



INTERNATIONAL SCIENTIFIC AND PRACTICAL CONFERENCE

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In the collection of materials of the conference, the role and role of Science, Education and production in the era of globalization, the pressing problems of the issues of interaction of these processes, feedback on their solutions were presented by mature specialists of the field.

In addition, research on the scientific and practical topic, carried out in the economics, Exact Sciences, Natural Sciences and socio-humanities during the globalization period, information is presented in the scientific and practical fields, which includes the latest innovative technologies in the fields of production.

It can be argued that this collection is one of the specific intersections of current thoughts and innovative ideas of the world of science. This scientific and practical conference was actively attended by professors and scientific researchers engaged in scientific research in Uzbekistan and foreign countries. In increasing the position of the scientific and practical conference, the professors and teachers of domestic and foreign higher educational institutions made a significant contribution.

Professors and teachers of foreign higher educational institutions who actively participated in the work of the conference made a worthy contribution to the high level of interaction with scientists of our country. The processes of international cooperation with foreign countries and exchange with them in the field of Science in the era of globalization have a positive effect on the development of Higher Education, the fields of Science and production. The materials of this conference are special in that they include a wide range of research, from theoretical developments to practical solutions, demonstrating the diversity of approaches and directions in this area.

In conclusion, it should be noted that this scientific and practical conference will be a very useful collection for everyone who is interested in modern research in the fields of further development of Higher Education, Science, Education and production in the era of globalization. The authors are responsible for the content and quality of the articles and abstracts included in the collection.

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ALSGEYMER KASALLIGINING MOLEKULYAR MEXANIZMLARI

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Annotatsiya: Ushbu tezisda Alsgeymer kasalligining molekulyar mexanizmlari, patogenezi va kasallikni davolashda qo‘llanilayotgan zamonaviy yondashuvlar tahlil qilinadi. Alsgeymer kasalligi bilan kurashish uchun yangi tahlil metodlari, dori vositalari va klinik yondashuvlar ishlab chiqilmoqda.

Kalit so‘zlar: Alsgeymer kasalligi, beta-amiloid, tau oqsili, neurodegeneratsiya, oksidlovchi stress, neyroinflamatsiya.

Kirish: Altsgeymer kasalligi (AD) – bu nevrodejenerativ kasallik bo‘lib, uning boshlanishi va rivojlanishi vaqtida miya neyronlari o‘limga uchraydi. Asosan, eslash va boshqa kognitiv funksiyalarni ta'sir qiladi, bemorning kundalik hayotini qiyinlashtiradi. Kasallik 65 yoshdan katta yoshdagi insonlarda ko‘p uchraydi, lekin hozirgi kunda yoshroq yosh guruhlarida ham kuzatilishi mumkin. Altsgeymer kasalligi dunyo bo‘ylab 50 milliondan ortiq odamni ta'sir qilmoqda va bu raqamning har yili ortib borishi kutilmoqda. Kasallikning molekulyar mexanizmlarini tushunish, uni erta aniqlash va samarali davolash usullarini ishlab chiqish uchun zarurdir. **Beta-amiloid plakalari:** Beta-amiloid ($A\beta$) oqsili, amyloid prekursor proteini (APP) tomonidan ishlab chiqariladi va keyin gama-sekretaza va beta-sekretaza fermentlari yordamida parchalanadi. Ushbu parchalanish natijasida $A\beta$ qisqargan versiyasi hosil bo‘ladi. $A\beta$ oqsili oddiy sharoitda miya suyuqligida erigan holda mavjud bo‘lishi kerak, ammo Alsgeymer kasalligida uning to‘planishi va beta-amiloid plakalari hosil bo‘lishi sodir bo‘ladi. Bu plakalarning to‘planishi neyronlar o‘rtasidagi sinaptik aloqalarni to‘sadi va kognitiv qobiliyatlarning pasayishiga olib keladi. $A\beta$ plakalari miya hujayralariga ta'sir ko‘rsatib, mikrotubulalar va boshqa hujayra strukturalarini buzadi. Bu jarayonlar miya neyronlarining o‘limiga olib keladi. Tadqiqotlar shuni ko‘rsatadiki, beta-amiloid plakalari miya atrofiya va kognitiv buzilishlarning asosiy omillari bo‘lishi mumkin. Biroq, ba'zi olimlar $A\beta$ to‘planishining kasallikning boshlanishi emas, balki uning natijasi ekanligini ta’kidlamogda. **Tau oqsili va neurofibrilyar bog‘lamlar:** Tau oqsili miya hujayralarida mikrotubulalarni barqarorlashtirish uchun zarur bo‘lgan protein hisoblanadi. Altsgeymer kasalligida tau oqsili patologik tarzda fosforlanadi. Bu anormal fosforlanish, tau oqsilining mikrotubulalar bilan bog‘lanish qobiliyatini yo‘qotishiga olib keladi. Natijada, tau oqsili mikrotubulalar bilan bog‘lanmaydi va neyronlarda to‘planadi. Bu, o‘z navbatida, neurofibrilyar bog‘lamlarning hosil bo‘lishiga olib keladi. Neurofibrilyar tanglilar (bog‘lamlar) neyronlarning strukturasini buzib, ularning o‘limiga olib keladi. Tau oqsilining fosforlanishi, asosan, sinaptik plastisitetni va xotirani boshqaradigan hujayra ichidagi jarayonlarni

buzadi. Bu holatlarning to'plami Altsgeymer kasalligining rivojlanishiga bevosita ta'sir qiladi. Tau oqsili va beta-amiloid to'planishining birgalikda mavjudligi kasallikning rivojlanishini kuchaytiradi. **Oksidlovchi stress va yallig'lanish:** oksidlovchi stress, Altsgeymer kasalligining rivojlanishida muhim omil hisoblanadi. Kasallikning boshlanishi va rivojlanishi bilan miya hujayralarida reaksiyalangan kislorod turlari (ROS) va azotli oksidlar (NO) darajasi oshadi. Ushbu molekulalar miya hujayralarining membranalariga, lipidlariga, oqsillariga va DNK-ga zarar yetkazadi. Buning natijasida, mikroglia hujayralari va boshqa immun tizimi hujayralari faollashadi, bu esa neyroinflamatsiya jarayonini boshlaydi. Neyroinflamatsiya o'z navbatida, neyronlarning degeneratsiyasini kuchaytiradi va kognitiv qobiliyatlarning yo'qolishiga olib keladi. Altsgeymer kasalligi rivojlanishida mikroglia va astrositlarning faollashuvi, yallig'lanish moddalarining ishlab chiqarilishi muhim rol o'ynaydi. Shuningdek, oksidlovchi stressning kuchayishi miya hujayralarining genetik materialini shikastlantirib, ularning hayotiyligini qisqartiradi. **Cholinergik tizim va asetilxolin:** Cholinergik tizim, asosan, xotira va o'rganish jarayonlariga ta'sir qiladi. Asetilxolin neyrotransmitterining darajasining pasayishi Altsgeymer kasalligining rivojlanishiga olib keladi. Asetilxolin miqdorining kamayishi, asosan, cholinergik neyronlarning yo'qolishi bilan bog'liq. Ushbu neyronlar miya sohasidagi xotira va o'rganish markazlarini boshqaradi. Asetilxolinning pasayishi esa sinaptik uzilishlarga, kognitiv qobiliyatlarning yo'qolishiga va xotira buzilishiga olib keladi. Kasallikni davolashda cholinesteraza inhibitörleri (masalan, donepezil) qo'llaniladi. Bu dori vositalari asetilkolinning parchalanishini sekinlashtiradi va uning miya bo'ylab tarqalishini oshiradi. Biroq, bu davolash usullari faqat simptomlarni boshqarish uchun samarali bo'lib, kasallikning sababini davolamaydi. Genetik va ekologik omillar: Altsgeymer kasalligiga genetik omillar va ekologik faktorlar ta'sir qiladi. Eng muhim genetik omillardan biri APOE $\epsilon 4$ allelidir. Ushbu allele beta-amiloid to'planishini va tau oqsili modifikatsiyasini kuchaytirishi mumkin. Ekologik omillar, masalan, toksik moddalar, uzoq muddatli stresslar, va virusli yoki bakterial infeksiyalar kasallikning rivojlanishiga ta'sir qiladi. **Kasallikni davolash yondashuvlari:** Altsgeymer kasalligini davolashda beta-amiloid plakalari va tau oqsili to'planishining oldini olishga qaratilgan yondashuvlar ishlab chiqilmoqda. Yangi monoklonal antikorlar, masalan, aducanumab va gantenerumab, A β plakalari bilan bog'lanib, ularning miya bo'ylab to'planishini kamaytirishga harakat qilmoqda. Tau oqsili uchun esa, turli fosforlanishni inhibe qiluvchi dori vositalari ishlab chiqilmoqda. O'zingizni rivojlantirish va ijtimoiy yondashuvlar orqali kasallikni erta aniqlash va davolash uchun ko'proq ilmiy tadqiqotlar talab etiladi.

Xulosa: Altsgeymer kasalligi, uning molekulyar mexanizmlarini to'liq tushunish orqali yanada samarali davolash usullarini ishlab chiqish mumkin. Beta-amiloid va tau oqsili to'planishining, oksidlovchi stress va neyroinflamatsiyaning kasallikning rivojlanishiga ta'sir qilishi haqida chuqurroq bilimlarni olish, kasallikni davolashda yangi yondashuvlar yaratishga yordam beradi. Kasallikni erta aniqlash va davolashning samarali metodlarini ishlab chiqish, Altsgeymer kasalligiga qarshi kurashish uchun muhim ahamiyatga ega.

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