

## PRACE POGLĄDOWE

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### Specifics of nursing care and educational plan for children admitted to hospital with renal disease and disease of genito-urinary tract

### Specyfika opieki pielęgniarskiej oraz edukacyjny plan dla dzieci hospitalizowanych z chorobami nerek i dróg moczowych

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#### ABSTRACT

Nursing care in child with urinary tract infections plays an important role in prevention and healing process. General nursing care in renal disease and urinary tract disease consist of: *Assessment* (medical history, physical examination, diagnostic investigations), *Diagnostics* (inefficient treating regime in the family, increased body fluid volume, urine excretion impairment, urine retention etc.), *Planning* (to reach effective treating regime, adequate health condition), *Realisation and Evaluation*.

Educational plan as a secondary prevention means to give relatives and patient all information about seriousness of renal diseases and urinary tract diseases in children as part of secondary prevention. It is important to explain to parents of sick children to prevent regression of the disease or proceeding into chronic stage. In primary prevention can be recommended to parents *the healthy life style of their child, to optimise fluid intake and search for medical help as soon as possible when any health condition changes appear*.

Conclusion. Urinary tract infections are non-specific bacterial infections of tubulointerstitial tissue of kidneys and mucous membranes of lower urinary tract. They present the most common nephrological problems in children. The principle of infection is bacterial invasion to urinary tract or kidneys. The foreknowledge of parents about character of disease is essential in children with urinary tract infections. They need

#### STRESZCZENIE

Opieka pielęgniarska u dziecka z infekcją dróg moczowych odgrywa ważną rolę w prewencji oraz w trakcie prawidłowego procesu leczenia. Proces podstawowej opieki pielęgniarskiej chorych na choroby nerek i układu moczowego składa się z: *Oceny* (wywiad, badanie fizykalne, podstawowe badania diagnostyczne), *Diagnostyki* (w zakresie ewentualnego niewłaściwego dotychczasowego procesu leczenia, zwiększenia objętości płynów w organizmie, zaburzenia wydalania moczu, zatrzymania moczu itp.), *Planowania* (strategii leczenia w celu osiągnięcia skuteczności leczenia i odpowiedniego stanu zdrowia), *Realizacji* oraz *Oceny końcowej* procesu leczenia.

W zakresie prowadzenia edukacyjnego planu dla dzieci hospitalizowanych z powodu chorób nerek i dróg moczowych rozumie się przede wszystkim przekazanie najbliższemu jego krewnym i rodzinie wszelkich istotnych informacji dotyczących przebiegu toczącego się procesu chorobowego oraz stanu pacjenta i podjętego leczenia, tym samym przekazania ważnych informacji stanowiących w przyszłości podstawy wtórnej prewencji chorób. Ważne jest, aby wyjaśnić rodzicom chorych dzieci, jak można właściwie postępować, aby zapobiec regresji choroby lub też w stadium przewlekłym jej trwania. W zakresie prewencji pierwotnej zaleca się rodzicom stosowanie zasad zdrowego stylu życia dla dziecka, optymalizację ilości przyjmowanych płynów i możliwie jak najszybciej

to be aware that already during first infection attack, the recurrence is very frequent and it cannot be considered as a complication.

**Key words:** Kidneys, nursing care, child education, therapeutic resting regime, prevention

szukania pomocy medycznej w razie zaobserwowania jakichkolwiek niepokojących zmian w stanie zdrowia dziecka. Zakażenia dróg układu moczowego będące najczęstszą przyczyną nefrologicznych problemów u dzieci są zazwyczaj niespecyficznymi bakteryjnymi infekcjami nerek i błon śluzowych dolnych dróg moczowych. Niezbędna jest właściwa wiedza rodziców dotycząca przyczyn i przebiegu choroby, co ma zasadnicze znaczenie w procesie leczenia dzieci z zakażeniami układu moczowego.

**Słowa kluczowe:** choroby nerek, opieka pielęgniarska, edukacja zdrowotna dzieci, prewencja

## Introduction

The kidney function of children differentiates from kidney functioning of adults, the concentration ability is considerably lower and through the child development can reach the same values as in adulthood. As well as glomerular filtration does not achieve the same levels as in adults, thus i.e. inappropriate nutrition in infantile age can put infants in risk of their life more than in adulthood [1, 2, 3, 4].

Symptoms of renal disease and disease of urinary tract can vary a lot, often they proceed silently and in long term process (mainly in non-infectious renal diseases), on the other hand, they can manifest with high fever or dysuria when infection is present. Particularly in little children, the renal disease can appear with atypical signs (jaundice, loss of appetite, failure to thrive). Symptoms of these diseases are associated with dysuria, polyuria, anuria, urine retention, polakisuria, incontinence, enuresis, hematuria, glycosuria, proteinuria, oedema around ankles, eyes, in longer or more complicated process the fluid in abdominal cavity (ascites) can appear [5, 6, 7].

Investigation methods in kidney and urinary tract diseases are not only urine tests or imaging technics (X-ray, ultrasonography, excretion urography, renal scintigraphy etc.), a complete discussion with parents of child is taking important role as well as patient's physical examinations. Therapy for urogenital tract diseases is conservative and surgical. Very often it is long-term therapy [5, 8].

Nursing care. General nursing care in renal disease and urinary tract disease:

### 1. Assessment

- Medical history- family and personal.
- Physical examination: general skin condition, oedema and its reducing during day time, skin turgor, abdomen and genitals; physiological functioning.
- Diagnostic investigations: fluid balance, blood and urine tests, and other examinations- urography, cystography, ultrasonography of kidneys, urinary tract and urinary bladder, cystoscopy, scintigraphy, MRI, CT, etc.

### 2. Diagnostics

The most common nursing diagnosis in renal and urinary tract diseases:

- Inefficient treating regime in the family 00080
- Increased body fluid volume 00026
- Urine excretion impairment 00016
- Urine retention 00023
- Sleeping disorders 00095
- Information deficit 00126
- Disorders of social interaction 00052
- Hyperthermia 00007
- Acute, chronic pain 00132, 00133
- Social isolation 00053

### 3. Planning

Goals: child – mother – parents.

Reach effective treating regime, adequate health condition.

Diet changes:

- Reach and maintain body fluid balance, body fluids volume is within normal level.
- Restore voiding and bowel motion.
- Sleep adjustment according to his/ her needs.
- Maintaining body temperature in physiological ranges.
- Remaining without pain, prevention of infection.
- To be in good psychical and physical conditions.

Nurse interventions: focus on correct urine specimen collection.

### 4. Realisation

Nurse will provide planned, independent, dependent and cooperating interventions exactly, carefully and safely. She must respect individuality of child and enable to him/ her and or to his/her parents active presence in realisation. All provided interventions have to be evaluated and properly documented [6, 8, 9, 10, 11].

### 5. Evaluation

Expected results:

- Child does not have signs of infection.
- Child has intact skin without oedema, alimentation and fluid intake are in balance.
- Child has physiological results, passing urine and stool, has qualitative sleep.

- The family is in harmony.
- Child/ mother/ parents are fully informed about seriousness of disease, cooperate during staying in hospital, know follow up care after discharge from hospital (give good feedback), know to use medications and perform nursing care.

Nurse continuously evaluate carrying out of plan based on expected results given in planning phase, she checks and modifies nursing plan over the course, depending on patient's circumstances, and when plan meets its requirements she proceeds the completion [12, 13, 14].

Educational plan as a secondary prevention:

Who educates: Nurse.

Who is educated- target group: Admitted children in age 5-10 years.

Where: In small, cozy and quiet room in pediatric department in hospital.

Form: Lecture with discussion at the end and answering all questions.

Goal of education: To give all information about seriousness of renal diseases (Glomerulonephritis) and urinary tract diseases (infections of genito-urinary tract – GUT) in children as part of secondary prevention.

Lecture for child admitted to hospital and his/ her parents

This infective renal disease which you have, is the reason for the admission to pediatric department in a hospital. Therefore we will talk how to behave when you are ill, what to do now and later on that you would get well and could go home. First of all lets talk about your room, where you have your own bed and you can play there. There is a bathroom and toilet in your room. The nursing station is right in next door. The child's room should be clean with fresh air and reasonably warm. It is very important to maintain constant room temperature, the fluctuations in room temperature is undesirable. During ventilation, especially in cold weather, is necessary to protect the child [11, 13, 14].

Unfortunately, you have to stay in bed for most of the day. Hence all your needed stuff and toys will be placed on night table next to your bed, that you could reach them. There is also placed signal for the nurse and when you will need anything during day or night, press the signal and the nurse will come to you immediately. Bed rest, and playing in bed is necessary because your illness (glomerulonephritis) manifests with high blood pressure which is undesirable [11, 13, 14, 15].

*Day regime:* The nurse will wake you up every morning, she will measure your temperature to find out if you have fever. Then you will wash yourself. Who will not be in pain, can sit by washing basin, the others will wash themselves by the night table in the bed. You have to pay special attention to brushing your teeth. If

your feet are swollen you have to wash them carefully too. Every morning the nurse will check your weight, measure abdominal circumference and your feet around ankles. Your blood pressure will be regularly taken every morning, after lunch and before dinner. Then you can have a breakfast. You will receive certain amount of fluids (tea) and only this amount, given by us nurses, you can drink throughout the day. Your food will contain less salt, proteins and fat. Also all the fluids what you drink will be monitored by nurse and the output will be measured at the same time. There will be placed a container in the toilet with your name or picture and since you wake up in the morning you will pass urine into it. If your parents, mummy or daddy will not be present in the hospital all the time, they can come to see you any time and they can stay with you for some time. Very important is prevention of hospital- acquired infections (diseases which are caused in association with admitting and staying in the hospital, contamination from visitors, medical staff and other patients), then a proper hygiene is crucial. *It is essential to instruct the parents and other visitors.*

*How to keep the child busy:* Because you need to stay in bed for most of the day, we have prepared variety of activities, what you can do and play. There is a video player in each room with a lot of video tapes with cartoons. Then you can play collective games such as Domino, Memory etc. For this reason we have a library with plenty of books for children, so the nurses or your parents can read them out for you, or if you go to the school already then you can read them on your own [4, 11, 13, 14, 15].

At the end we ask, if all children have understood to everything what we said or if they have any questions. By their feedback we are able to find out if they comprehended what we said and they would be able to maintain the bed rest [12, 13, 14].

*Secondary prevention:* It is important to explain to parents of sick children to prevent regression of the disease or proceeding into chronic stage. Thus routine check up with clinical and laboratory tests are important together with ability to recognise and follow up the child's condition and carefully maintain prescribed medical treatment and care.

Parents must be informed that within the scope of primary prevention is the most important early diagnostic, how serious renal and urinary tract diseases in children are. In primary prevention can be recommended to parents *the healthy life style of their child:* no overeating, keep normal body weight and regular exercise, not to underestimate a proper clothes, not to use excessive medications including analgesia, *try to optimise fluid intake and search for medical help as soon as possible when any health condition changes appear.*

From early diagnostic point of view, the urine test is routinely done in preventive check up even to every

healthy person. Also adequate fluid intake plays major role in proper kidney functioning. It is known that in renal impairment the ability to retain water generally drops and lack of fluids can lead to poor kidney perfusion and its further damage. Certainly we should not forget to keep proper fluid intake. Decreased sensation of thirst is typical for older patients, who need to be reminded to drink. Children's sensation of thirst is also present but the drinks need to be offered on regular bases. Daily fluid intake should be 2–3 liters. It must be intensified with increased perspiration mainly in hot summers [16]. We need to pay attention to getting cold as it makes easier to initiate an urinal tract infection, however, it does not have a primary effect on serious renal disease such as glomerulonephritis [4, 11, 12, 13, 14, 15].

### Conclusion

Urinary tract infections are non-specific bacterial infections of tubulointerstitial tissue of kidneys and mucous membranes of lower urinary tract. They present the most common nephrological problems in children. The most often urinary infections occur in infantile age, the boys are affected mostly in first months of life. With ageing the amount of infections descend and the prevalence dominate in girls, which is related with anatomy and physiology of urethra of female genitals. The principle of infection is bacterial invasion to urinary tract or kidneys (according to localisation of infection-infection of urinary bladder – cystitis, infection of ureters – urethritis, infection of renal pelvis – pyelitis, infection of kidneys – pyelonephritis). Among most common initiators belong *E. coli*, *Klebsiela* and *Proteus* [3, 4, 17]. The foreknowledge of parents about character of disease is essential in children with urinary tract infections. They need to be aware that already during first infection attack, the recurrence is very frequent and it cannot be considered as a complication. Parents are familiar with current child's condition, and they are briefly introduced with treatment plan. Omission of these principles can often produce loss of confidence and misunderstandings. Some parents cannot comprehend when their child is asymptomatic, then he/ she must be observed and treated in long-term [18, 19, 20]. Predisposition factors of infection include lack of hygiene, perineal irritation with bubble baths and urine reflux. In manual distributed to parents, the attention is concentrated at hardening and maintaining personal hygiene, respectively to oxyuriasis. We are particular in treatment of vaginal discharge in girls. We do not recommend special diet, only emphasize the child would avoid of spicy food. We do not limit physical load, most often we suggest to include the child in common school physical activities [4, 11, 13, 14, 21, 22].

Glomerulonephritis is disease of kidneys with prevalence of infective changes in glomerules, which

occur as a result of activation of immune mechanisms. Acute glomerulonephritis is sterile acute infection of all glomerules, which appears by activation of immune processes immediately after an infection of organism. The prevalence is most often in boys, usually in 3–7 years old. It is very serious disease, which has good prognosis. Acute pyelonephritis is infective disease of renal parenchyma, which can be caused for example by urine drainage obstruction, other disease (hypertension, diabetes mellitus, general infections, etc), disturbances in homeostasis and very often vesicoureteral reflex. It can pass asymptotically and progress into chronic stage [5, 6, 8, 21, 23].

Nursing care in child with urinary tract infections:

- Urine specimen for quantitative bacteriuria, general biochemistry tests.
- Blood specimen for laboratory tests.
- Consistent antibiotic administration as per doctor's order (prevention of renal infection).
- Measurement and monitoring of vital signs.
- Urine monitoring- urine changes, difficulties with passing urine, pain, etc.
- Bed rest, constant room temperature.
- Reduce dysuria with appropriate interventions.
- Constantly offer suitable fluids, i.e. drinking of red-current juice to promote urine acidity.
- Ensure appropriate diet – non-spicy, initially clear fluids, then rational diet, adequate fluid intake.
- Educational engagement of child.

Providing parents with information mainly about personal hygiene: exclude sitting baths in tub, prefer having a shower, inappropriateness of using bubble baths, it is important to instruct girls about correct perineal cleaning from front to back, using underwear from cotton materials- synthetic materials are inadvisable. Increase intake of fluids and food witch will increase urine acidity [4, 5, 6, 7, 15, 24, 25].

Nursing care in child with infective renal disease :

- Strict bed rest until symptoms of active disease are present.
- Observation of symptoms of infective disease.
- Observation of behavioural changes in child.
- Reasonable engagement of child during day with regard to his/ her condition.
- Regular monitoring and recording of vital signs, daily weight.
- Daily monitoring of intake and output, measurement of specific gravity of urine.
- Drug administration as per doctor's order.
- Obtaining urine and blood samples for laboratory tests and following up of their results.
- Adherence to diet regime- improving of appetite by tasteful arrangement of food, further effect monitoring.
- Performing complete hygiene care.

- Prevention of nosocomial infections – providing education for child's visitors.
- Ensuring about appropriate education for child and his/ her parents before discharge from the hospital: drug administration, prevention of infections, observation of signs of renal complications, importance of long-term monitoring, maintaining bed rest, etc.

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