Reflex Postural Control of Patients with Cerebral Palsy for Odontological Assistance

Controle do Reflexo Postural em Pacientes com Paralisia Cerebral para Atendimento Odontológico

Control del reflejo postural en pacientes con parálisis cerebral para el cuidado dental

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Cerebral palsy (CP) describes a group of permanent disorders of the development of movement and posture, causing activity limitation, that are attributed to non-progressive disturbances that occurred in the developing fetal or infant brain.A child with cerebral palsy may have impairments in motor control, which contributes to loss of functional abilities in posture and mobility. The severity of the impairment on the neuromuscular system determines the variations of functional mobility in children with cerebral palsy. The control of the patient, during the dental treatment, is of fundamental importance because these patients present some pathological reflexes which interfere in the odontological assistance.

Keywords: Cerebral Palsy; Postural Balance; Dental Care.

INTRODUCTION

The cerebral palsy can be defined as a posture and movement disorder due to the cerebral lesion which happens before, during or after the birth, until the complete development of the central nervous system. It is of a non-progressive nature, however changeable and frequently associated to disturbances of : speech, audition, vision, swallowing, convulsion, alteration of behavior and a certain degree of primary or secondary mental retardation to the lesion. This "disorder" is characterized by a clinical situation with movement and posture disturbances, decreasing the capacity of the patient of performing voluntary movements of his muscles[1-8].

The causes of Cerebral Palsy occurs in the periods[1-5,7]:

1. Prenatal period
2. Perinatal period
3. Postnatal period

1.1. The prenatal causes are: drugs; infections; traumatisms; circulatory disturbances; metabolic disturbances and irradiations.

2.1. The perinatal causes are: early birth; post birth; cesarians and very fast birth deliveries; mechanical agents.

3.1. The postnatal causes are: circulatory disorders; infections; cerebral traumatisms; metabolic disorders of the just born baby.

Differences in the clinical situation of the patient can be observed specially due to the time the lesions are occurred. The earlier the cerebral lesion occurs, the worst the prognostic of the case is, because the functions of the nervous system are depending on each other. The development of the system is, many times, depending on the development of another one, and the

more immature the nervous system was the time the lesion occurred, more damages can be noticed, which explains the appearance of neurological disturbances, such as the convulsions and perception, mental and emotional alterations[1-8].

ODONTOLOGICAL TREATMENT

The control of the patient, during the dental treatment, is of fundamental importance, specially those with cerebral palsy, because these patients present some pathological reflexes which interfere in the odontological assistance, such as[9-12]:

ASYMMETRICAL CERVICAL TONIC REFLEX: Which is the stretching out of the superior member on the side that the patient turns his face and the flexing of the superior member on the opposite side.

THE KEY POINT TO INHIBIT THIS REFLEX:

Place the head of the patient in the medium line without holding him by the nape.

The LABYRINTHINE TONIC REFLEX:

That reflex occurs because of the changes of position of the head when shaking or nodding it, estimulating the otolitic organs on both sides. The patients, when in dorsal decubitus, will present a spasticity in extension making an arch (opisthotonos).

THE KEY POINT IN ORDER TO INHIBIT THIS REFLEX:

It should be made a shoulder protrusion in the patient to keep him in that position and to roll him up with a band, cloth or sheet, always keeping the head of the patient in the medium line as to place a cylindrical pad or cushion made of a soft material under the patient's knees to do a semiflexion of the hips and knees. In order to achieve a better comfort of the patient and avoid involuntary extending movements, a band should be carefully placed around the leg of the patient. The back rest of the odontological chair must be at most 45 degrees of inclination in relation to the soil.

SYMMETRICAL CERVICAL TONIC REFLEX:

Is a proprioceptive response of the proprioceptor neck muscles by an active or passive movement of the head up and down. The elevation of the head produces an increase of the extending hypertonia in the arms and flexing hypertonia in the legs. The position when the head is down presents opposite effect.

The key points to inhibit the patological reflexes in the cerebral palsy patients are[9-12]:

1. head
2. shoulder
3. knees
4. hips

THE MOST APPROPRIATE POSITION FOR A PATIENT BEARER OF CEREBRAL PALSY AT THE ODONTOLOGICAL CHAIR:

The head should be in the medium line, protrused shoulders with arms crossed, hips and knees semiflexed, keeping the semiflexion with the help of a soft cushion under the knees. The back rest of the odontological chair must be at most 45 degrees of inclination in relation to the soil.

After the inhibition of those reflexes, the patient relaxes and becomes more comfortable, so his odontological treatment occurs normally, without problems, only by using some resources to keep the patient's mouth open[9-15].

ASSISTANT RESOURCES USED DURING CONTENTION, TO KEEP THE MOUTH OF THE PATIENTS OPEN [3, 8-15]

1. **Tongue spatula:** are spatulas made of wood that are placed one on top of the other and attached together by using a tape. Its use is simple, one way and of a low cost.

2. **"Molt" mouth opener:** essential for the control of the special patient in long term treatments. It is made in two different sizes, for children and adults; it allows an easier access on the other side of the mouth, which is kept open by a mouth holder.

There are some disadvantages, such as the high

cost and are likely to lacerations of the lips or palate, as well as luxation and fractures of teeth, when improperly used.

Make sure the mouth of the patient is not overopen, for it could cause him to be uncomfortable and anxious, resulting in a higher level of resistance, and many times, with breathing difficulties.

3. **Biting Blocks:** Made of rubber and in different sizes. They are placed between the occlusal surfaces of the posterior teeth to keep the mouth open. It is important to have a nylon string attached to the rubber block to make its removal easier in case of its displacement inside the mouth cavity of the patient.

4. **Bottle neck:** device made with one-way soda bottle necks, that after the necessary cuts and polishings, turns into an excellent mouth opener and mouth opening keeper.

When the communication with the patient is possible, the dentist should explain the advantage of these physical contention assistant equipment, and introduce them to the patient as if the mouth opener were **"a chair for the teeth"**, the sheets as **"safety wear"**, and the bands as **"seat belts"** in order to make the patient feel **PROTECTED AND NOT THREATENED.**

RESUMO

A paralisia cerebral (PC) descreve um grupo de desordens permanentes do desenvolvimento do movimento e da postura, causando limitação da atividade, que são atribuídas a distúrbios não-progressivos que ocorreram no cérebro fetal ou infantil em desenvolvimento. A criança com paralisia cerebral pode ter deficiências no controle motor, o que contribui para a perda de habilidades funcionais na postura e mobilidade. A gravidade da deficiência no sistema neuromuscular determina as variações de mobilidade funcional em crianças com paralisia cerebral. O controle do paciente, durante o tratamento dental, é de fundamental importância, pois estes pacientes apresentam algumas reflexos patológicos que interferem na assistência odontológica.

Palavras Chave: Paralisia Cerebral; Equilíbrio Postural; Atenção Odontológica.

RESUMEN

La parálisis cerebral (PC) describe un grupo de trastornos permanentes del desarrollo del movimiento y la postura, haciendo limitación de la actividad, que se atribuyen a trastornos no progresivos que ocurrieron en el desarrollo cerebral del feto o del niño. Un niño con parálisis cerebral puede tener deficiencias en el control motor, lo que contribuye a la pérdida de capacidades funcionales en la postura y movilidad. La severidad de la alteración en el sistema neuromuscular determina las variaciones de la movilidad funcional en niños con parálisis cerebral. El control del paciente, durante el tratamiento dental, es de importancia fundamental debido a que estos pacientes presentan algunos reflejos patológicos que interfieren en la asistencia odontológica.

Palabras clave: Parálisis Cerebral; Balance Postural; Atención Odontológica.

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