quality and equity. Based on this logic, hospitals should specially meet the function of responding to acute conditions or to moments of acuteness from chronic conditions, as established by evidence-based clinical guidelines. For that, they need technological density compatible with the exercise of this function and quality patterns[8].

Acute DM complications are assisted in hospital urgencies/emergencies, and nursing has the first contact with the patients. In this context, attention promptness and speed are essential to prognosis[9].In this perspective, with intention to qualify the nursing attention to DM acute complications, the objective was: to identify strengths and fragilities of nursing care for acute complications of diabetes mellitus in an adult emergency service.

METHODS

A qualitative, descriptive and exploratory study with nursing professionals (technicians and nurses) who work in an adult emergency service of a hospital located at the South of Brazil, at the State of Santa Catarina. The study met the Brazilian Norms for Research with Human Beings, with the project approved by the Ethics Committee for studies with Human Beings, registered as CAAE 13353113.6.0000.0121, with the protocol 252.702, from April 2013.

Members of the nursing team participated in the study; they worked in the urgency/emergency service

at the referred hospital. The inclusion criterion was to be working for at least six months in the service. The exclusion criterion was to be absent during the data collection. Participants were contacted in person by the researcher as follow: morning shift, followed by one afternoon shift and in sequence, one night shift. After accepting to participate and signing the Free and Informed Consent Term, the researcher interviewed them in a place defined by participants, at their service location in a private room. Eighteen professionals took part in the study; five nurses and 13 nursing technicians. To determine the number of participants, we followed the data saturation principle[10], contemplating workers from all shifts: morning, afternoon, and night.

Data were collected from May to July of 2013, using semi-structured interviews with a script containing: questions to characterize professionals (education level, professional category, training time, working time at the adult emergency service, previous professional experiences); followed by questions to identify fragilities, strengths and challenges in nursing emergency attention for patients with acute DM complications – CKA and severe hypoglycemia; and, knowledge about assistencial routines at the institution in these cases and, about the SUS support networks for people with DM.

Recorded interviews were conducted individually, at the time chosen by participants. To identify them, we established the use of "N" for nursing and "NT" for nursing technician and, sequential numbers were attributed as interviews were conducted.

To organize and analyze data, methodological assumptions from Thematic Analysis proposed by Minayo[11] were followed, with integral transcription of interviews and exhaustive reading of the empirical material. Next, we conducted the codification to select data containing relevant ideas constituting meaning units organized in subthemes, related to the thematic categories.

RESULTS

The following thematic categories emerged from the statement analysis: **structuring health services** and **working teams**, each one with their strengths and fragilities.

In the category **structuring health services**, evident strengths were: the existence of institutional routine for hypoglycemia and knowledge about the SUS support network for people with DM.

It is a routine, everyone knows what should be done in case of hypoglycemia (N1) *I believe that everyone have the knowledge* (NT4)

[...] *There are units of walk in, emergencies, ambulatory for diabetes here at the University Hospital, health units* (N2).

Regarding fragilities, they mentioned: inadequate physical structure in the emergency sector; flaws in health attention network and, work overload.

The resuscitation room is isolated from the nursing station and the station is small [...] (N2).

[...] *there is no follow-up; patients arrive in the emergency with hypoglycemia and CKA. Five years from now, he appears with a lower limb amputation. Then this patient is not welcomed, he is lost in the network, at luck*

(N4).

In the emergency, the diabetic is well assisted, the problem is at home. His follow-up is at the health center. (NT3).

[...] *there are few workers at emergency, by the movement, so many things happen at the same time and the high number of patients [...]* (NT5).

In the **working team** category, noticed strengths are: knowledge of the institutional routine for hypoglycemia and referrals/counter-reference for the attention network at SUS for patients with DM.

The routine is known because it is accessible, it is usual [...] (NT12).

When they are going to discharge, normally the patient is referred to primary care, with a letter and a prescription (N1).

[...] *sometimes send them to the ambulatory [...]* (N2)

[...] *when is a new diagnosis or without adequate treatment, ambulatory nurses schedule a consultation* (N3).

I've seen referrals when the patient finds out to be diabetic [...] (NT3).

It emerged as fragilities: glycemic monitoring, team knowledge about DM and identification of an emergency situation.

Sometimes it is too busy and the hemoglucotest (HGT) cannot be done, missing the glucose control [...] (N1)

Many times the glucose control goes unnoted (NT4)

[...] At emergency, the rigorous HGT control is impaired by the sector movement with a high number of patients, few workers, it ends up being forgotten (NT5).

[...] people assist, ends up doing it because it have always been like this, they do not think why things are done [...] (N4)

We note differences in case conduction by medicals, with more difficulty from residents (N5)

For CKA, we know the basic, but it could be something deeper (NT1).

[...] *at the tutorial of that specialization course [...] I read what is in the module* (N2)

Yes, in college now (NT4).

"I don't know, nothing official". (NT5), "*I don't know, I've never heard about it"* (NT3).

[...] *the patient is already here hospitalized and ends up doing hypoglycemia under our eyes and it is not noted* (N4)

I think we have a harder time to detect before, the patient becomes unconscious and first we check the blood pressure and other causes and then we think about glycaemia (NT1).

DISCUSSION

In the study institution we found the existence of a routine for hypoglycemia attention, convergent with indications for health institutions to have established protocols and routines[12].

The existence of a support network in the SUS primary health care to accompany people with DM is

the highlighted strength in the attention to acute complications in this study. In Brazil, to correct health attention deficits, the government established priorities for NCCD, through the "Plan of Strategic Actions to Fight NCCSs in Brazil, 2011-2022", and it aims to promote development, implementation of effective, integrated, sustainable, evidence-based public policies for prevention; to control its risk factors and to strengthen health services to attend people with chronic diseases[2].

The primary health care attends approximately 60% of Brazilian population. Teams act in a defined territory with an affiliated population, conducting promotion actions, health vigilance, prevention, assistance, besides the longitudinal follow-up of users, which is fundamental for the treatment efficacy for people with chronic diseases. Besides the regular and systematic accompaniment by the primary attention team, every person with DM residing in Brazil, registered on SUS has the right to freely receive all supplies and medication to treat the disease[2-3].

Regardless of the advances and achievements from SUS, large gaps in the access and reception in health services still exist. Fragilities emerged from the interviews referring to the environment for attention of acute DM complications: inadequate physical structure of the emergency service with work overload, and little effectiveness of primary care actions.

There are reports in the literature of many difficulties to be surpassed in the health attention of emergency services: overcrowding with insufficient professionals, inadequate infrastructure, fragmented work process, conflicts and power asymmetries, exclusion of users at the entrance door, disrespect of user's rights, and little articulation with the rest of service network, among others. These situations can be found in most of public urgency units in Brazil, and it has considerably interfered on the work process and in the quality of care provided to the population[6,13–14].

To strengthen integral and quality attention for DM, it is indispensable to increase the resoluteness in basic attention, reducing the need of referrals for higher complexity levels. The construction of a whole and integrated attention model for DM patients is needed, involving the three levels of attention, hierarchized, centered on the patient, built from the primary attention, leaving medium and high complexities responsible for supplementary or complementary actions[15].

For successful implementation of special protocols for intra-hospital hyperglycemia control, besides well-defined technical fundaments, development of informative and motivational strategies are fundamental; broadening diverse clinical, administrative and support specialty segments, that compose the multidisciplinary team[16].

Fragilities in attention for acute complications in emergency services were reported, in relation to the DM patient, the difficulty for venous access and low adherence to treatment. Considering insertion of peripheral intravascular catheters constituting interventions frequently executed in hospitalized patients, and that nursing team is responsible for inserting and maintaining catheters in emergency attention for DM patients with difficult access of venous nets or history of many previous hospitalizations; these can demonstrate fragility for the immediate attention demanded by the situation[17].

Glycemic and metabolic control for DM constitutes a challenge for the patient, his family and health professionals, with the intention to minimize complications in short and long term. Behavioral changes with diet plan follow-up, glycemic monitoring, physical activity and adherence to drug therapy are essential to prevent acute and chronic complications. Non-adherence to DM treatment is a problem known in the national and international scenario, because it impairs the disease physiological response, the professional-patient relationship, and it increases the direct and indirect treatment cost[18].

Strengths noted in the emergency attention to acute DM complications were the nursing team' knowledge about the institutional routine to attend hypoglycemic cases and the conduction of referrals or counter-reference to the SUS primary care. Yet, professionals working at night shifts denied conducting counter-reference for primary health care.

The continuous accompaniment to patients by all health networks is important to avoid occurrence and recurrence of acute and chronic complications of the disease. Thus, education to discharged patients should be directed to the recognition of signals and symptoms, and possible causes for acute DM decompensations, as well as the self-care. Thus, the health team can develop action plans to assure the development of abilities for self-control of the disease[16,19].

The literature highlights the importance to develop articulations with primary care, specialty ambulatories, attention services and home care, among others available in the region, aiming to promote the reinsertion of users in parts that qualifies discharge of emergency units, creating possibility of bonds and accountability[20].

In this context, the nursing professional can articulate the attention and the health team. We agree with authors who refer that health professionals can develop innovative practices in accordance with the context of the population, searching for integrality in its attention[21].

As fragilities in the emergency attention to acute DM cases related to professionals, regular capillary glycemic monitoring was mentioned, and in many situations, it is not done during the preconized interval because of the sector demand; the deficit in knowledge from the team about DM and also, the lack of knowledge from most professionals about recommendations from reference agencies for DM attention. Studies show the importance of early nursing care in situations of acute complications[5], demonstrating that patient survival depends on early recognition of CKA symptoms, fast diagnosis and adequate management[22]. Beyond scientific knowledge, it requires the establishment of a rigorous and safe plan.

Unfortunately, many times, the diabetes mellitus care is neglected, especially by those who tend to not recognize the severity of it. This fact results from the lack of motivation, disbelief of disease severity, or of benefits that determined actions can bring to its control[23]. It is noted that people with diabetes have an increased hospitalization risk and repetitive hospitalizations in comparison with those without diabetes, which negatively affects the quality of life of individuals besides, it increases the responsibility of health services[24].

At last, it is important to highlight that the appearance of observed complications in people who had

longer disease time, interacted with higher number of years lived, can be affected not only by clinical exposure, but also, by the treatment received at during life[25].

FINAL CONSIDERATIONS

The study pointed important fragilities for attention of DM patients assisted in emergency services, which incite the challenge to promote improvements in nursing attention as: implementation of routines and protocols to attend acute DM complications; more effectiveness in primary attention actions so that hypoglycemia cases and CKA are avoided; to promote adherence of DM patients to treatment; permanent and continuous education of the whole health team.

There is a need to improve quality of the health attention network; besides highlighted advances and achievements in public polices for attention of chronic diseases, there are still points to be surpassed to qualify emergency attention for people with acute DM complications. Needed changes go beyond structuring the health attention network and establishing adequate assistencial routines to each institution; changes should be allied to technical knowledge of professionals and the development of communication skills. It is also essential to sensitize people with DM about the importance of self-care as a trial to succeed in adherence to treatment and prevention of acute and chronic complications.

It is important to note that this study presents limitations as the lack of possibility to generalize results, because it is constituted of data from a nursing team inserted in a specific hospital reality. Clinical training of professionals is noted as a potential factor in gaps for future studies, besides the identification of profiles from individuals with diabetic complications.

REFERENCES

1. American Diabetes Association. Standards of medical care in diabetes – 2014. Diabetes Care [Internet]. 2014 [cited 2016 jun 30];37 Suppl 1:S14-80. Available from: http://dx.doi.org/10.2337/dc14-S014.

2. Ministério da Saúde. Plano de ações estratégicas para o enfrentamento das doenças crônicas não transmissíveis (DCNT) no Brasil 2011-2022 [Internet]. Brasília: Ministério da Saúde; 2011 [cited 2016 jun 30]. Available from: http://bvsms.saude.gov.br/bvs/publicacoes/plano_acoes_enfrent_dcnt_2011.pdf.

3. Sociedade Brasileira de Diabetes. Diretrizes da Sociedade Brasileira de Diabetes: 2013-2014 [Internet]. São Paulo: AC Farmacêutica, 2014 [cited 2016 jun 30]. Available from: https://www.diabetes.org.br/images/pdf/diretrizes-sbd.pdf.

4. Dom M, Calder A, Mat R. Características clínico epidemiológicas de las complicaciones agudas de la diabetes en el servicio de urgencias del Hospital General de Atizapán. Rev la Fac Med [Internet]. 2013 [cited 2016 jun 30];56(2):25-36. Available from: http://ref.scielo.org/7tsxnn.

5. Garcia-Pascual MC, Kidby J. Procedures and medications to help patients control their diabetes. Emerg Nurse [Internet]. 2012 [cited 2016 jun 30];20(8):30-5. Available from: http://dx.doi.org/10.7748/en2012.12.20.8.30.c9481.

6. Ministério da Saúde. Estratégias para o cuidado da pessoa com doença crônica: diabetes mellitus (Cadernos de Atenção Básica, n. 36). Brasília: Ministério da Saúde, 2013 [cited 2016 jun 30]. Available from: http://bvsms.saude.gov.br/bvs/publicacoes/estrategias_cuidado_pessoa_diabetes_mellitus_cab36.pdf.

7. Benamer S, Eljazwi I, Mohamed R, Masoud H, Tuwati M, Elbarsha AM. Association of Hyperglycemia with In-Hospital Mortality and Morbidity in Libyan Patients with Diabetes and Acute Coronary Syndromes. Oman Med J [Internet]. 2015 [cited 2016 jun 30];30(5):326-30. Available from: http://dx.doi.org/10.5001/omj.2015.67.

8. Mendes EV. As redes de atenção à saúde [Internet]. Brasília: Organização Pan-Americana da Saúde, 2011 [cited

2016 jun 30]. Available from: http://www.conass.org.br/bibliotecav3/pdfs/redesAtencao.pdf.
9. Oliveira DM, Schoeller SD, Hammerschmidt KSA, Vargas MAO, Girondi JBR. Nursing staff knowledge in relation to complications of diabetes mellitus in emergency services. Acta Paul Enferm [Internet]. 2014 [cited 2016 jun 30];27(6):520-5. Available from: http://dx.doi.org/10.1590/1982-0194201400085.
10. Fontanella BJB, Luchesi BM, Saidel MGB, Ricas J, Turato ER, Melo DG. Amostragem em pesquisas qualitativas: proposta de procedimentos para constatar saturação teórica. Cad Saude Publica [Internet]. 2011 [cited 2016 jun 30];27(2):389-94. Available from: http://dx.doi.org/10.1590/S0102-311X2011000200020.
11. Minayo MCS. Análise qualitativa: teoria, passos e fidedignidade. Cien Saude Colet [Internet]. 2012 [cited 2016 jun 30];17(3):621-6. Available from: http://dx.doi.org/10.1590/S1413-81232012000300007.
12. Gerência de Ensino e Pesquisa, Grupo Hospitalar Conceição. Diretrizes Clínicas/Protocolos Assistenciais GEP-CHC. Manual Operacional [Internet]. Porto Alegre: Grupo Hospitalar Conceição; 2008 [cited 2016 jun 30]. Available from: https://www.nescon.medicina.ufmg.br/biblioteca/imagem/2247.pdf.
13. Dal Pai D, Lautert L. Work under urgency and emergency and its relation with the health of nursing professionals. Rev Lat Am Enfermagem [Internet]. 2008 [cited 2016 jun 30];16(3):439-44. Available from: http://dx.doi.org/10.1590/S0104-11692008000300017.
14. Garlet ER, Lima MADS, Santos JLG, Marques GQ. Organização do trabalho de uma equipe de saúde no atendimento ao usuário em situações de urgência e emergência. Texto Context - Enferm [Internet]. 2009 [cited 2016 jun 30];18(2):266-72. Available from: http://dx.doi.org/10.1590/S0104-07072009000200009.
15. Guidoni CM, Olivera CMX, Freitas O, Pereira LRL. Assistência ao diabetes no Sistema Único de Saúde: análise do modelo atual. Brazilian J Pharm Sci [Internet]. 2009 [cited 2016 jun 30];45(1):37-48. Available from: http://dx.doi.org/10.1590/S1984-82502009000100005.
16. Sociedade Brasileira de Diabetes. Controle da Hiperglicemia Intra-hospitalar em Pacientes Críticos e não Críticos. São Paulo: AC Farmacêutica, 2011.
17. Avelar AFM, Peterlini MAS, Onofre PSC, Pettengill MAM, Pedreira MLG. Capacitação de enfermeiros para uso da ultrassonografia na punção intravascular periférica. Acta Paul Enferm [Internet]. 2010 [cited 2016 jun 30];23(3):433-6. Available from: http://dx.doi.org/10.1590/S0103-21002010000300020.
18. Faria HTG, Rodrigues FFL, Zanetti ML, Araújo MFM, Damasceno MMC. Factors associated with adherence to treatment of patients with diabetes mellitus. Acta Paul Enferm [Internet]. 2013 [cited 2016 jun 30];26(3):231-7. Available from: http://dx.doi.org/10.1590/S0103-21002013000300005.
19. Grossi SAA. O manejo da cetoacidose em pacientes com Diabetes Mellitus: subsídios para a prática clínica de enfermagem. Rev Esc Enferm USP [Internet]. 2006 [cited 2016 jun 30];40(4):582-6. Available from: http://dx.doi.org/10.1590/S0080-62342006000400019.
20. Ministério da Saúde. acolhimento e classificação de risco nos serviços de urgência [Internet]. Brasília: Ministério da Saúde; 2009 [cited 2016 jun 30]. Available from: http://bvsms.saude.gov.br/bvs/publicacoes/acolhimento_classificaao_risco_servico_urgencia.pdf.
21. Souza AC, Bonilha ALL, Veronese AM. Buscando a integralidade no atendimento ao indivíduo diabético: do serviço de atendimento móvel de urgência à atenção primária à saúde. Ciência, Cuid e Saúde [Internet]. 2008 [cited 2016 jun 30];7(1):21-6. Available from: http://dx.doi.org/10.4025/cienccuidsaude.v7i1.4891.
22. Wilson V. Diagnosis and treatment of diabetic ketoacidosis. Emerg Nurse [Internet]. 2012 [cited 2016 jun 30];20(7):14-8. Available from: http://dx.doi.org/10.7748/en2012.11.20.7.14.c9405.
23. Santos AL, Cecílio HPM, Teston EF, Arruda GO, Peternella FMN, Marcon SS. Microvascular complications in type 2 diabetes and associated factors: a telephone survey of self-reported morbidity. Cien Saude Colet [Internet]. 2015 [cited 2016 jun 30];20(3):761-70. Available from: http://dx.doi.org/10.1590/1413-81232015203.12182014
24. Santos AL, Teston EF, Latorre MRDO, Mathias TAF, Marcon SS. Trend in hospitalizations for diabetes mellitus: implications for health care. Acta Paul Enferm [Internet]. 2015 [cited 2016 jun 30];28(5):401-7. Available from: http://dx.doi.org/10.1590/1982-0194201500068.
25. Cortez DN, Reis IA, Souza DAS, Macedo MML, Torres HC. Complications and the time of diagnosis of diabetes mellitus in primary care. Acta Paul Enferm [Internet]. 2015 [cited 2016 jun 30];28(3):250-5. Available from: http://dx.doi.org/10.1590/1982-0194201500042.