Kajal Das

A Case Study in Poliomyelitis

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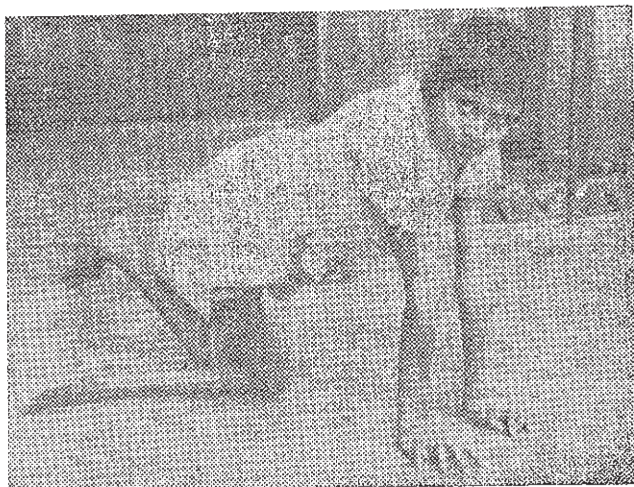
KAJAL is a Bengali girl who lives not far from our Centre, in Bakultala. Our centre itself is situated on the outskirts of Calcutta in Barisha. Bakultala is almost a rural area. She had 4 brothers both older and younger and 2 elder sisters who had recently been married—her father had taken a large loan for the marriages from the local company where he was employed. 2 sisters had died of typhoid and dysentry, her uncle who lived with them was often sick and her father also was a chronic asthma and bronchitis patient.



Kajal Das : Pre-operative

Kajal was brought to RCFC Outpatients' Deptt. on 28th May 1979 at the age of 12 yrs. We were given a history that she had got poliomyelitis at 4 years old. Her parents had taken her to various places for advice but no positive treatment had been given. On examination the following findings were noted :

both hips : flexion abduction contractures
Rt. = 40°
Lt. = 10°

both knees : flexion contractures
Rt. = 100°
Lt. = 90°

both feet : in valgus.

Lt. wrist = extension deformity with heel-like paid developed.

She was admitted at first to our Day Centre and started having daily skin traction and manual stretching of all contractures. During the monsoon it was not possible for our vehicle to reach her house, so her parents were given a traction set and advised on how to set it up. They were also taught basic stretching techniques. She was given books, paints and sewing materials as she had learnt a little during her daily visits to RCFC. (Previously it seemed she had never been to school nor had any teaching at home).

On 23rd September, 1979 we admitted Kajal for inpatient treatment.

Then started a long period of operations alternating with physiotherapy and traction. In between, as far as possible, she was also given some basic education.

Muscle assessment was done after admission :

(normal is gr. 5)

Upper limbs

Rt. arm = normal except for elbow extensors which were grade 3.

Lt. arm

Muscles of shoulder girdle and upper arm ranging from normal to near normal; elbow extensors completely paralysed (gr. 0).

muscles of rotation — weak (gr. 3)
wrist — weak (gr. 0-3)
fingers and thumb — weak or completely paralysed (gr. 0-3)

there was one muscle which could be transferred —this was flexor digitorum sublimis (gr. 3-)

Neck and trunk muscles ranged from gr. 4-5-

Lower limbs

The Lt. leg was better than the Rt. which had muscle power ranging from 0-3

The Lt. leg had some possibilities for surgery and we planned to transfer the knee flexors (hamstrings) to quadriceps; and ankle evertors (peroneals). We first had to straighten out her legs.

Surgery was commenced as follows (the surgeons who operated on Kajal were Dr. Samir Gupta and Dr. Mohit Sen).

13.5.80—Flexor Digitorum Sublimis of left middle finger transferred to thumb (without winding it round the tendon of Flexor Carpi Ulnaris which had withered).

17.7.80—Palmaris Longus tendon excised from Rt. side. Lt. Extensor Carpi Radialis longus tendon

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erased from insertion, sutured with excised Palmaris longus and transferred to ventral aspect of medial side of base of 5th Metacarpal.

23.10.80—Bilateral release of knee contractures. —Rt. posterior subluxation remaining and Lt. gross subluxation only partially corrected.

22.11.80—Rt. knee manipulation under anaesthetic—there was a slip of the upper tibial epiphysis with gross instability so a Rt. knee fusion was done (Charnley technique).

11.12.81—Release of Lt. knee flexion contracture : all tissues were contracted—skin, muscles, capsular ligaments and medial vascular bundle.

The original plan was to do hamstrings to quadriceps transfer, but instead decided to fix the cut ends of the tendons (of Biceps, Semi-tendinosus and Gracilis) as a 1st stage only, as they were all so contracted—Semi-membranosus was elongated by Z-plasty. The saphenous nerve was partially injured but satisfactorily repaired.

The wound did not heal well for some weeks—it was treated with Acraflavine compress, mercurocrome and Betnovate N then with Acraflavine baths. A splint was applied at first and then we gave below-knee surface traction.

7.4.82—Lt. medial hamstrings to quadriceps transfer (Semitendinosus and Gracilis).

12.5.82—Rt. Elongation of Tendo-Achilles and plantar fascial release.

Lt. Peroneus longus transfer to dorso-medial aspect of foot.

30.6.82—Rt. Tensor Fascia Lata contracture release.

In between there were various family crises, Kajal became homesick, she got chickenpox, but everything settled well. Before her discharge another physiotherapy assessment was done (by our Honorary Physiotherapist, Mr. Gautam Chaudhury).

Findings

Lt. hams-quads : good static contractions of hamstrings. No patellar movements visible but moving freely on passive movements.

1-2° of movement while hamstrings contracted statically (in same position). grade = 1.

Lt. pero. long. transfer to dorsum

When Dorsiflexing, the ankle everts the whole foot along with dorsiflexion. Can also feel Ext. Dig. contracting very strongly.

Shortening

3" true shortening of Rt. lower limb.

Range of Movement—fairly good.

Deformities

Lower limbs

hips Lt. hip—no deformity.

Rt. hip—no deformity following TFL release

Knees Lt. knee—0-110° approx. with hip in 90° flexion (knee—slight flexion deformity)

Rt. knee—tibia laterally rotated.

ankles Lt. ankle—comes to 5° dorsiflexion

Kajal Das : Comeback to OPD

whole foot goes into valgus from tibio-fibular insertion, valgus of the arch on weight bearing, the whole foot going into eversion.

Rt. ankle—drop of MT heads, raised arch (medial)

Upper limbs Rt. arm—normal

Lt. arm

Could feel only palm. Longus in flexion of the wrist. Couldn't feel anything at base of 5th; the transferred F.D.S. doesn't seem to be working. Early swan-neck deformity of little finger. Attempts to grip 1st and 2nd finger to hold object, and the other 2 remain straight. Total wrist flexion = 3.

Triceps = 3+

Initial extension against gravity is very difficult. In middle and inner range the triceps works quite hard —can bear full body-weight with elbows extended and even semi-flexed.

Forearm : supination limited in last 3rd. wrist—Stays in extension 90° and flex 35°; Radial deviation more than ulnar.

Can stand with support, usually bears full weight on RLL.

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studies scientifically. This also tells to correct the drawbacks at the initial stages.

Accidental Discoveries

When the nurse is given research orientation her commitment and preocuupation might lead to significant observations. In the history of science, many of the discoveries had resulted from accidental events, for instance, Madam Curie's discovery of radium is preceded by her accidental observation of a piece of radio-active rock left on a photographic plate over night. Likewise, apple falling from a tree leads to Newton's laws. In the bath-tub, Archimedes found the famous scientific principles. Kekule found the formula for Benzene in his dreams. Many such examples can be quoted. These kinds of accidental events leading to great discovery is termed as "Un-planned observations" or "Serendipity".

A nurse with the knowledge of research and inquisitiveness is likely to have the experience of serendipity.

In many areas of Nursing, specially related to psychiatric, not much work is done. What we require is systematic approach with small sample of population not rigorously representative for in depth study. Such studies can focus on nursing activities with acute patients, as well as chronic patients, patients' perceptions about their stay in the hospitals, relatives' fears and anxieties etc For such studies formulation of hypothesis is not necessary but a thorough survey of literature and consultation with professional experts are essential steps. These researches could be grouped under "Exploratory or formulative studies.

When the characteristics of certain events or phenomena are known it is necessary to describe the characteristics further. Various studies have brought forth findings related to levels of satisfaction among the nurses. Also researches have focussed on differing levels of treatment complaince or adherence among patients. In such cases the nurse-researcher could probe into the factors associated with each group and trace out the root-cause. These studies can be done either cross-sectionally or longitudinally. They could be classified as descriptive study. Design requires carefully defined population and representative samples. Data may be gathered from questionnaire interviews, observation schedule or available statistical reports.

Psychiatric Nursing Education

As far as Psychiatric Nursing Education is concerned, it is important to focus on the effect of teaching methodology or pattern. Similarly it is interesting to know the comparative effects of different nursing approaches on the psychiatric patients' improvements or family members' satisfaction. A nurse-educator could adopt simple experimental designs. The patterns of design vary, but generally include 'experimental' and 'control' groups with random assignments of subjects to each or approximations to 'control groups'.

For example, two matched groups of chronic schizophrenic patients could be taken up, one group gets routine clinical care. Another group is exposed to intensive nursing interventions like self-help skills improvement, and social skill development. These two groups could be compared at different points of time to see the effectiveness of intensive nursing interventions.

The problems and challanges presently being encountered by the psychiatric nurses could be solved by applying suitable designs of research. Considering the role functioning of the nurse, it may not be difficult to collect the valid and reliable data. The nursing curriculum need to include both theoritical and practical aspects of research. This re-orientation would go a long way in making the nurse not only an effective service-provider but also, efficient educator and useful researcher.

Reference :

1. Notter Lucille E. (1974) Essentials of Nursing Research. New York : Springer Publishing Company.

2. Polit Denise F. & Bernadette P. Hungler (1987) Nursing Research (3rd Edn). Philadelphia : J.B. Lippincott Co.

Kajal Das

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Advised : Orthosis

Rt-plastic insert (the ankle is fixed and forefoot drops)—compensation for shortening—something light.

AFO—although hip doesn't have any functional muscle power. (Ankle-foot orthosis)

Following the physio assessment, she was measured for orthosis as advised plus Lt. KAFO with inner T-strap, 1/8" inner raise and valgus arch support.

Crutches Rt. elbow crutch

Lt. modified axillary crutch

Kajal was discharged on 26.9.82 to her home and came for trial of orthosis on 1.10.82.

She learnt to get around very confidently, has been for long train journeys, can walk (with a little support) without her calipers for short distances. In November 1986 she got a Bank loan and started a small grocery shop. Her family have supported her very well and her brother helps her to run the shop, which is attached to their house.

Schooling

When Kajal first was admitted, she was very shy and more so as she was much older than the small children in KG and infant classes (we had no provision for non-formal education). She refused to go to school. Then it was discovered that she loved music and readily came forward to try the tabla or harmonium—so these were used to gain her interest and confidence and gradually she was won over. She tried sincerely to study and passed class II exam. while with us. She started studying in class III but was not able to continue at school when she went home due to the long distance and cost of rickshaw fare. For some time she had a tutor, but the family couldn't continue. Meanwhile Kajal tried to learn more and more by herself and now she can write very nicely and manage to do the simple arithmetic required in her shop. However she feels that she needs to improve her arithmetic and her brother is helping her in this.