EVOLUTION OF NURSING DIAGNOSES FOR CHILDREN WITH CONGENITAL HEART DISEASE[1]

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Silva VM, Araujo TL, Lopes MVO. Evolution of nursing diagnoses for children with congenital heart disease. Rev Latino-am Enfermagem 2006 julho-agosto; 14(4):561-8.

We aimed to describe the evolution in nursing diagnoses for children with congenital heart disease. This longitudinal study was carried out from July to November of 2004. The sample consisted of 45 children interned in a public hospital in Fortaleza, Brazil, followed during fifteen days. In this period, we accomplished six diagnostic evaluations and found 21 nursing diagnoses. Six of these showed greater oscillations in their occurrence over time: Ineffective breathing pattern, Activity intolerance, Ineffective airway clearance, Hyperthermia, Sleep pattern disturbance, Risk for activity intolerance. Five parametric models were constructed in the time domain, with a view to predicting the occurrence of the nursing diagnoses. Knowledge about the temporal evolution in individuals' responses can guide nursing care towards the client's real needs.

DESCRIPTORS: heart defects, congenital; nursing diagnosis; continuity of patient care

EVOLUCIÓN DE LOS DIAGNÓSTICOS ENFERMEROS DE NIÑOS CON CARDIOPATÍAS CONGÉNITAS

Se objetivó describir la evolución de los diagnósticos enfermeros en niños portadores de cardiopatías congénitas. Estudio longitudinal desarrollado en los meses de julio a noviembre del 2004. La muestra fue compuesta por 45 niños ingresados en un hospital de la red pública del municipio de Fortaleza, Brasil, acompañados durante quince días de internamiento. En el período, llevamos a cabo seis evaluaciones diagnósticas, encontrando 21 diagnósticos enfermeros. Entre los diagnósticos, seis evidenciaron mayores oscilaciones en sus trayectorias de ocurrencia en el tiempo: Patrón respiratorio ineficaz, Intolerancia a la actividad, Limpieza ineficaz de las vías aéreas, Hipertermia, Deterioro del patrón de sueño y Riesgo de intolerancia a la actividad. Se construyeron cinco modelos paramétricos en el dominio del tiempo, con vistas a predecir la ocurrencia de esos diagnósticos enfermeros. Concluimos que el conocimiento de la evolución temporal de las respuestas del individuo puede dirigir los cuidados de enfermería para las reales necesidades del cliente.

DESCRIPTORES: cardiopatías congénitas; diagnóstico de enfermería; continuidad de la atención al paciente

EVOLUÇÃO DOS DIAGNÓSTICOS DE ENFERMAGEM DE CRIANÇAS COM CARDIOPATIAS CONGÊNITAS

Objetivou-se descrever a evolução dos diagnósticos de enfermagem em crianças portadoras de cardiopatias congênitas. Estudo longitudinal desenvolvido nos meses de julho a novembro de 2004. A amostra foi composta por 45 crianças internadas em um hospital da rede pública do município de Fortaleza, acompanhadas durante quinze dias de internamento. No período efetivaram-se seis avaliações diagnósticas. Foram encontrados 21 diagnósticos de enfermagem. Entre os diagnósticos, seis evidenciaram maiores oscilações em suas trajetórias de ocorrência no tempo: Padrão respiratório ineficaz, Intolerância à atividade, Desobstrução ineficaz das vias aéreas, Hipertermia, Padrão de sono perturbado e Risco para intolerância à atividade. Foram construídos cinco modelos paramétricos no domínio do tempo, com vistas a predizer a ocorrência desses diagnósticos de enfermagem. Conclui-se que o conhecimento da evolução temporal das respostas do indivíduo pode direcionar os cuidados de enfermagem para as reais necessidades do cliente.

DESCRITORES: cardiopatias congênitas; diagnóstico de enfermagem; continuidade da assistência ao paciente

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INTRODUCTION

Approximately 99% of infants with congenital heart disease manifest characteristics of heart defects within the first year of life. A diagnosis is established within the first week of life in 40% of patients and within one month in 50%[1]. The neonatal period can be critical for patients with congenital heart disease, due to the gravity of commonly present symptoms and to physiological changes from fetal to neonatal circulation. Congenital heart disease is suspected in the neonatal period when four main clinical signs are present: heart murmur, cyanosis, breathlessness and arrhythmia[2].

Nursing care delivery to children with congenital heart disease must be established and accomplished as soon as a diagnosis of congenital heart defect is suspected. In order to develop the care plan, a careful information survey is fundamental, mainly directed at assessing the cardiac function and detecting characteristic signs and symptoms of complications of the congenital heart disease.

Literature has indicated various nursing diagnoses found in children with congenital heart disease who are hospitalized in clinical and postsurgical recovery units: Imbalanced nutrition: less than body requirements, Risk for infection, Ineffective airway clearance, Impaired gas exchange, Hyperthermia, Risk for imbalanced body temperature, Acute Pain, Delayed growth and development, Sleep pattern disturbance, Risk for constipation and Impaired skin integrity[3-5]. Collaborative problems generally include potential complications: Pneumonia, Hypoxemia and Adverse effects of medication therapy[6]. Some studies of children with congenital heart disease assessed a specific aspect of care for this clientele, such as delayed growth and development for example[7].

Moreover, literature highlights statistically important associations, mainly between the following nursing diagnoses: Hyperthermia and Ineffective airway clearance, Imbalanced nutrition: less than body requirements and Delayed growth and development, Ineffective breathing pattern and Ineffective airway clearance, and between Ineffective breathing pattern and Hyperthermia[6].

On the other hand, these are punctual studies that assessed the diagnostic profile at one single time during hospitalization. We have not found research that analyzed the evolution in nursing diagnoses and possible changes over time.

Detailed and thorough clinical data analysis is needed to understand the health-disease processes that are present in a given situation. And this analysis has been a constant task in nursing work[8]. However, as mentioned above, few studies have analyze nursing diagnoses in children with congenital heart disease, and one of the reasons for this lack is probably the need for a complex clinical analysis. Moreover, although nursing diagnoses have been used in different countries, nurses are not familiar with the diagnostic reasoning process[9].

Before defining a restricted framework of nursing diagnoses in children with congenital heart disease, we felt the need to develop a longitudinal study in order to analyze the evolution in the diagnostic picture in greater depth. This will allow us to offer better directions for nursing actions involving children with congenital heart disease, and then continue with the other steps of the nursing process, to accomplish effective interventions that are based on scientific reflection and practice.

In our opinion, this kind of research is important, as it points towards for nursing care needs related to a person or group that is the object of care. The use of its results benefit the client-nurse binomial, as it guides nursing care towards clients' actual needs and, thus, makes it easier to choose adequate interventions. By clarifying the phenomena nursing works with, these studies often indicate care areas that are lacking interventions. Thus, we aim to describe the temporal evolution of nursing diagnoses for children with congenital heart disease.

MATERIAL AND METHODS

The study design is observational and longitudinal. In observational studies, the researcher assumes a passive role in observing the phenomena that occurred with the study subjects[10]. As to the temporality of the data production process, we have decided on a longitudinal study, as we want to obtain data on a temporal follow-up scale, which depends on the study objectives. Initial trends and changes in the variables of interest are assessed over time[11].

The study was carried out at a public hospital in Fortaleza - Ceará, which is part of the SER VI - Regional Executive Secretary VI. This institution is a reference center for cardiopulmonary diseases and attends to patients from all over Ceará State. The study population consisted of children, with a medical diagnosis of congenital heart disease, hospitalized at this specialized institution. The sample was determined by applying the formula $n = [(z_\alpha + z_\beta)^2 . 2 . p(1 - p)] / d^2$, where n = sample size; z_α = adopted reliability coefficient, expressed as standard deviation; z_β = test power; p = occurrence proportion of the study phenomenon; d = difference to be detected between priority nursing diagnoses and other diagnoses[12].

We adopted the following parameters: a 95% reliability coefficient ($z_\alpha = 1.96$) and an 80% test power ($z_\beta = 0.84$). The estimated proportion, represented by the occurrence proportion of the nursing diagnoses, found in an earlier study, corresponded to 70% (p = 0.7), considering the highest detected prevalence among the nursing diagnoses included in the diagnosis list[3,6]. We established a 40% frequency difference in nursing diagnoses between children with and without priority diagnoses (d = 0.4). For this purpose, we used the mean difference between the prevalence rates of the most frequent diagnoses (63.63%) and of other diagnoses that were found (26.98%)[3,6].

Based on these parameters, we calculated a sample of 41 children with congenital heart disease. During data collection, the study sample was expanded to 45 children who were hospitalized during the collection period and complied with the following inclusion criteria: Up to 12 months of age; Confirmed medical diagnosis of acyanotic or cyanotic congenital heart disease; Not having been submitted to definitive or palliative corrective heart surgery; Previously obtained acceptance by the responsible person to participate in the study; Having been admitted at the unit for at least 48 hours.

These criteria were established to obtain a more uniform participant profile and allow for a temporal analysis of the identified nursing diagnoses. We decided to work with children in the first year of life because, at the place of study, hospitalizations are most frequent in this age range. A minimum hospitalization period of 48 hours was determined to avoid losses during the data collection process, as physicians decide on what clinical conduct is to be adopted during this period. The average hospitalization period for children at the place of study is approximately 20 days. In order to minimize losses during data collection, we established a follow-up period of 15 days for participation in our study.

The following exclusion criteria were defined: situations that determined incomplete compliance with study inclusion criteria, a child's exit from the place of study because of discharge, transference or death within less than 15 days and follow-up by a person who was unable to provide all necessary data.

To elaborate the data collection instrument, we carried out a bibliographic survey to identify the signs and symptoms that constitute the defining characteristics and factors related to the nursing diagnoses that may be present in children with congenital heart disease. Next, we grouped data according to the eight domains presented by NANDA's Taxonomy II[13], involving physical / physiological human responses. These were: Nutrition, Elimination, Activity / Rest, Perception / Cognition, Coping / Stress Tolerance, Safety / Protection, Comfort and Growth / Development. The remaining domains were excluded because they are hard to observe in the age range of the study population. In order to validate its contents and appearance, the instrument was presented to four faculty who do research on nursing diagnoses in patients with heart diseases, two of whom directly work with children with congenital heart disease. These faculty members' suggestions were incorporated into the instrument, which was then applied to five children with congenital heart disease. However, as no inadequacies were found in the test, the instrument was considered appropriate.

Data collection occurred from July to November 2004. Initially, the researcher presented herself to the child's responsible, explained about the study purpose and requested authorization to include the child. Data were collected after confidentiality of information and identity had been guaranteed and after participants signed the free and informed consent term. Once the child's participation had been allowed, the researcher applied the data collection instrument by means of an interview, aimed at answering items related to information about the mother. After the interview, the researcher carried out a careful clinical nursing exam, based on the data collection instrument, and consulted the results of biochemical and radiological exams, as well as prescriptions and evolutions by all health team members.

The 45 children in the sample were accompanied during 15 hospitalization days, counted from the admission date. In this period, six diagnostic evaluations were accomplished at 48-hour intervals, totaling 270 observations. The process of elaboration and inferring diagnoses and collaborative problems followed the steps recommended in specialized literature(14): collection, interpretation / grouping of information and naming of categories. We used NANDA's Taxonomy II(13) for naming the diagnoses.

During diagnostic inference, we individually assessed clinical histories. Diagnoses that all researchers agreed upon were accepted. In case of disagreement, clinical histories were reevaluated until a consensus was obtained. Particularly diagnoses related to activity tolerance presented peculiar characteristics in the study sample. This capacity was assessed by identifying abnormal heart frequency, breathing frequency and arterial pressure responses to the child's normal activities, specifically during breastfeeding or bottle feeding. Risk for intolerance was considered by the presence of circulatory and/or respiratory problems that are characteristic of the basic congenital disease. In all identified diagnoses, we considered direct observation of signs and symptoms and health team members' recordings in the patient files. Information provided by relatives and companions was always confirmed by these two manners in order to consider the human response as present.

Data were organized in electronic worksheets and stored in a *.xls file. The time series analysis and graphs were developed by means of Excel 2003© software. Absolute and percentage frequencies and confidence intervals (95%) were considered for descriptive analysis.

We constructed three dispersion graphs with the temporal distribution of the nursing diagnoses. Due to the fact that many diagnoses evidenced a constant occurrence pattern, we considered the analysis of a trend model for all to be unnecessary. The six diagnoses with the greatest variability were selected to define a trend regression model. The definition of the highest variability was based on the analysis of the dispersion graphs constructed for all diagnoses and of the estimated variance of their proportions. As children with congenital heart disease remain hospitalized at the pediatric unit for a relatively short time, seasonal and cyclical factors were not taken into account for defining the regression models.

Data for the six selected diagnoses were plotted isolatedly for a more precise analysis, with a view to obtaining a trend regression equation that would better adjust to the data for the sake of forecasting. We developed five parametrical models in the time domain of equations for each selected diagnosis, with the respective determination coefficients (R^2): linear, second order polynomial, logarithmic, power and exponential. The choice of the most adequate model considered the smallest dispersion of data in relation to the trendline (residues), the highest determination coefficient and Occam's razor, which determines the choice of the simplest model that answers the question(15-16). After defining the model, graphs were plotted with the original data, the trendline, the equation and the selected R^2 for each diagnosis. The objective of the time series analysis was to produce equations that could forecast the proportion of hospitalized children that would develop the diagnosis over a certain period of time. Diagnoses identified in more than 80% of the children during the first assessment were defined as having an early start. Evolutions and involutions of the diagnoses were based on the increase and decrease in the proportions of the diagnoses in each of the six assessments.

The project was submitted to the Board of Directors of the institution to obtain authorization for data collection, and approved by the Ethics Committee, in compliance with Resolution 196/96 by the National Health Council/Brazilian Ministry of Health for research involving human beings(17). The persons responsible for the children gave their informed consent.

RESULTS AND DISCUSSION

The children's ages ranged from 9 days until 11 months. Mean age was 4.74 months (standard deviation 3.78 months). However, children of up to 3 months of age were predominant (46.7%). As to gender, 66.7% of the children were male, at a proportion of two boys for one girl. Most children were born through normal birth (59.1%), with between 38 and 42 weeks of gestational age (97.7%). We found no records of forceps delivery or post-term children. Approximately 68% of the children obtained an Apgar score of nine in the fifth minute. Apgar scores varied between six and nine. Patients with acyanotic diseases corresponded to 53.3% of the total, with confidence intervals ranging from 37.9% to 68.3%; the frequency of cyanotic diseases was 46.7%, with intervals from 31.7% to 62.1%.

Table 1 - Nursing diagnoses identified in children with congenital heart disease. Fortaleza, 2004

Nursing Diagnoses	1st Eval.		2nd Eval.		3rd Eval.		4th Eval.		5th Eval.		6th Eval.	
	Nº	%	Nº	%	Nº	%	Nº	%	Nº	%	Nº	%
1. Impaired Gas Exchange	40	88.9	40	88.9	41	91.1	42	93.3	42	93.3	42	93.3
2. Ineffective Breathing Pattern	33	73.3	36	80.0	41	91.1	43	95.6	42	93.3	39	86.7
3. Activity Intolerance	33	73.3	36	80.0	38	84.4	38	84.4	40	88.9	40	88.9
4. Risk for Infection	37	82.2	37	82.2	37	82.2	37	82.2	37	82.2	37	82.2
5. Delayed Growth and Development	35	77.8	35	77.8	35	77.8	35	77.8	35	77.8	35	77.8
6. Ineffective Tissue Perfusion	32	71.1	33	73.3	33	73.3	33	73.3	33	73.3	33	73.3
7. Decreased Cardiac Output	28	62.2	29	64.4	29	64.4	30	66.7	29	64.4	29	64.4
8. Ineffective Airway Clearance	14	31.1	19	42.2	24	53.3	29	64.4	32	71.1	32	71.1
9. Risk for Impaired Skin Integrity	20	44.4	20	44.4	20	44.4	20	44.4	19	42.2	19	42.2
10. Risk for Aspiration	15	33.3	17	37.8	17	37.8	17	37.8	17	37.8	18	40.0
11. Deficient Fluid Volume	10	22.2	10	22.2	10	22.2	10	22.2	9	20.0	9	20.0
12. Risk for Disproportionate Growth	9	20.0	9	20.0	9	20.0	9	20.0	9	20.0	9	20.0
13. Risk for Delayed Development	9	20.0	9	20.0	9	20.0	9	20.0	9	20.0	9	20.0
14. Hyperthermia	3	6.7	6	13.3	10	22.2	17	37.8	13	28.9	4	8.9
15. Impaired Skin Integrity	8	17.8	8	17.8	10	22.2	9	20.0	8	17.8	7	15.6
16. Sleep Pattern Disturbance	5	11.1	7	15.6	9	20.0	10	22.2	12	26.7	7	15.6
17. Risk for Activity Intolerance	12	26.7	9	20.0	7	15.6	7	15.6	5	11.1	5	11.1
18. Impaired Oral Mucous Membrane	4	8.9	6	13.3	7	15.6	8	17.8	8	17.8	7	15.6
19. Risk for Deficient Fluid Volume	1	2.2	1	2.2	1	2.2	1	2.2	1	2.2	1	2.2
20. Diarrhea	2	4.4	-	-	-	-	-	-	-	-	-	-
21. Risk for Injury	1	2.2	-	-	-	-	-	-	-	-	-	-

P25 - Percentile 25; P50 - Percentile 50; P75 - Percentile 75

In the total of 270 assessments, we found 21 different nursing diagnoses for the 45 participants. Six of these were above the 75th percentile: Impaired gas exchange (91.5%), Ineffective breathing pattern (86.7%), Activity intolerance (83.3%), Risk for infection (82.2%), Delayed growth and development (77.8%) and Ineffective tissue perfusion (73.0%). Five nursing diagnoses appeared between the 50th and the 75th percentile: Decreased cardiac output (64.4%), Ineffective airway clearance (55.6%), Risk for impaired skin integrity (43.7%), Risk for aspiration (37.4%) and Deficient fluid volume (21.5%) (Table 1).

Some nursing diagnoses were constant across the six assessments: Risk for infection, Delayed growth and development, Risk for disproportionate growth, Risk for delayed development and risk for deficient fluid volume. Other nursing diagnoses increasingly appeared, specifically: Impaired gas exchange, Ineffective tissue perfusion, Activity intolerance, Ineffective airway clearance and Risk for aspiration. On the other hand, some diagnoses gradually decreased: Ineffective breathing pattern, Hyperthermia, Impaired skin integrity, Sleep pattern disturbance and Risk for activity intolerance.

Some human responses were actually and potentially identified in the children with congenital heart disease: Delayed growth and development, Risk for disproportionate growth, and Risk for delayed development, Activity intolerance and risk for activity intolerance, Impaired skin integrity and Risk for impaired skin integrity. The nursing diagnoses of Diarrhea and Risk for injury only appeared in one single assessment. It should be highlighted that all participants presented Activity intolerance or Risk for activity intolerance. This is due to the different hemodynamic and respiratory alterations that may be or are produced when minimal activities like sucking at the mother's breast are accomplished. Older infants can also present characteristics like increased respiratory discomfort and alterations in heart frequencies while crying, evacuating and playing.

In most cases, the occurrence levels of nursing diagnoses presented slight changes, tending towards stabilization. Diagnoses above the 75th percentile appeared in the early hospitalization phase and tended to stabilize already during this period. Three of these evidenced greater variations: Ineffective breathing pattern, Activity intolerance and Ineffective airway clearance. Diagnoses between the 50th and 75th percentile presented lower proportions and generally appeared after and as a consequence of the first diagnoses or collaborative problems. In general, diagnoses between the 25th and 50th percentile occurred at a later stage, as complications or possible complications of other diagnoses or collaborative problems, and presented great changes in occurrence levels.

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Next, we selected those nursing diagnoses with the greatest variations in occurrence levels to construct mathematical models that would allow us to predict what proportion of children with congenital heart disease would develop these diagnoses during a time interval. For the other nursing diagnoses with a more stable picture, other parameters can be used, such as confidence intervals. These provide proportion intervals for the occurrence of these phenomena.

Table 2 - Equations to calculate trends in the proportion of children with congenital heart disease that will develop certain nursing diagnoses over a specific period of time. Fortaleza, 2004

Diagnosis	Regression	
	Linear	Polynomial
Ineffective Breathing Pattern	-	$Y = -0.2158X^2 + 3.5045x + 27.909$ ($R^2 = 0.8924$)
Activity Intolerance	$y = 0.6573x + 33.227$ ($R^2 = 0.8703$)	-
Ineffective Airway Clearance	$y = 1.8741x + 12.818$ ($R^2 = 0.9233$)	-
Sleep Pattern Disturbance	-	$Y = -0.1399x^2 + 2.1818x + 1.7273$ ($R^2 = 0.7183$)
Risk for Activity Intolerance	$y = -0.6573x + 11.773$ ($R^2 = 0.8703$)	-
Hyperthermia	-	$Y = -0.3676x^2 + 5.2408x - 5.3182$ ($R^2 = 0.6989$)

We constructed five parametrical models in the time domain, with a view to forecasting the occurrence of the following nursing diagnoses: Ineffective Breathing Pattern, Activity Intolerance, Ineffective Airway Clearance, Sleep Pattern Disturbance, Risk for Activity Intolerance and Hyperthermia.

As mentioned, we analyzed the mathematical equations and selected the most adequate models according to the lowest number of residues, the highest determination coefficient and Occam's razor. All models demonstrated a strong determination coefficient for Activity intolerance, Ineffective airway clearance and Risk for activity intolerance. However, the linear model evidenced a small dispersion between data and the trendline and revealed to be easily applicable. Thus, it was considered the most adequate model for projecting the diagnoses. Ineffective breathing pattern was the only frequent diagnosis for which the second order polynomial model revealed better adjustment to the trendline (Table 2).

Although the polynomial models were selected as the most adequate models for Sleep pattern disturbance and Hyperthermia, they presented weak determination coefficients. This reveals the existence of other variables besides time in the occurrence of these diagnoses.

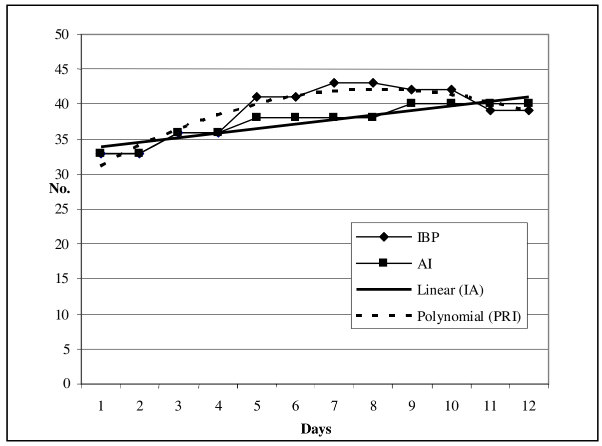

Figure 1 - Temporal analysis of Ineffective breathing pattern (IBP) and Activity Intolerance (AI) diagnoses with trendline. Fortaleza, 2004

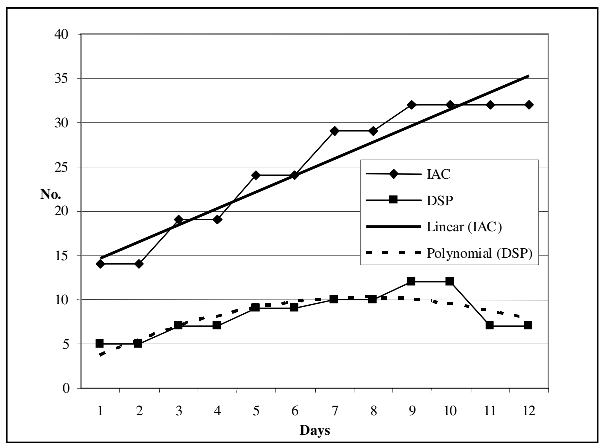

Figure 2 - Temporal analysis of Ineffective Airway Clearance (IAC) and Sleep Pattern Disturbance (DSP) diagnoses with trendline. Fortaleza, 2004

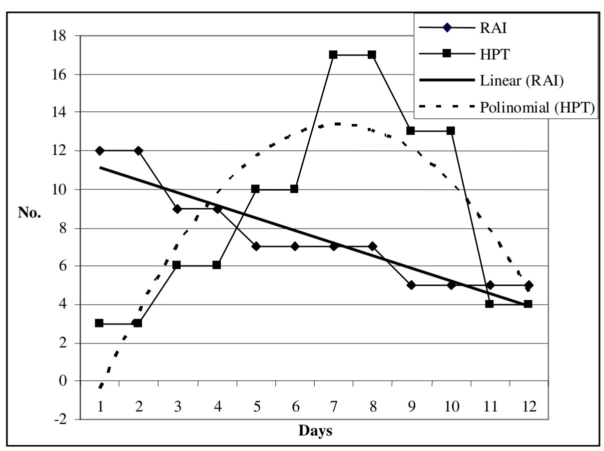

Figure 3 - Temporal analysis of Risk for Activity Intolerance (RAI) and Hyperthermia (HPT) diagnoses with trendline. Fortaleza, 2004

The nursing diagnoses above the 75th percentile indicated better adjustment between data and the linear and second order polynomial trendline. The influence of time on children who developed this diagnoses was 89% for Ineffective breathing pattern, 93% for Activity intolerance and 96% for Ineffective airway clearance (Figures 1 to 3).

The temporal curves of the diagnosis proportions reveal differences that, although subtle, must be taken into account. The diagnosis of Impaired gas exchange appears early, with high proportions and little variation over time. As opposed to Ineffective breathing pattern, which also appears early but with lower proportions and a curvilinear trend, first increasing and then decreasing, data indicate that Ineffective breathing pattern can be influenced by the diagnoses of Impaired gas exchange. However, this is an obscure relation and other variables than time need to be analyzed to confirm this hypothesis.

Activity intolerance was identified as another very frequent diagnosis in children with congenital heart disease. This diagnosis also appears early, with lower proportions and a curvilinear trend, first increasing and then stabilizing, indicating a possible influence of Impaired gas Exchange on Activity intolerance.

The adjustment of the second order polynomial model for Sleep pattern disturbance and Hyperthermia still revealed great dispersion between data and the trendline. Besides time, approximately 30% of other variables determine the proportion of children who will manifest these diagnoses.

The latter two diagnoses presented a variation with a clearly curvilinear trend, that is, their proportions first increased and soon afterwards decreased, forming a curved trendline, which justified the choice of a more complex equation. Diagnoses that were not included in this part of our analysis either presented a constant proportion or a linear pattern with very slight variation. Another point that must be considered in more specific studies is the determination of factors that contribute to the establishment of diagnoses like Hyperthermia and Sleep pattern disturbance. When considering only the time variable, the adjustment of the models proposed here for these diagnoses remains modest.

CONCLUSIONS

Six nursing diagnoses revealed greater variation over time: Ineffective breathing pattern, Activity intolerance, Ineffective airway clearance, Hyperthermia, Sleep pattern disturbance and Risk for activity intolerance. Five parametric models were constructed in the time domain, with a view to predicting the occurrence of the nursing diagnoses. The most adequate mathematical models followed the structure of linear and second order polynomial equations. The adjustment of these equations for Disturbed sleep pattern and Hyperthermia still revealed great dispersion between data and the trendline. This indicates that, besides time, other variables determine the proportion of children who will manifest these diagnoses.

Although we have considered 75% of the mean hospitalization time for children with congenital heart disease, the data analyzed by the time series must be weighed in terms of forecasting the behavior of nursing diagnoses for children who remain hospitalized for a longer period.

We believe that knowledge about the temporal evolution of children's responses contributes to nursing interventions guided by diagnostic decisions, which facilitates the choice of more adequate actions and allows for better prognoses. Nursing actions should focus on human responses related to hemodynamic alterations that appear at an early stage and with high proportions, requiring greater attention by the nursing team. These diagnoses also suggest that the child's health state is more severe. The importance of nurses verifying vital signs should also be emphasized, as Hyperthermia displays high proportions after six days of hospitalization.

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Recebido em: 8.6.2005
Aprovado em: 2.4.2006