



## **Vagal Nerve Stimulator**

Repetitive electrical stimulation of the vagus nerve in the neck by using a programmable stimulator similar to a cardiac pacemaker has been used as treatment for intractable epilepsy in children and adults. Introduced in USA in 1988, the treatment is based on animal experiments demonstrating that intermittent stimulation of the vagal nerve could prevent or reduce the frequency and/or duration of seizures. Most of these patients had partial seizures for which resective epilepsy surgery was not feasible or had failed, but efficacy of vagal stimulation appears to be the same for both partial and generalized epilepsy. Vagal nerve stimulation (VNS) is FDA approved. The device is implanted subcutaneously in the left neck/chest and sends intermittent impulses to the left vagus nerve through communicating leads. VNS provide relief to the patient with a seizure disorder by decreasing the overall number and severity of seizure activities. Complications include those of the procedure such as wound hematoma, seroma or pocket infection, hardware failure and those associated with stimulation of the vagal nerve such as laryngopharyngeal dysfunction causing voice disturbance during device activation, hoarseness, dysphagia and torticollis. Some children might get sleep-disordered breathing (apnea) after stimulator implantation. Mean reduction in seizures is 50%, with children with partial complex and catastrophic epilepsy as best responders.

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## **Laser Depilation**

Removal of hair using laser known as laser epilation (or depilation) is an FDA approved safe technique with consistent and long-lasting effects. It is a nearly painless procedure that can be performed in the outpatient setting with minimal morbidity. Most adults and children patients that utilized laser hair removal are for cosmetic reason, especially unwanted hair. The mode of action of laser depilation is that of selective photothermolysis

of the melanin-rich structures. Melanin within the hair is used as a natural chromophore. It is postulated that photothermal damage destroys the hair itself and also key cells surrounding the hair follicle to prevent regrowth. Some clinical indications for hair removal in children consist of hirsutism, polycystic ovarian syndrome, congenital melanocytic nevus, generalized hypertrichosis, nevoid hypertrichosis and pilonidal sinus disease. In pilonidal disease the intergluteal cleft hair is removed creating an effective adjunctive therapy that reduces recurrence. Laser hair removal is associated with a low incidence of side effects, is painless, targets hair selectively, is fast and can treat an area of 50 cm<sup>2</sup> in less than a minute. The highest incidence of side effects is seen in patients with darker skin treated with the long-pulsed ruby laser. When administered appropriately, laser hair removal is safe and well tolerated in children aged <16 years.

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## **Palliative Care**

Palliative care is a new medical subspecialty focused on relief of pain, symptoms and stress of serious illness. The goal is to ensure the highest quality of life possible for patients and their families. Palliative medicine manages serious illness regardless of prognosis, and patients can receive it at any point in their illness, with or without curative treatment. Palliative care physicians objectives are to: 1) provide relief from pain or other distressing symptoms, 2) affirm life and regard dying as a normal process, 3) intend neither to hasten or postpone death, 4) integrate the psychological and spiritual aspects of patient care, 5) offer support to help patients live as actively as possible until death, 6) offer support to help family cope during the patient-s illness, 7) use a team approach to address this needs including counseling, 8) enhance quality of life which may influence positively the course of illness and investigate to better understand and manage distressing clinical complications. Palliative surgery are procedures aimed at alleviation of patient symptoms and improvement of patient quality of life with minimum anticipated impact on overall patient survival. Clinical bioethical and end of life issues are being incorporated in the instructive curriculum for competency based-training of medical schools and postgraduate education.

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8 *PSU* 1993-2009

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