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Greške prilikom korišćenja inhalera i njihov uticaj na ishod lečenja

Errors in inhaler use and their effects on the treatment outcome

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Apstrakt

Adherenca podrazumeva svesno prihvatanje činjeničnog stanja iz koga proizilazi pridržavanje saveta lekara. Najčešći uzroci loše adeherence potiču od bolesnika, bolesti, načina lečenja, samog lekara, kao i socioekonomskih faktora. Primeri loše adherence su: neuzimanje propisanog leka, nepridežavanje propisanog doziranja i vremena uzimanja leka, nepridržavanje preporuka za način uzimanja leka i prevremeno prekidanje terapije. Posledice loše adherence su: pogoršanje ili progresija bolesti, greške lekara u proceni toka bolesti i uspešnosti lečenja, nemogućnost praćenja nus pojava leka.

Poboljšanja adherence kod bolesnika sa astmom i HOBP moguće je postići kroz bihejvioralnu intervenciju, edukaciju i odabir inhalera. Savršen uređaj za primenu inhalatorne terapije podrazumelva: malu brzinu aerosola i male partikule (nije još uvek napravljen). Faktori koji učestviju u depoziciji inhaliranog leka u plućima su: karakteristike aerosola i faktori zavisni od pacijenata. Karakteristike aerosola podrazumevaju: dijametar partikula, frakciju finih partikula, brzinu aerosola, brzina i trajanje aerosolnog oblaka, lipofilnost, higroskopnost. Zavisnost od pacijenata podrazumeva: inhalacini manevar (inspi. volumen, insp. protok, zadržavanje vazduha), zahvaćenost disajnjih puteva, tj. težina bolesti, prihvatanje uređaja, komplijansa itd. U zavisnosti od veličine partikule u aerosolu tri su mehanizna njihovog dopremanja do obolelih disajnjih puteva: impakcija, sedimentacija i difuzija. Veći volumen inhalacije podrazumeva bolju depoziciju leka. Spor insp. protok podrazumeva bolju penetraciju leka u periferne disajne puteve.

Instrukcije za pravilno korišćenje inhalera generalno bi mogle kao osnovu imati određene postulate. Kada je reč o volumenu inhalacije – lagani duboki izdah, a potom dubok udah. Protok vazduha: za pMDI i SMI postepena spora i duboka inhalacija u trajanju od 4–5s. U slučaju DPI snažna duboka i jaka inhalacija. Zadržavanje vazduha (bez obzira na izabrani divajs) u trajanju od 8–10 sekundi, a potom lagan izdah.

Kakav treba da bude idealni inhalar po mišljenju bolesnika i lekara u mnogome se razlikuje. Ono u čemu se slažu obe strane je da je divajs lak za upotrebu, da ima malo koraka u izvođenju inhalacije, da su svi lekovi u jednom inhaleru, da ima brz pozitivan fitbek, da su potencijalne greške u toku korišćenja svedene na minimum, da je upotrebljiv u svim vremenskim prilikama i da ima razumnu cenu koštanja.

Abstract

Adherence implies conscious acceptance of the factual situation which refers to the listening of doctor's advice. The most common causes of poor adherence come from the patient, the disease, the method of treatment, the doctor himself, as well as socioeconomic factors. The examples of poor adherence relate to not taking the prescribed medicine, not adhering to the prescribed doses and time of taking the medicine, not following the recommendations for the way of taking the medicine and prematurely stopping the therapy. The consequences of poor adherence are worsening or progression of the disease, doctors' mistakes in assessing the course of the disease, and the success of treatment, inability to monitor the side effects of the medicine.

Improvements in adherence in patients with asthma and COPD can be achieved through behavioral intervention, education, and inhaler selection. The perfect device for the application of inhalation therapy includes low aerosol velocity and small particles (not yet made). Factors that participate in the deposition of inhaled drugs in the lungs are aerosol characteristics and patient-dependent factors. Aerosol characteristics include particle diameter, fine particle fraction, aerosol velocity, aerosol-cloud velocity and duration, lipophilicity, hygroscopicity.

Dependence on the patient includes inhalation maneuver (inspiratory volume, inspiratory flow, and air retention), airway involvement – i.e., the severity of illness, acceptance of the device, compliance, etc. Depending on the size of the particle in the aerosol, there are three mechanisms of their delivery to the diseased airways: impaction, sedimentation, and diffusion. Higher inhalation volume implies better drug deposition. Slow inspiratory flow involves better penetration of the medicine into periferal aiways.

Instructions for the proper use of inhalers could generally be based on certain postulates. When it comes to the volume of inhalation - a light deep exhalation, and then a deep inhalation Airflow: for pMDI and SMI gradual slow and deep inhalation for 4-5s. In the case of DPI strong deep and strong inhalation. Holding air (regardless of the chosen device) for 8-10 seconds, and then a light exhalation.

When it comes to a perfect inhaler, the opinions of doctors and patients differ greatly. What both sides agree on is the device should be easy to use. There should also be only few steps in the inhalation performance and all medications should be involved in one inhaler. It should also have positive feedback and all the potential erros should be minimized. The device should also be useable in all weather conditions and its price should be reasonable.