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AWARENESS ABOUT INTRATHECAL DRUG ADMINISTRATION AMONG DENTAL STUDENTS

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Abstract

Intrathecal administration includes the immediate infusion of the medication in Cerebro Spinal Fluid(CSF) internal to intrathecal space of the spinal column.The intrathecal course permits direct medication organization to the CSF by evading the blood-cerebrum hindrance. It permits conveyance of small medication dosages and the event of adverse effects are decreased compared with systemic courses of medication administration.This survey was performed for assessing the awareness about intrathecal drug administration among dental students.A cross sectional study was done with a self-administered questionnaire with 10 questions circulated among 100 dental students. The questionnaire assessed the awareness about intrathecal drug delivery in medical applications ,their medicinal uses, drugs administered,mechanism of action and side effects.The responses were recorded and analysed.17% of the respondents were aware of medical uses of intrathecal drug delivery, 13% were aware of the drugs used in intrathecal drug delivery .10 % were aware of the mechanism of action of intrathecal drug delivery .7% were aware of side effects of intrathecal drug delivery .The awareness about intrathecal drug administration among dental students is not adequate. Increased awareness programs and continuing dental education programs in intrathecal drug delivery should be initiated to improve the awareness levels.

Keywords*: Awareness, intrathecal, drug , dental students*

Introduction

Intrathecal adminstrationincludes the immediate infusion of the medication into the Cerebro Spinal Fluid(CSF) inside the spinal intrathecal space , while epidurally infused drugs need to cross the dura film to arrive at the CSF. All things considered, epidurally regulated medications can likewise arrive at the fundamental course while intrathecally managed drugs are limited to the CSF circling in the spine and brain ventricles.(Chatelut et al., 1993).

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Intraspinal drug transportation developed during the 1970s when the nearness of narcotic receptors in spinal line was found and has since been misused for the treating relentless somesthesia in patients who don't react to or experience genuine symptoms to other pain relieving definitions. The intrathecal course permits direct medication organization to the CSF by going around the blood-brain barrier. It along these lines permits conveyance of smaller medication dosages and the event of symptoms is diminished contrasted to systemic courses of medication administration .

Intrathecal drug administration can be utilized in the treatment of ceaseless spasticity because of injury, multiple sclerosis and cerebral paralysis the administration of disease, interminable non-harmful or neuropathic torment ,chemotherapy treatment for lymphomatous meningitis and anti-infection treatment adjuvant to foundational anti-microbial treatment in cases of bacterial meningitis and different contaminations of the nervous system.(Brescia, 1987)Intrathecal drugs are clean isotonic medication arrangements. The volume of intrathecal infusions ranges from 0.5ml to 5ml. Transformation of medications to their water dissolvable salts or utilization of cushions can improve dissolvability.

The CSF happens to be a sterile ,clean fluid with no insusceptible barrier systems and its protein and glucose substance can render it a perfect domain for bacterial growth. So it is mandatory that the intrathecal formulations are devoid of microbes. Aseptic strategies are utilized for the planning and gathering of intrathecal infusions and the drug arrangement is sifted utilizing a 0.2µm channel. Additionally, intrathecal plans must be sans additive. Studies have indicated that additives, for example, parabens and benzyl liquor can cause aggravation of the arachnoid layer (arachnoiditis) and nerve damage. Neurotoxicity is the fundamental reaction of intrathecal drug conveyance emerging from unsatisfactory excipients, dissolvability enhancers and drug . Preferably, intrathecal plans ought to contain as hardly any excipients as could be expected under the circumstances and the dynamic drug must be screened for its inclination to originate neurotoxicity.(Yeung, 1976)

Surgically planted intrathecal siphons are reasonable for incessant intrathecal sedate conveyance for absence of pain and chemotherapy. Siphons can be remotely planted with a percutaneous or completely embedded catheter, or can be completely embedded systems.Intrathecal organization of chemotherapeutic operators is helpful in specific sorts of diseases that are found in the CSF (eg, CNS leukemia and lymphoma) and for the avoidance of malignant growth metastasis into the CSF.This study was done with aim to assess the awareness about intrathecal drug delivery among dental students.

Materials and method

A cross sectional study was done with a self-administered questionnaire with 10 questions circulated among 100 dental students. The questionnaire assessed the awareness about intrathecal drug delivery in medical applications ,their medicinal uses, drugs administered,mechanism of action and side effects.The responses were recorded and analysed.

Results

17% of the respondents were aware of medical uses of intrathecal drug delivery (Fig 1) .13% were aware of the drugs used in intrathecal drug delivery (Fig 2) .10 % were aware of the mechanism of action of intrathecal drug delivery (Fig 3) .7% were aware of side effects of intrathecal drug delivery(Fig 4) .

Fig 1:Awareness of medical uses of intrathecal drug delivery

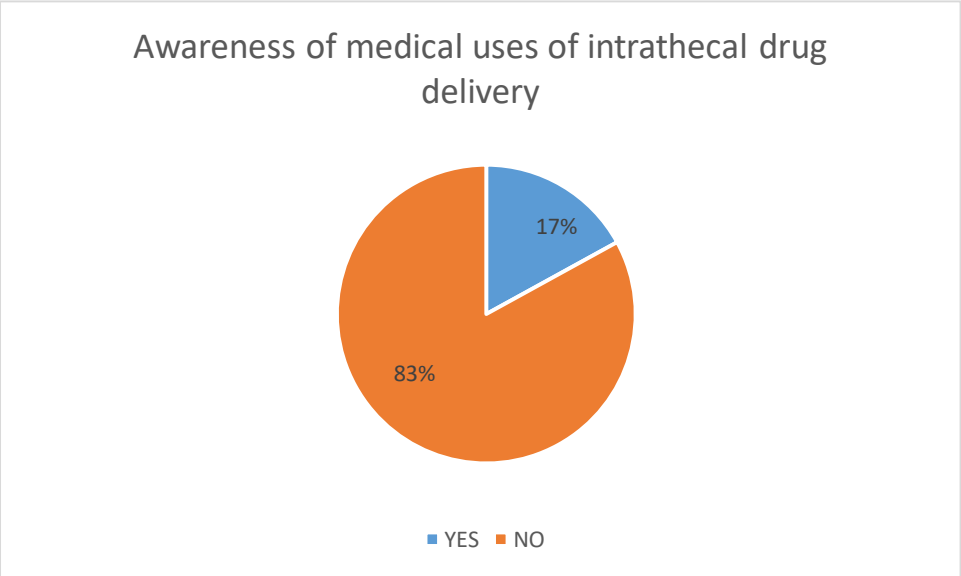


Fig 2:Awareness of drugs used in intrathecal drug delivery

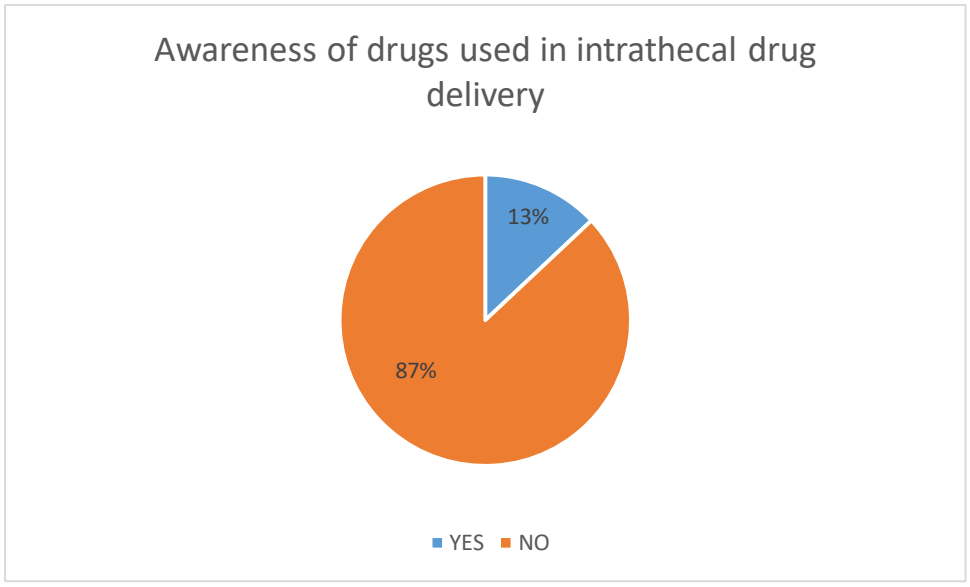


Fig 3:Awareness the mechanism of action of intrathecal drug delivery

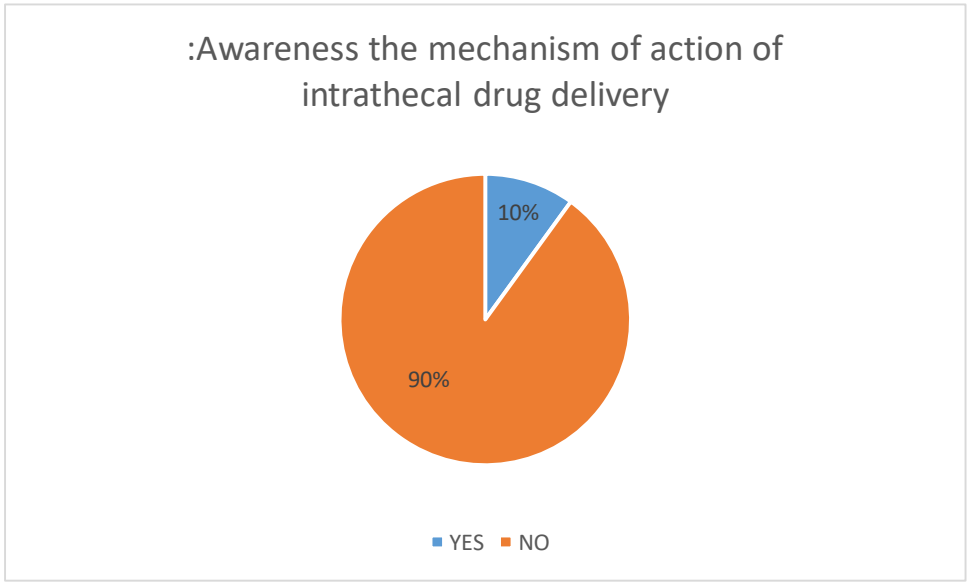
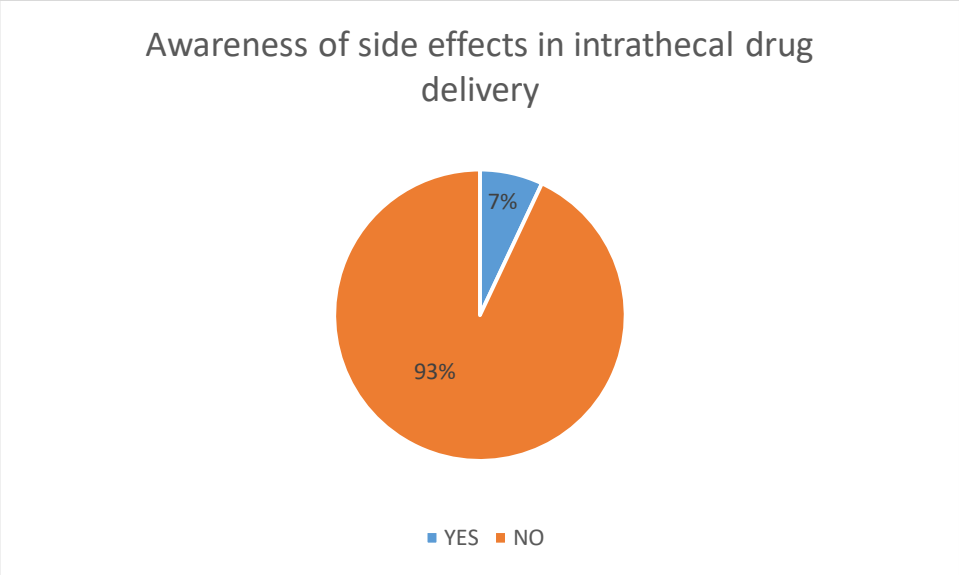


Fig 4:Awareness of side effects in intrathecal drug delivery



Discussion

Idealistic chemotherapy demands continued drug levels in the CSF. In view of the short half-existence of cytotoxic medications , intrathecal infusions are important. Supported discharge intrathecal definitions have subsequently been structured so as to decrease dose recurrence and increment persistent consistence, and at last to improve helpful result by permitting better drug circulation along the neuraxis.Implantable siphons offer constant drug discharge be that as it may, in light of the fact that they require medical procedure, they can be badly designed and furthermore convey the danger of post-operative infection.(Kim et al., 2019)(Deer et al., 2002)

Intrathecal antibiotic administration is perfect in instances of CSF meningitis that require immediate and brief anti-infection treatment. An investigation on neonates with pyogenic meningitis featured the significance of conveying anti-infection agents straightforwardly to the CSF either through lumbar cut or intraventricular infusion. The examination reasoned that, in extreme cases, direct anti-infection conveyance in the CSF of the cerebral ventricles was obligatory to meliorate endurance rates.(Anderson & Burchiel, 1999)

Intrathecal administration of opiods is a compelling methods for treating relentless pain. A mix of narcotics and local anesthetics is frequently managed intrathecally with an end goal to lessen drug measurements while constraining the symptoms of the two classes of drugs[8]. Morphine is normally picked for intrathecal organization, in light of the fact that a solitary portion may give absense of pain to as long as 24 hours. Mixes of intrathecal pain killers are additionally utilized in clinical practice, for instance, morphine sulfate blended in with bupivacaine and clonidine hydrochloride.

A few mixes have been concentrated as intrathecal anodynes. Clonidine, an alpha-2 agonist, has indicated viability in neuropathic torment, complex local agony and malignant growth torment when regulated intrathecally, either solitary or combined with narcotic analgesics.[9] Gabapentin has as of late been protected as an intrathecal pain relieving for the administration of neuropathic pain.Intrathecal absense of pain is likewise utilized in labor as an option in contrast to epidural absense of pain to give speedy beginning relief from discomfort. The benefit of intrathecal absense of pain is that it doesn't slow the advancement of work and improves the odds of normal instead of cesarean delivery.(Bharathi et al., 2019)

Protein conveyance to the CNS can be valuable to treat hereditary sicknesses. Intravenous organization, in any case, is testing since proteins don't cross the blood mind boundary at adequate levels to apply a restorative impact. intrathecal adminstration is accordingly being examined as an elective course for chemical substitution treatments. An ebb and flow stage I/II clinical preliminary is inspecting the intrathecal adminstration of idursulfase, a protein that is missing or lacking in patients with Hunter Syndrome.Side impacts of intrathecal narcotics incorporate early and late respiratory depression, nausea and emesis, pruritus, sedation, and retention of urine .(Coffey & Burchiel, 2002) Regardless of the dangers associated with intrathecal administration, British Pain Society has expressed that intrathecal drug conveyance is underutilized and that it ought to be made all the more broadly accessible for the administration of incessant pain .

Conclusion

The awareness about intrathecal drug delivery among dental students is not adequate. Increased awareness programs and continuing dental education programs in intrathecal drug delivery should be initiated to improve the awareness levels**.**

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Conflict of Interest:

The authors declare that they have no conflict of interest.

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