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A VIEW OF THE DEVELOPMENT OF SOME ANAESTHESIC AND ANAELGESİC DRUGS IN THE WESTERN WORLD AND IN TURKEY AND SOME ORIGINAL DOCUMENTS

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Summary

Reason for this paper is to study historical development of some anesthesic and anaelgesic drugs in the Western World and in Turkey. Moreover , another aim is to comment on some historical documents in the Ottoman Archives and so , some original results are obtained. As a method , historical developments of these drugs are given as chronogical and Ottoman Archives are commented.

Anaesthesia is one of the most important branches of medicine and also surgery. Sedation, analgesia and anaesthesia have become one of the most important topics of medicine since ancient ages..

In the Ancient Times , henbane (Hyoscyamus niger L) , mandrake , opium and hellebore were used as analgesic and anesthetic drugs . For example , in the Indian period , Cannabis Indica was also used for that purpose.

In the Middle Ages , " soporific sponge" was used with the aim of analgesia or anaesthesia. These sponges contained opium, mandrake , hemlock, henbane etc.

In Turkey,in the Seljukian and the Ottoman Periods, anelgesic and anesthesic drugs were also used for some aims . Some Ottoman Archives' Documents give some original knowledge on this topic.

In this paper ,the development of these drugs are pointed out from the point of the history of Western medicine and Turkish Medicine and some original results are obtained.

These kinds of drugs have been used as analgesic and anestehesic since ancient ages. Ancient Mesopotamian clay tablets contain some prescriptions.For example , henbane seeds were mixed with gum and this mixture was applied to the tooth cavity for toothache.This was an analgesic prescription and it provides anesthesic effect.We suppose that this application was known as the earliest record of anesthesia in the history of medicine.We know that henbane contains hyoscyamine and scopolamine alcaloides.Hyoscyamine has anticolinergic effect and it decreases saliva and phlegm.Scopolamine shows sedative effects and today ,it is used for premedication.Moreover,mandrake,henbane and opium were present in Mesopotamian codex.These drugs are analgesic.

In ancient Egypt, surgical papyrus contained 40 surgical diseases and their therapies.This papyrus was discoveredby **Edwin Smith** in Teb in 1862. It belongs to 2000 B.C.Ancient Egyptian physicians gave a syrup with opium to the patient before operation.Moreover , medical papyrus (**Ebers Papyrus**) who was discovered by **Dr.George Ebers** in Teb in 1862 belongs to 1550 B.C. and contained 700 drugs.Opium and henbane were recorded as analgesic drugs in this papyrus. Furthermore, in the ancient Egypt ,analgesic effect of mandrake was known.

In the ancient India , henbane ,opium etc were used for analgesic effect. According to an ancient manuscript , **Susruta**(622-542 B.C) , henbane was used for analgesic effect.Moreover, hashish was also used for the same effect.

In the ancient China,a prescription with mandrake was administered to the patient in order to relieve pain before operation. Moreover,Chinese surgeons used opium ,hashish fıor analgesic effect. Opium was also used before operation in ancient Israel and Iran.

In ancient Greece , both henbane and opium was also used as analgesic . Hippocrates used henbane ,opium and alchohol in order to relieve operation pain in his operations with regard to dislocation ,fractures ,hemorrhoides and trepanation etc.

In ancient Rome, ,some surgical operations were applied .Some of them were operations with regard to spear wounds and orthopaedic operations.**Pedanius Dioscorides** (First century A.D) used mandrake for surgical applications.2 parts mandrake and 2 parts opium were boiled with wine and this mixture was administered to patient before operation.**Dioscorides** mentioned another prescription with mandrake in his book with the name of **Materia Medica** According to this author ,mandrake was used for rectal anesthesia:Wine , quinquina bark and mandrake are mixed and this mixture is used in the form of suppository .We know that mandrake (Mandragora officinarum L) contains hyoscyamine and scopolamine and these matters are antispasmodic ,analgesic and afrodisiac . Moreover , **Aulus Cornelius Celsus** who was a barber surgeon(3-64 A.D) mentioned henbane and opium as analgesic drugs in his book with the name of **De re Medicina. Pline l'Ancien** of Rome (23-79 A.D) used the mixture of wine and mandrake as anesthetic.He mentioned that cauterization and some surgical operations were applied with this mixture. Moreover , **Galen** who was a famous physician prepared opium in the form of suppository and used it as a hypnotic matter.

Analgesic drugs were also used in Europe in the Middle Ages. **Bamberg Antidotarium** which was a manuscript of the IX th century contained soporific sponge prescription.This sponge was massed with the juice of some plants and then it was applied to the nostrils of the patient and a kind of inhalation anesthesia was provided.A prescription of soporific sponge is as follows: 1 ½ ounces(ounce is equal to 28.3 grammes) opium , 8 ounces mandrake leaves' juice ,3 ounces henbane juice are mixed with sufficient water.A clean sponge is soaked with this mixture and is dried.When it is necessary , this sponge is soaked with cool water and is applied on the nostril of the patient and so,the patient goes to sleep. After operation ,the patient is woken up with clean sponge with vinegar.

According to **Henry Sigerist** , another soporific sponge was prepared from henbane, mandrake and lettuce leaves.This prescription was present in **Manuscript Montpellier H 185** belonging to the 11 th century.We suppose that it was used for anesthesia. Moreover, **Arnold of Villanova** from Montpellier Medical School wrote a manuscript **Breviarium Practicae** at the beginning of the 14 th century. According to this book ,opium ,mandrake bark and henbane were used for soporific sponge .**Lanfranchi of Paris** (the X111 –XIV th centuries) mentioned that opium was applied on the wounds and so,local anesthesia was provided in **Cyrurgia Parva and Cyrurugia Manga**, his manuscripts.

Moreover,**Guy de Chauliac** (1300-1368) also used soporific sponge in the amputations.,He also mentioned the side effects of opium .Opium caused asphxia , congestion and death.

According to **John Arderne** , a famous English surgeon , the patient's hands and head were washed with mandrake juice or opium powder was applied on his(her) head.So,when the patient slept , he operated him(her).

In the period of Renaissance , soporific sponge were also used .For example, according to **Antidotarium of Nicolaus Salernitanus** , a soporific sponge with poppy , henbane and vinegar , turnip and pig bile was used.Moreover ,**Hieronymus Brunschwig** also used soporific sponge.

But, all the soporific sponges had some harmful effects .Because they couldn't prepared in the therapeutical doses.

As for Islamic world in 9th century, opium-addiction was not very much and opium was used in the treatment. **Ibn Māsawayh** (777-857), one of famous authors of that century, used opium in the cure of biliary pains. The same author gave this drug to patients as an analgesic matter in head-aches, tooth-aches, eye-aches, dysentery. **Abū'l-Hasan al-Tabāri** (9th century), one of the first Islamic authors mixed opium with some oils and used this mixture in coryza and migraine. Thus, the same author gave opium in the form of tablet in the treatment of cough. **Al-Tabāri** notified that opium with gum should be used as a narcotic matter. In addition, opium was an important agent of **theriac** and some other antidotes. **Hamarneh** wrote that **al-Tabāri** mentioned that opium was used in poisonings in Persian palaces.

Besides, **Cabir**(**Geber)** and some other chemists investigated poisoning characteristics of opium and notified that opium should be carefully used. **Sahl ben Sabour**, another investigator, administered opium to patients in the forms of electuary, pastille, lavement, powder, and decoction and wrote a codex. This investigator treated coryza, cough, head-ache and gout with opium. **Sahl ben Sabour** mentioned that opium was an antidotic matter.

Abū Bakr al-Rāzī (854-932) mentioned therapeutic characteristics of opium. According to him, a man who swallows 2 drachms opium shows the poisoning-symptoms and hot drill, the decoction of radish, salt and honey with water should be administered to the patient for treatment. This author also used poppy in the cures of head-aches, melancholy, stomach and kidney disorders.

Ibn Sīnā (980-1037) who dominated on medicine of that period because of **Canon (Al-Qānūn),** his famous book, mentioned opium in that book and used it in various diseases. He dropped the solution of poppy in eye for eye-coryza. He mixed opium with the oil of bear and yolk and rubbed this medicine in the eye. Besides, he used opium as a drug in eye-cancer.

Moreover ,this famous author made use of opium in ear-aches: "Some opium is mixed with woman milk and is dropped in the ear. Some opium is pounded and mixed with wine in the form of tablet which is administered to the patient for the treatment of ear-aches. 20 almonds, 1.5 drachms opium, 6 drachms saffron are pounded with vinegar; the mixture is dried and then soaked with rose-oil to be given to the patient by drops. Moreover according to **Ibn Sina**:'' Some opium is mixed with mother-milk and it is dropped in ears. In addition, some opium is pounded and it is mixed with wine and this medicine is administered to patient in the treatment of earache in the form of tablet.'' Acording to **Ibn Sina**, analgesic drugs also have anestesic effect and so,they anesthetize the organ with pain.

Moreover,a famous Turkish-Islamic physician ,**Ebu Reyhan Biruni**(973-1051) mentioned sedative and analgesic effects of henbane in his book with the name of Kitab al-Saydala.

Opium was also used in Islamic world in 12th century. Thus **Ibn Māsawayh Yūhannā** mentioned opiates in his book, called **De Medicinis Universalibus et Particilaribus**.

Ibn an-Nafis (1210-1288) wrote narcotic characteristics of opium and suggested that the head of poppy should be mixed with honey and sugar and this mixture should be administered to children as a hypnotic agent.

As for Andalusia-Spain, a large number of physicians used opium. **Abū'l Qāsim Halaf Ibn al-Zahrāwī**, who was the father of modern surgery, applied opium as an anesthetic agent. Afterwards, **Ibn al-Baytār** (1197-1248), one of Andalusia's physicians and pharmacist-botanists, mentioned opium in detail in his book, **Kitāb al-Cāmi al-Müfredat al-Edviye vel-agdiye:** "If opium in the size of lentil is administered to the patient, it cures cough. If this drug is mixed with rose-oil and is applied on head, it treats head-aches. Some opium is mixed with almod-oil, saffron, myrrh and this mixture is dropped in ears in ear-

aches. Some opium is mixed with saffron and this mixture is administered to a patient of gout".

So, we know that opium and poppy were used in various treatments and in various Galenical forms in every period of Islamic civilization and they had hypnotic and analgesic characteristics.

In the Seljukian period .Turkish physicians used soporific sponges.At that time ,surgeon **Hugo Von Lucca Borgogni of Bologne** (?-1252) learned to prepare soporific sponge from Seljukian physicians during Crusaders.He learnt anesthetic methods in the operations of Seljukian surgeons in the hospitals of Moslem Armies. When he returned to Italy , made operations by using soporofic sponges. **Theodorich Von Borgognoni , Hugo's son** also applied these methods. We can give an example from these prescriptions:'' Opium,hellebore, henbane,mandrake ,lettuce etc are mixed in the mortar and sponge is added to this mixture and is boiled.This boiled sponge is applied to the patient's nose and the patient sleeps.When the operation finishes ,the sponge with vinegar is applied to the patient's nose for his awakening.

We do not know the exact time when poppy cultivation started in Anatolia. According to pictures on some stones which have been obtained during archaeological excavations, it is robable that the cultivation of poppy began in Anatolia in the period of Hittites.

We know that some data about opium are found in some pharmacological manuscripts belonging to the 14th century. **Ishaq bin Murād** says in his **Muntehāb-i Shifā**, a Turkish medical book: "Opium gives sleep, has analgesic effect, heals diarrhoea and procedures a siccative effect on the throat".

Another famous Turkish physician-pharmacist **Haci Pasha** (1335-1424) says on opium in his **Teshil-i Devā**: "Opium has cold characteristics, it is a wet drug in the fourth degree. It cures pains". So, this physician explained the analgesic character of this drug. About the wine of poppy he says: "The seed of poppy should be boiled with its park". The wine of poppy called **Tiryāq-i Erbaa** which contained opium was used especially for the treatment of sleeplessness.**Hacı Pasha** wrote about this topic : "This *theriac* cures pains of liver and spleen and all other pains".

Nidai, a famous physician of 15th century, specifies opium as analgesic and astringent drug. He says: "Some opium is prepared in the form of pill and it is applied on head". For example , he also used hellebore for acne therapy:'' Hellebore ,amylum and gum arabic are mixed and this mixture is prepared in the form of a pill and these pills are administered to patient with acne''

Another Turkish physician **Salih bin Nasrullah** wrote an important medical manuscript with the name of **Gayet al Beyan fi Tedbir-i Beden al-İnsan** in 1665.This manuscript contained some drugs.For example opium was also used as a medicine in the seventeenth century. According to **Salih Efendi**:'' Opium cures cough ,pains,diarrhoea.If opium is mixed with rose oil and applied on head,it heals head-aches.''

Moreover ,opium had a great importance, from the stand-point of both internal and external trade, in 19th century. It is written in a document, dated 1807, that the income of electuary-house had decreased and a minister of state must be appointed for this kind of trade as the prices of opium were very high and the electuary of opium was not sent to the coasts of Black Sea and Mediterranean Sea which were closed due to wars. So the administration of electuary-house could not obtain income and could not pay off the debt it owed to the state.

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