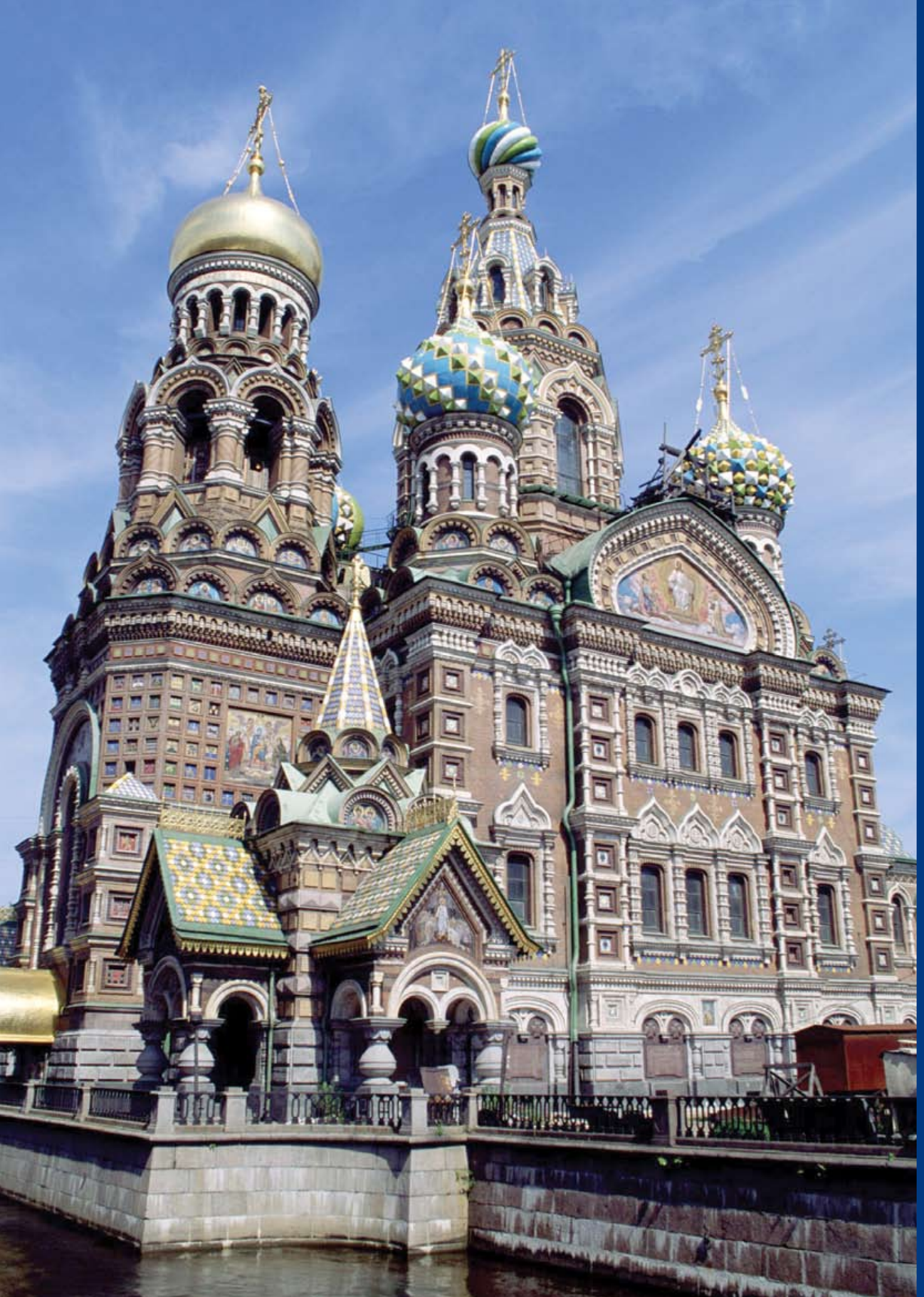

РОССИЯ • САНКТ-ПЕТЕРБУРГ • 27–29 • APRIL • 2007

INTERNATIONAL EASD POSTGRADUATE COURSE RUSSIA, ST. PETERSBURG

МЕЖДУНАРОДНЫЕ КУРСЫ ПОСЛЕДИПЛОМНОГО ОБРАЗОВАНИЯ ЕВРОПЕЙСКОЙ АССОЦИАЦИИ ПО ИЗУЧЕНИЮ САХАРНОГО ДИАБЕТА

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ДАВАЙТЕ ЗАГЛЯНЕМ В НЕДАЛЕКОЕ БУДУЩЕЕ!

В Санкт-Петербурге прошли Международные курсы повышения квалификации врачей, организованные Европейской ассоциацией по изучению диабета (EASD). Впервые Ассоциация предложила провести курсы на территории России и пригласить участников из различных регионов РФ и близлежащих стран, которые занимаются клиническими вопросами СД и его осложнений и не имеют возможностей регулярно посещать крупные европейские конференции и конгрессы.

- Наверное, не случайно наша встреча состоялась в городе Петра, прорубившего окно в Европу, - улыбается ответственный секретарь Оргкомитета, профессор **Ирина Гурьева**. – Ее участники – а это более 150 молодых специалистов – здесь, в Питере, «прорубают окно» в сокровищницу современных знаний и опыта, получая возможность непосредственного общения со «светилами» европейской и мировой диабетологии. Убеждена, что это даст мощный толчок в их дальнейшем профессиональном развитии и вовлечении в мировое научное сообщество.

Со стороны EASD, действительно, прибыл «цвет» европейской профессуры, и программа курсов была построена так, чтобы лучшие представители ассоциации не только читали лекции, но и проводили семинарские занятия по практическим вопросам ведения больных, а также обсуждения научных работ, представленных участниками из регионов в виде постеров (плакатов с основными тезисами исследования на английском языке). Кстати, об английском. Он звучал во всех аудиториях, и было приятно сознавать, что наши молодые врачи, даже из самых отдаленных районов страны, свободно владеют языком и могут общаться со своими зарубежными коллегами.

На престижных сертификатах, которые выдавались каждому участнику курсов, стояли четыре подписи их главных организаторов: со стороны EASD – профессоров Эндрю Боултона и Джона Нолана, возглавляющих комитеты последипломного образования в рамках Европейской ассоциации; со стороны России – профессоров Александра Аметова и упомянутую выше Ирину Гурьеву, представляющих локальный оргкомитет от Российской медицинской академии последипломного образования.

Важные акценты от EASD

СД типа 1. Здесь, как отметил профессор **Дэвид Керр**, есть хорошие новости. Число пациентов с сосудистыми осложнениями значительно уменьшается, что связано с внедрением интенсифицированной системы обучения и новыми технологиями лечения. «Мы должны сделать пациентов независимыми от постоянного контроля специалистов, - подчеркнул он, - в этом главный смысл обучения».

Один из ключевых элементов обучения – мониторинг гликемии. Сейчас появляются более совершенные системы мониторирования, например, американская Guardian RT, которая информирует пациента о гипергликемии и гипогликемии в режиме реального времени и позволяет быстро реагировать на колебания уровня сахара крови. Недавно проведенное исследование с участием 362 пациентов с СД типа 1 – как взрослых, так и детей – показало значительное снижение у них уровня гликированного гемоглобина в течение трех месяцев.

СД типа 2. В зависимости от более высоких возрастных групп, сообщил профессор **Джон Нолан**, шанс заболеть СД типа 2 увеличивается: так, у людей после 70 лет такая вероятность составляет 70%. Говоря о расходах на диабет, он отметил, что, например, в Ирландии 61% такого бюджета приходится на лечение осложнений. Лечение одного пациента с осложнениями при типе 1 обходится дороже в 10 раз, чем пациента без осложнений, а при типе 2 – соответственно в 19 раз. В этой связи профилактика СД типа 2 особенно актуальна – она позволит не только сохранить людям здоровье, но и избежать

огромных трат на лечение самого заболевания и, как вторая волна, - его поздних осложнений.

Нередко лечение больных СД типа 2, указал профессор **Александр Аметов**, начинается тогда, когда 80% из них уже имеют поздние осложнения, а функция бета-клеток снижена наполовину, наряду с уменьшением их общей массы. Но что еще важнее – по мере длительности заболевания все более ухудшаются результаты. И здесь наиболее перспективный путь – это многофакторный подход к лечению и ранняя, то есть своевременная, инсулинотерапия, обеспечивающая компенсацию диабета.

Ожирение – серьезный фактор развития СД типа 2: у людей с ИМТ > 35 кг/м2 риск заболеть СД типа 2 составляет 42%, то есть почти каждый второй тучный человек приобретает «сахарную болезнь». В то же время уменьшение веса на 5 кг, согласно результатам финского исследования по профилактике диабета, снижает вероятность развития диабета на 25%.

Тревожная тенденция – лишний вес все больше отмечается у детей, подростков и молодых людей во всех частях света. Удивительно, но при сравнении молодых и пожилых пациентов с СД типа 2, проведенном в клинике профессора Нолана в Дублине, оказалось, что в первой группе со средним возрастом 35 лет более высокие параметры ожирения (ИМТ = 33,3 кг/м2), чем в группе пожилых со средним возрастом 62 года (ИМТ = 30,7 кг/м2).

И еще такой факт: половина пациентов с СД типа 2 – это типичный метаболический синдром с целым букетом рисков сердечно-сосудистых заболеваний.

О генетике СД типа 2. В последние годы появились новые данные. Открыт ген TCFL 2 на хромосоме 10, непосредственно повышающий риск развития второго типа, - это результат длительного и сложного исследования с участием различных этнических групп. Еще несколько новых генов – в поле зрения ученых. Получено много интересной информации о генах, ответственных за патогенез СД типа 2, которая, как ожидается, поможет предупреждать этот недуг.

СД: прогнозы и сюрпризы…

В этом столетии, предупредил профессор **С.Кумар** (Великобритания), основной упор будет сделан на предотвращении СД и его осложнений. Уже появляются новые, не виданные прежде классы препаратов для профилактики и лечения самого диабета, предупреждения развития ожирения. Одни из первых революционных препаратов – уже с нами, это аналоги GLP-1; на пути становления – генетические пилюли, призванные вносить в организм генетический материал.

Будет перестраиваться вся система медицинской помощи, с акцентом, прежде всего, на команды специалистов; совершенствоваться структура обучения – ведь если не объединять усилия врачей и пациентов, мы перестанем двигаться вперед; наконец, укрепляться международное сотрудничество.

Можно прогнозировать, отмечалось на курсах, 4 сценария, по которым станет развиваться в следующие 20 лет на Земле наша борьба с диабетом:

- продолжать то, что мы делаем сейчас;
- создать новые феноменальные лекарства;
- ввести эффективную систему контроля над СД со стороны правительств;
- измениться самому обществу таким образом, чтобы поставить заслон распространению диабета.

Скорее всего, на практике это будет гибридный вариант, который вберет в себя черты всех четырех сценариев.

Стремительно развиваются также технологии, способные помочь больным СД эффективнее справляться с коварным врагом, облегчать им управление болезнью, жить полноценной жизнью. Преимущества помповой терапии, на которых остановился

профессор **Дэвид Керр**, хорошо известны: это достижение целевых значений гликемического контроля, снижение частоты серьезных случаев гипогликемии, высокое качество жизни. Да, это дорогой метод, но со временем он, скорее всего, станет дешевле. Есть новейшие виды инсулиновых дозаторов, применение которых дает прекрасные результаты в лечении, защищает от осложнений. Например, так называемые смарт-помпы, позволяющие точно рассчитывать необходимые данному пациенту дозы инсулина.

Об использовании мобильных телефонов в лечебном процессе. Исследование на эту тему проходит сейчас в клинике Керра. Пациент, который, например, хочет точно знать дозу инсулина на прием пищи, может сфотографировать в своем телефоне определенные блюда, отправить «картинки» с их характеристиками в центр диасервиса, где компьютер займется подсчетами и вышлет на номер телефона ответ.

Еще круче идея – оборудовать для автовладельцев, страдающих диабетом, на руле их машины специальный глюкозосенсор, способный к раннему обнаружению гипогликемии. В США уже запатентовано такое устройство. Кроме того, при аварии и сработавшей «подушке безопасности» оно может передать сигнал в соответствующую службу, извещая о том, что пациенту с СД нужна помощь…

Диастопа – особая тема

Отдельная сессия на курсах посвящалась теме – «Диабетическая стопа: профилактика и лечение». И вновь звучал ставший уже хрестоматийным пример: каждые 30 секунд кто-то теряет ногу как следствие заболевания диабетом…

По словам профессора **Эндрю Боултона** (университет Манчестера, Великобритания), утрата чувствительности, определенной формы деформации и травмы стопы, выбор неправильной обуви приводят к развитию язв, для успешного лечения которых требуется мультидисциплинарный подход, то есть работа команды специалистов. Но и здесь первоочередной задачей должна быть профилактика. Можно реально снизить число ампутаций за счет выявления групп высокого риска и предупреждения язвообразования.

Большую роль играет организация специализированных клиник по лечению синдрома диабетической стопы. Так произошло, например, в Бразилии, где в 1992 году была лишь одна такая клиника на всю страну, а сейчас, благодаря внедрению специального проекта международных экспертов, там насчитывается около 60 подобных центров, и кривая ампутаций в стране резко пошла вниз. В Европе те же динамичные процессы проходят сейчас в Швеции и Голландии.

Об опыте России в данной сфере рассказала профессор **Ирина Гурьева**, возглавляющая Центр «Диабетическая стопа» Международной программы «Диабет» в Москве. В Центре лечат пациентов как из групп риска, так и непосредственно с язвенными дефектами. Здесь же действует научно-практическая Лаборатория лечебной обуви. В последние годы вошла в повседневную практику техника изготовления съемного каста и небольшого разгрузочного устройства. Проводится специализированное обучение больных, в результате чего в несколько раз снижается количество язвообразований, а также обучение врачей (в Центре прошли подготовку 132 специалиста из 65 городов России).

А вот данные, полученные от главного эндокринолога Москвы, профессора Михаила Анциферова: в результате организации специализированной службы, прежде всего 12 кабинетов «Диабетическая стопа» в окружных эндокринологических отделениях, количество ампутаций в столице уменьшилось за последние пять лет в 1,7 раза. Больших успехов добился также Центр «Диабетическая стопа» в Санкт-Петербурге.

Много делает в плане эпидемиологических исследований Эндокринологический научный центр РАМН. Его мобильный «Центр - Диабет», совершающий экспедиции по регионам

РФ, занимается скринингом осложнений диабета, внедрением передовых методов патогенетического лечения СД и его осложнений.

Главное правило при диабетической нейропатии, о чем говорили как в лекциях, так и на семинарах, при разборе конкретных клинических случаев, видные эксперты из Германии **Стефан Морбах** и **Дан Циглер**: чем раньше мы выявляем это осложнение – тем успешнее его лечение. Вот почему так важно проведение скрининга на нейропатию. Еще раз подчеркивалось эффективное воздействие тиоктовой, или альфа-липоевой, кислоты как антиоксиданта на восстановление функции периферических нервов и симпатических нервных волокон на фоне нейропатии при СД.

Пусть курсы станут традицией!

Таково единодушное пожелание всех участников Курсов EASD, делившихся своими впечатлениями от трехдневной работы в Санкт-Петербурге.

- Мы приехали из Ханты-Мансийского автономного округа – Югры, где летом минувшего года, при поддержке губернатора и правительства округа, началась реализация масштабного проекта «Управление диабетом», - говорят врач-эндокринолог, к.м.н. **Оксана Гурова** и детский эндокринолог **Елена Черткова**. – Мы учились на кафедре эндокринологии и диабетологии РМАПО под руководством профессора А.С.Аметова, и те программные установки, которые им разработаны при участии ведущих зарубежных ученых, как раз воплощаются в этом уникальном проекте, призванном повысить качество и продолжительность жизни всех наших 15 тысяч больных на основе внедрения новейших технологий.

Лишь такие примеры – все пациенты получают у нас бесплатно глюкометры и тест-полоски в нужном количестве; началось оснащение детей инсулиновыми помпами, впоследствии мы будем давать их социально активным, мотивированным пациентам; действует кабинет «Диабетическая стопа» в рамках современного Диабетологического центра в Ханты-Мансийске, а в труднодступных местах округа обследование пациентов и их обучение будут проводить выездные команды специалистов… Конечно, было бы здорово, если бы подобные проекты заработали во всех регионах России! В принципе у нас сейчас равные возможности с зарубежными коллегами. Что же касается обмена опытом и новых знаний, почерпнутых на этих курсах, всё это, несомненно, очень полезно для нашей работы.

- Очень интересное начинание – курсы EASD в России, - считает врач-эндокринолог **Лилия Молонова** из Улан-Удэ. - Мы убедились: у нас в республике те же проблемы с диабетом, что и в мире, и решать их надо на современном уровне. Мне довелось пройти цикл обучения в Центре «Диабетическая стопа» у профессора Гурьевой, есть у нас и сосудистый хирург, так что вскоре появится кабинет диастопы на базе эндокринологического диспансера.

В центре нашего внимания – и борьба с ожирением, и профилактика диабета типа 2. Мы выявляем много тех, кто и не подозревает о своем заболевании, в ходе общей диспансеризации работоспособного населения. По инициативе Центра медицинской профилактики в начале апреля мы провели Неделю диабета: каждый житель Бурятии мог прийти в любое медицинское учреждение, чтобы сдать анализ на сахар крови. Только в нашей поликлинике мы обследовали около 700 человек и выявили 20 пациентов со стадией предиабета и диабетом типа 2. Сейчас, после этих курсов, будем работать с удвоенной энергией!

- Наш кабинет «Диабетическая стопа» в Минске, - рассказывает его заведующий **Дмитрий Ромейко**, - появился в Белоруссии одним из первых, вместе с устройством таких кабинетов в России и Литве. – За прошедшее десятилетие мы выполнили задачу, поставленную Сент-Винсентской декларацией – снизить наполовину количество ампутаций нижних конечностей у больных СД. Уточню: если 10 лет назад у нас делалось

75% высоких ампутаций, то уже через 5 лет – их было лишь 1,8%, а ампутаций вообще – около 30%. Это достигнуто не только за счет организации подиатрической службы, но и благодаря систематическому обучению врачей, медсестер и самих пациентов. Результаты своей работы мы представили на постерном стенде на курсах. Невозможно переоценить значимость обмена опытом с ведущими профессорами – представителями EASD. Мы получили здесь ориентиры работы минимум на ближайшее пятилетие.

- Я закончила Северный государственный медицинский университет в Архангельске и работаю в городской больнице скорой помощи, сейчас готовлю свою кандидатскую диссертацию, связанную с проблемами диабетической нефропатии, - говорит врач-эндокринолог **Ольга Берденникова**. – Очень волновалась, когда представляла свой постерный доклад на обсуждение крупных европейских специалистов. Это исследование, основанное на данных регистра больных СД Архангельской области, ставило целью оценить распространенность диабетической нефропатии и ее выраженность, что имеет и несомненное социально-экономическое значение. За последние годы ситуация у нас с оказанием помощи больным СД, в том числе с почечными нарушениями, улучшилась, хотя, чтобы достичь показателей Европы, надо еще постараться.

О наших курсах могу сказать, что их уровень соответствует мировым стандартам доказательной медицины, а их эффективность бесспорна, особенно для молодых специалистов, которые стремятся совершенствовать качество медицинской помощи и профилактики.

- Тема моего постера: «Улучшение качества жизни у пациентов с диабетом», - сообщает врач-эндокринолог **Александр Петров** из Нижнего Новгорода. – Мы изучали влияние ожирения у больных СД типа 2 на качество жизни (КЖ), риск сердечно-сосудистых заболеваний и смертность.

Наблюдались 96 обычных пациентов в стационарах со средним показателем ИМТ = 33,8 кг/м2, им проводились общеклиническое обследование, а также специальные тесты. Среди выявленных факторов, воздействующих на КЖ, можно назвать уровень диабетической нейропатии нижних конечностей (чем лучше чувствительность, тем выше качество жизни), физическую тренированность и размер левого предсердия. Был сделан, в частности, такой вывод: более высокая степень ожирения присуща пациентам более молодого возраста и с меньшим стажем диабета и, соответственно, качество жизни у них ухудшается. Подтверждено также, что провокатором сердечно-сосудистого риска является не собственно вес пациента, а окружность его талии, то есть именно абдоминальное, центральное, ожирение.

Здесь, на курсах, мы получили замечательную возможность сравнить клиническую практику у «нас» и у «них», обдумать, куда мы идем и как не наделать ошибок, и в конечном итоге продвигаться вперед. За всё это – искренняя благодарность организаторам – EASD и российским профессорам.

Москва – Санкт-Петербург. ***Ольга Трофимова,***
спец. корр. «ДН»

Программа
Первых Международных Курсов повышения квалификации по клиническим проблемам сахарного диабета при EASD
Санкт-Петербург, 27-29 апреля 2007

Пятница, 27 апреля 2007

10.00 – 14.00 Регистрация

14.00 **ЦЕРЕМОНИЯ ОТКРЫТИЯ**

А. Аметов
A.J.M. Boulton
J. Nolan

Представители комитета здравоохранения - И.Карпова, Ю.Халимов

СЕССИЯ 1 - Сахарный диабет и метаболический синдром

Председатели: A.J.M. Boulton, И. Гурьева

15.00 СД 1 типа: состояние проблемы к 2007 году – *D. Kerr, UK*

15.30 СД 2 типа: состояние проблемы к 2007 году – *J. Nolan, Ireland*

16.00 Метаболический синдром и сердечно-сосудистый риск – I Raz, Israel

16.30 Значение дисфункции бета-клеток в патогенезе и лечении СД 2 типа – *А. Аметов, Россия*

17:00 КОФЕ-БРЕЙК

СЕССИЯ 2 – Современное лечение сахарного диабета

Председатели: A.Ametov, I.Raz

17.30 СД 1 типа: интенсифицированная инсулинотерапия, помповая терапия и самоконтроль - *D. Kerr, UK*

18.00 Оптимальное ведение СД 2 типа: уроки UKPDS - *S. Kumar, UK*

18.30 Новые методы лечения СД 2 типа – что уже близко? - *J. Nolan, Ireland*

19.00 Обучение пациента – основа управления диабетом. - *L. Vang, Denmark*

19.30 ЗАКРЫТИЕ

Суббота, 28 апреля 2007

СЕССИЯ 3 – Трудности в лечении диабета

Председатели: J.Nolan, D.Kerr

09. 00 Должен ли каждый пациент с СД получать статины и аспирин? - *I. Raz, Israel*

09.30 Артериальная гипертензия и липидные нарушения при СД. Уроки UKPDS - *S. Kumar, UK*

10.00 Диабет в период беременности: НТГ и предшествовавший диабет, диагностика и лечение - E. *Mathiesen, Denmark*

10.30 Кофе-брейк. Просмотр постеров.

СЕССИЯ 4 – Поздние осложнения диабета
Председатели: S.Kumar, L.Vang

11.30 Диабетическая нефропатия и артериальная гипертензия – *R. Gokal, UK*

12.00 Диабетическая нейропатия: соматическая и вегетативная – *D. Ziegler, Germany*

12.30 Диабетическая стопа: введение - A.J.M. *Boulton, UK*

13.00 ОБЕД

14.00 **3 ПАРАЛЛЕЛЬНЫХ СЕМИНАРА**

14.00-15.30 и 16.00-17.30
Каждый участник посещает **2** из **3** семинаров

1. Ведение пациента с СД 1 типа
   D. Kerr, И. Гурьева
2. Ведение пациента с СД 1 типа
   J. Nolan, А. Аметов, S. Kumar
3. Липиды / метаболический синдром
   I. Raz, О.Удовиченко

15.30 КОФЕ-БРЕЙК

Воскресенье, 29 апреля 2007

СЕССИЯ 5 – Диабетическая стопа: профилактика и лечение
Председатели: R.Gokal, S.Morbach

09.00 Диабетическая стопа: простой подход к скринингу и лечению. - *AJM Boulton, UK*

09.30 Диабетическая стопа – опыт России. Что может быть сделано? – *И. Гурьева, Россия*

10.00 Диабетическая стопа: новые методы лечения. – *S. Morbach, Germany*

10.35 КОФЕ-БРЕЙК

11.00 **Постерная сессия**

12.35 ОБЕД

14.00 **3 ПАРАЛЛЕЛЬНЫХ СЕМИНАРА**

14.00-15.00 и 15.00-16.00
Каждый участник посещает **2** из **3** семинаров

1. Нейропатия и диабетическая стопа
AJM Boulton, D. Ziegler, S. Morbach, И. Гурьева
2. Беременность при СД и здоровье детей
V. Petrenko
3. Обучение пациента / Роль диабетологической медсестры
L. Vang, Е. Суркова

16.00 КОФЕ-БРЕЙК

16.30 Финальная лекция: Сахарный диабет в следующие 20 лет – *S. Kumar*

17.00 Закрытие курса

Наши благодарности генеральным спонсорам за поддержку мероприятия:

Eli Lilly & Co.
GlaxoSmithKline
Merck & Co. Inc.

Вёрваг Фарма (Россия)
Плива Хрватска (Россия)

Мы также выражаем благодарность компаниям, чья поддержка сделала возможным проведение этого мероприятия:

Рош Диагностикс (Россия)
Никомед (Россия)

ОРГАНИЗАЦИОННЫЙ КОМИТЕТ:

Diabetes type 1

P1. Possibilities of Continuous Glucose Monitoring System (CGMS) in insulin therapy optimization in children and adolescents with type 1 diabetes mellitus

Prikhodina O., Aleksyushina L.
Omsk Regional Clinical Pediatric Hospital, Department of Pediatric Endocrinology, Omsk

Background: Glargin and detemir are basal insulin allowing improving metabolic control in children suffering from type 1 diabetes mellitus, but there are some problems in the clinical practice which are difficult to solve by physician and patient using the standard control of glucose in blood. Exploiting CGMS we can reveal hypoglycemia, postprandial hyperglycemia, and Aurora phenomenon.
Methods: CGMS (Medtronic MiniMed) has been conducted in 39 patients with type 1 diabetes mellitus with average age 5-17 years old (10.97±3,79), HbA1c 9,63±1,68%, 22 patients have been treated by glargin 0,41±0,11 Un/kg, 17 patients have been treated by detemir 0,54±0,11 Un/kg. Monitoring duration has been 6,5±1,9 days. Metabolic and clinical parameters have been re-estimated in three months. Statistic analysis: ANOVA, Mann-Whitney test.
Results: In 50% children with HbA1c>7,5 % insufficient dose of basic insulin has been determined, in group treated by detemir the dose increasing up to 0,63±0,25 Un/kg has been indicated, this increasing was statistically significant ($r < 0,05$). After insulin dose correction the improvement of glycemia rate on an empty stomach and during the day has been achieved ($r < 0,05$). Aurora phenomenon has been proved in 10% cases. Repetitive nocturnal hypoglycemia cases have been reported in 23% patients mainly from 2 a.m. to 7 a.m. After completing CGMS the patients have had more steady glycemic profiles ($r < 0,05$) and psychological readiness to further insulin dose changing. In 3 months HbA1 has reduced till 8,4±1,1 % ($r < 0,001$).
Conclusions: CGMS has confirmed that the basic insulin dose is insufficient in majority of patients. Asymptomatic nocturnal hypoglycemia has happened very often in children. HbA1 level has reduced in three months. This method is safety and convenient for a patient, it can be widely used on the out-patient and hospital stages.

P2.**Role of diabetic autonomic neuropathy for hypoglycemia unawareness in patients with type 1 diabetes mellitus.**

O. V.Svetlova, I.V.Gurieva
Federal Bureau of Medical and Social Expertise, Russian Medical Academy of Postgraduate Education, Moscow, Russia

Background and Aims: Diabetic autonomic neuropathy (DAN) may cause irreversible damage to glucose counterregulation. We conducted a study with long-term (>5 years) diabetic patients to assess the contribution of DAN in hypoglycemia unawareness.

Materials and Methods: 40 Patients (mean age 42±12 y.o) with type 1 diabetes of 24 ±11 years duration were included. Hypoglycemia unawareness was defined using special questionnaires and continuous glucose monitoring system (CGMS) and was scored as points (1-3 or more points) of hypoglycemia unawareness within 3-5 days. The presence of DAN was estimated by cardiovascular autonomic function tests by Ewing and scored (maximum 10) as being normal, pure parasympathetic lesion (DANp), pure sympathetic (DANs) or combined (DANps). HbA1c was measured.

Results: 18 Patients (45%) scored at least 1 point of hypoglycemia unawareness (by CGMS) and 6 patients (15%) had 3 or more points of hypoglycemia unawareness. Hypoglycemia unawareness was related HbA1c (r=-0,292, p=0,01) and diabetes duration (r=0,215, p=0,06). As many as 36 patients (90%) had abnormalities in cardiovascular reflex tests: 8 DANp (20%), 9 DANs (22,5%), 19 DANps (47,5%).

No relation was found between hypoglycemia unawareness and DAN for the whole group. Analysis showed a trend towards higher unawareness-scores in poorly controlled (HbA1c >8.5%) patients with DANs (p=0,096), and lower scores (i.e. more aware hypoglycemic symptoms) in patients with >20 years diabetes and DANp (p=0,04) (i.e. without sympathetic failure).

Conclusions: In this group of long-term diabetic patients, hypoglycemia unawareness is fairly prevalent and still mainly determined by HbA1c and diabetes duration. The contribution of DAN to hypoglycemia unawareness for the entire group was small, but DANs may become relevant in poorly controlled patients.

P3. Inflammatory markers is associated with early stages of diabetic nephropathy in type 1 diabetic patients

I. A. Bondar, V. V. Klimontov.

Novosibirsk State Medical University, Novosibirsk, Russia

Background and aim: Inflammatory mechanisms are believed to be involved in pathogenesis of diabetic nephropathy. The aim of the study was to assess the relation between urinary excretion of proinflammatory cytokines and diabetic nephropathy in type 1 diabetes.

Materials and methods: 57 patients were examined, including 22 normoalbuminuric (group DN0), 23 microalbuminuric (group DN1) and 12 macroalbuminuric ones (group DN2). Urinary excretion of interleukin-1beta (IL-1beta), monocyte chemoattractant protein-1 (MCP-1) and chemokine regulated upon activation, normal T-cell expressed and secreted (RANTES) was determined by ELISA and compared to control (10 helathy subjects). Renal structural changes was investigated in 8 normoalbuminuric and 10 microalbuminuric patients.

Results: IL-1beta excretion was increased in patients with micro- and macroalbuminuria as compared to control (DN1: $p=0.02$, DN2: $p=0.00008$). MCP-1 excretion exceeded control in all diabetic groups (DN0: $p=0.04$, DN1: $p=0.03$, DN2: $p=0.0006$). RANTES excretion was increased in patients with macroalbuminuria only (DN0: $p=0.84$, DN1: $p=0.21$, DN2: $p=0.0005$). In normoalbuminuric and microalbuminuric patients excretion of cytokines correlated with the width of glomerular basement membrane (IL-1beta: $r=0.69$, RANTES: $r=0.43$) and tubular basement membrane (IL-1beta: $r=0.73$, MCP-1: $r=0.47$, RANTES: $r=0.53$, all $p<0.05$). CD-68-positive cells (macrophages) were revealed in the interstitium (but not in glomeruli) in one normoalbuminuric and six microalbuminuric patients.

Conclusion: In type 1 diabetic patients increased urinary excretion of proinflammatory cytokines (IL-1beta, MCP-1 and RANTES) is associated with albuminuria, glomerular and tubular basement membrane width and occurence of macrophages in interstitium. This support the hypothesis that inflammation is involved in pathogenesis of diabetic nephropathy.

P4. Sympathetic Activation and Risk of Atherosclerosis in Patients with Diabetes Mellitus Type 1 (DM T-1).

Batrakova O.G., Strelkova A.V., Balandina K.A., Zykova T.A.
Northern state medical university, Arkhangelsk, Russia.

Background: To reveal correlation between high heart rate in rest in men with DMT-1and components of metabolic syndrome.
Methods: We investigated 27 men age 27.6±2.1 with DM T-1duration 1-20 years (average 6.3±1.2 years). Criteria of inclusion:lack of severe complications-diabetic nephropathy and microalbuminuria(MAU);retinopathy, except initial manifestations of nonproliferative stage. We estimated weight, growth, circumference waist, circumference thigh, BMI, index waist-thigh, blood pressure, heart rate after 15-minute rest; investigated lipid plasma levels: cholesterol, HDL-C, HbA1c. MAU was determined in 2 night portions when there was negative test on urine infection. Criteria of exclusion: clinical manifestations of neuropathy and atherosclerosis.
Results: 12 men had values of heart rate more than 85 beats per minute. Most of patients had decompensation of carbohydrate metabolism- high values of HbA1c 9,1±0,13% before investigation. We haven't revealed correlations between demographic and anthropometric data and heart rate in rest. Heart rate didn't depend on duration and compensation DM. Positive relations were between heart rate in rest and cholesterol (r= 0.49, p=0.04) and MAU(r= 0.55, p=0.02). Negative relation was between heart rate and HDL-C values (r= -0.55, p=0.02).
Conclusion: The presence of correlations between heart rate in rest in men with DM T-1and clinical markers of high risk cardiovascular diseases (cholesterol, HDL-C, MAU) is evidence of availability of sympathetic activation in this cohort and may be serves as earlier marker of atherosclerosis manifestation.
Finding: We confirm the role of heart rate in rest in men with DM T-1as characteristic concerned with proatherogenic changes of plasma lipid profile and MAUreflecting development of nephropathy, cardiovascular risk.

P5. Bone changes in children and teenagers with type 1 diabetes mellitus

Girsh Y.
The Surgut state university, medical faculty, Surgut, Russian Federation

Background. Growth of bone changes in structure of complications of a diabetes in children the previous years is connected with an increased interest to this problem and diagnostic opportunities.
Methods and Results. Result of complex inspection of 388 children with type 1 diabetes mellitus was allocation of the complex of diabetic osteopathy, including restriction of mobility of joints, foot bone deformation, decrease of bone mineral density. Diabetic hand syndrome met in 19.3% of cases primary defeat metaphalanx and interphalanx joints of the fifth fingers with development of scleroderma like syndrome. Diagnosed of mobility elbow joints (2.6%), a cervical cord of a backbone (2.8%), feet (5.4 %) and 1-st foes (6.8%). These changes to maked diagnosis at average duration of a diabetes 7.1±2.3 year, age of children 11.2±3.1 year. Foot deformations represented by flat footedness (18.1%) with index on Fridlyand 23±3.4. X-shaped foot deformation is diagnosed for 7.1% of patients in comparison with 2.6% of children in control group ($r < 0.05$). Skin thickenings (8.9%) is 6 times more freguent than in the group of comparison. Reduction of an angle of back bending of the first finger toe less than 40° is diagnosed for 6.8% of teenagers, restriction of mobility of an ankle joint for 5.4% of children, hypermobility of joints in 24.1% of cases. At 2 children the generated diabetic stops are revealed. Bone mineral density of children with a diabetes and bone changes was decrease at 75.8%.
Conclusions. Analysis of frequency of bone complications in children with type 1 diabetes mellitus within the territories of Western Siberia enabled to calculate parameters of association between investigated influence (diabetes) and effect (bone complications). The risk of development of bone complications in group with a diabetes is 4.3 times higher, than in children without this disease. Attributive risk - 76% ($r < 0.001$).

P6. Lipid peroxidation and antioxidant protection in patients with diabetes mellitus 1 type during reproductive system development

Bardimova T.P., Kolesnikova L.I., Darenskaya M.A., Petrova V.A., Kornakova N.V.
Institute of pediatrics and human reproduction, SC ME SB RAMS, Irkutsk, Russia

The objective of our research was to study the state of lipid peroxidation and antioxidant protection in patients-girls with DM 1type considering stages of reproductive system development. Spectrophotometric and fluorometric methods were applied. There were formed 3 age groups: prepubertal, adolescent, and juvenile periods.

To evaluate state of process of lipid peroxidation and antioxidant system we applied the coefficient of oxidative stress that represented ratio of lipid peroxidation products to general antioxidative blood activity. It has been determined that maximum increase of this coefficient (1.16) as against other groups there takes place in prepubertal period. May be it is because manifestation of DM1 and initial intensive hormonal changes took place precisely at this age. Besides we studied different prooxidant indices indication intensity of lipid peroxidation processes on different stages. It was determined that highest activity in adolescent period was observed on initial stages of the process (ratio of diene conjugates to double bonds constitutes 0.98) at the same time prepubertal and juvenile periods are characterized by tension on secondary stages (ratio of malonic dialdehyde to diene conjugates constitutes 2.18 and 2.37 respectively). We marked also that general antioxidant activity of blood has least parameter in prepubertal period.

Thus prepubertal period is characterized by most severe state of lipid peroxidation process – antioxidant protection.

P7. Specfic features of oxidative stress in patients with diabetes mellitus type 1 living in Buryat Republic

Bardimova T.P., Kolesnikova L.I., Petrova V.A., Darenskaya M.A.
Institute of pediatrics and human reproduction, SC ME SD RAMS, Irkutsk

Notion of “oxidative stress” is used for evaluation of state pro- and antioxidant relations in the system of free radical ixidation in particular lipid peroxidation. Patients in stage of sub- and decompensation aged 18-61 years entered the study. They were diveded into two groups following the ethnicity: Russians (27 subjects) and Buryats (38 subjects).

The objective of our research was to study lipid peroxidation and antioxidant state in patients with diabetes mellitus 1 type (DM-1) belonging to different ethnic groups.

Lipid peroxidation products and antioxidant state were detected applying conventional methods. Degree of oxidative stress was evaluated by coefficients of oxidability of lipid substrates and ratio of pro- and antioxidant factors.

In Buryats as compared with Russians lipid peroxidation has less intensely course that is proved by 1.5 lesser coefficient of lipid oxidizability (ratio of substrate to peroxidation products). Low level of lipid peroxidation in Buryats with DM-1 is conditioned by elevation of general antioxidant activity. At calculating the coefficient of oxidative stress it was revealed that in this patients’ group it was nearly twice less.

Thus it was determined that lipid peroxidation processes and manifestation of oxidative stress at diabetes mellitus 1 type have ethnic specific features that must be taken into consideration in the performance of preventive and treatment measures.

The agonist of Il-Imidazoline receptors (moxonidine) in treatment of hypertension in patients with type 2 diabetes mellitus

Diabetes type 2

P8. Prevalence of undiagnosed types of impared glucose regulation and type 2 diabetes in population with risk factors of diabetes development in Dniester region (Moldova)

N.V. Mikrukova**,** I.S. Rivilis, Smokova N.N., Zarichkovay T.I., Kostenuk O.I., Republican Clinical Hospital, Endocrinology Department, 33 Mira str., 3300 Tiraspol, Moldova

Background and Aims: It's very clear, that late diagnose of IGR and type 2 diabetes leads to severe complications of this disease. Prevalence of IGR and type 2 diabetes mellitus among population with risk factors of diabetes development remains unknown. Therefore we performed study to investigate this problem in Dniester region of Republic of Moldova.

Materials and Methods: We examined 568 healthy subjects aged 18-65 years with high risk of developing type 2 diabetes such as heredity history, obesity, arterial hypertension.

Fasting capillary glucose (FCG) was analysed with a glucometers One touch basik and One touch II (LIFESCAN product). In people with FCG value 5.6-6.0 took place determination of fasting glucose concentration in plasma. Unless the fasting-value is ≥ 7 mmol/l, the person is given a drink containing 75 g glucose. Second determination the plasma glucose – 2 hours after the first one. Weight, heigt, waist circumference (WC), BMI, systolic and diastolic blood pressure (SBP and DBP) were calculated. All subjects, recruited in this trial have received preliminary information about diabetes prevention by lifestyle modification, they were instructed to keep a food and physical activity diary.

Results: We found that normal glucose metabolism had 368 (64,8%) subjects. Type 2 diabetes was diagnosed in 80 (14,1%) subjects with average glucose value M±m 15,5±1,53. IFG was diagnosed in 18 (3,2%) observed subjects and IGT in 102 (17,9%) subjects. HbA1c level in the group with type 2 diabetes was 10,57±0, 56% and in the second group with IGR 7,34±0,23%. Age-adjusted prevalence of obesity (BMI≥30kg/m^2), arterial hypertension (SBP≥140 mm Hg and/or DBP≥90 mm Hg) was significantly higher in subjects with abnormal glucose metabolism compared with normoglycemic individuals ($p<0,001$).

Conclusion: This study shows that screening among cohort with risk factors of type 2 diabetes is very efficient method for early diagnostic of abnormal glucose metabolism, which could prevent and delay the development of type 2 diabetes in individuals at high risk.

P9. Correlations between some parametrs of glucose control and blood pressure studied by Continious Glucose Monitoring System

M.V.Mirzazada
VM Centre of Endocrinology, Diabetes and Metabolism, Baku, Azerbaijan

Introduction. Diabetes Mellitus (DM) and Arterial Hypertension (AH) are interrelated diseases that, if untreated, strongly predispose the patient to atherosclerotic cardiovascular disease and renal disease (Shernthaner, 2003). Pathophysiologic basis of there frequent combination is not quite known.

The **purpose** of this research was to investigate correlations between glucose control and blood pressure at patients with DM type 2.

Materials and Methods. 18 patient with DM type 2 (9 women and 9 men) were studied. 8 women and 6 men had AH. Systolic pressure (SP) was 140.3 ± 16.84 mmHg and diastolic pressure (DP) was 87.5 ± 8.27 mmHg. Continuous glucose monitoring was hold by CGMS (Medtronic,USA). Mean, minimal and maximal glucose levels for period of investigation were measured.

Results. Mean glucose level was 169.9 ± 40.95 mg/dl. There was no correlation between mean glucose level and SP. Mean glucose level correlated with DP ($r = +0.50$; $P < 0.05$). Minimal glucose level was 89.1 ± 44.00 mg/dl. Minimal glucose level did not correlate with SP and DP. Maximal glucose level was 288.5 ± 67.42 mg/dl and correlated with SP ($r = +0.32$; $P < 0.05$) and DP ($r = + 0.43$; $P < 0.05$).

Discussion. The established correlation between mean glucose level for period of investigation and DP, maximal glucose level for period of investigation and SP, DP can be viewed as a basis for understanding interrelation between DM and AH.

P10.The agonist of Il-Imidazoline receptors (moxonidine) in treatment of hypertension in patients with type 2 diabetes mellitus

Aksenov K.V., Trusov V.V., Marizin S.A.
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The aim of the study was to evaluate effect of Physiotens (moxonidine) long-term follow up treatment in Type 2 diabetic patients with hypertension. In this study 83 mild to moderately hypertensive type 2 diabetic patients (M/F 34/49, 44-60 years) were treated for 6 month with Physiotens in dose 0,4-0,6 mg given in the morning (1-2 time daily). Following parameters were measured at baseline and after 6 months of treatment: 24-hour blood pressure monitor, glycated haemoglobin A1c, glycemic profile and insulin resistance.
By the end of treatment the systolic arterial pressure was significantly reduced by 14.1% ($p<0.01$) and diastolic – by 12.9% ($p<0.05$). The monitoring of blood pressure established the maximum decrease in 3 weeks of treatment. It was great decreased in the morning ($p<0,01$). The single – shot moxonidine acceptance in dose 0.4 mg decreased the level of noradrenalin ($p<0.01$) and renin activity ($p<0.01$). Also insulin resistance ($p<0.05$), amplitude of average daily glycemia ($p<0.05$) and glycemia index ($p<0.05$) were decreased. Physiotens decreased the index mass of body (33.1 ± 1.2-28.4 ± 0.9 кг/м2; $p<0.05$).
The results of our study suggest that the therapy of Physiotens (moxonidine) has significant effect on the reduction of arterial hypertension and insulin resistance. These results let us to recommend using Physiotens as a basic drag in treatment of hypertension in patients with type 2 diabetes mellitus.

P.11 Effect of treatment for diastolic dysfunction in diabetic patients with carvedilol as compared with fosinopril

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Background: Left ventricular diastolic dysfunction has been considered to be the first preclinical marker of diabetic cardiomyopathy. Evidence from large clinical trials has shown that ventricular function can be improved by ACE inhibitors and ß-blockers. However, currently there is not any finding about the drug's effect on diastolic filling in diabetics. The purpose of this study was to investigate the effects of carvedilol vs fosinopril on early left ventricular diastolic dysfunction in diabetic patients without overt heart disease.
Methods: 56 patients with diabetes mellitus type 2 with glycosylated hemoglobin (HbA1c) 7,3±1,2% were randomised either carvedilol (n=28) or fosinopril (n=28). Oral glucose-reducing therapy was adjusted before and was constant during the study. All patients had evidence of diastolic dysfunction with preserved left ventricular systolic function. LV function assessed by standard echocardiography with using Valsalva maneuver and tissue Doppler imaging at baseline and after 4 months of treatment. Diastolic dysfunction diagnosed if one of following signs was found: mitral flow E/A ratio < 1,0, mitral flow E/A ratio during Valsalva maneuver < 1,0 and mitral valve fibrous annulus velocity < 8,0 sm/s.
Results: The both groups showed an increase of mitral valve fibrous annulus velocity, which was found to be the most sensitive marker of diastolic dysfunction (+0,9 ± 1,0, p = 0,001 for carvedilol group and +0,8 ± 0,8, p = 0,002 for fosinopril). The both groups also demonstrated a decrease of HbA1c (-0,2±0,4, p=0,135 for carvedilol group and -0,7±0,8, p=0,005 for fosinopril).
Conclusions: Patients in both the carvedilol and fosinopril groups showed a significant improvement of diastolic function. Glycemic control also was improved in both groups. It appears that diabetic patients would benefit from more aggressive preventive therapy.

P12. **U-like Association of Glycemic Control with Severity and Prognosis of Heart Failure in Type 2 Diabetes.**

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Background: The combination of type 2 diabetes and congestive heart failure (CHF) is a widespread syndrome. Glycemic control is associated with microvascular events, but its effect on the prognosis of CHF is not well understood. We examined the association between HbA1c and the prognosis for diabetic patients with CHF.
Methods: We conducted a observational cohort study. The cohort included 66 patients with type 2 diabetes and CHF. The patients were observed during 12 months. Severity of CHF was estimated by the level of pro-atrial natriuretic peptides (proANP). Glycemic control was estimated by HbA1c.
Results: The cohort was divided into three clusters. The first cluster included patients with HbA1c below 6.5 %, the median of proANP in it was 14633 fmol/ml (interquartile distance 7530 – 25000). The second cluster included patients with HbA1c 6.5 – 9.5 %, proANP in it was 5775 (3773 - 7945). The third cluster included patients with HbA1c above 9.5 %, proANP in it was (5359 – 14885), p = 0,004. The patients with HbA1c 6.5 – 9.5 % were characterized by better 1-year`s survival than patients who had HbA1c outside of this limit: 0.88 against 0.71 (p = 0.014).
Conclusions: The severe decompensation of glycemic metabolism (HbA1c > 9,5 %) and relatively low level HbA1c (HbA1c < 6,5 %) are associated with severe heart failure and poor prognosis.

P 13. About the issue of sugar-reducing therapy of the patients with type 2 diabetes and Q-constitutive myocardial infarction

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Insular diabetes (ID) is the one of the major factors of cardiovascular diseases risk. It is known that about 60% of all death events of the patients with type 2 diabetes are caused by cardiovascular system lesion, and myocardial infarction (MI) occurs four times more frequently and proceeds with more serious complications than among patients with normal carbohydrate metabolism. The issue of sugar-reducing preparations (SRP) group more frequently taken by patients before MI development and their daily dose is not adequately explored yet.
Research aim: to estimate SRP therapy of the patients with Q-constitutive MI.
Materials and methods: data of the region ID patient register version 3208 of 2006 year, data of Kuzbass cardiological dispensary (KCD) – case histories of the patients with type 2 diabetes and Q-constitutive myocardial infarction were used.
Findings of investigation: In Kemerovo 8654 patients with type II diabetes were registered, and 68% of them had obesity. In 2006 the mortality of the patients with type II diabetes totaled 4,7%. The cause of death of 30% patients was MI. The analysis of sugar- reducing therapy of KCD patients showed that 82% of them took an average daily dose of glibenklamide (7,7 mg), 2% - gliklazide (66 mg), 8% - insulin (aktrapid – 18,14 units daily, protaphane – 21,7 units daily), 7% had combined therapy, 1% - dietotherapy. The majority of patients took the glycemia level irregularly and had hypoglycemia episodes mostly at night. 52% of patients had MI developed against the background of night hypoglycemia.
Conclusions: 1.The majority of patients with type II diabetes and transmitted MI had excessive body weight (68%).
2. The sulfanylureas was the most frequent sugar-reducing therapy preparation before MI development (84%).
3. More than half of the patients with type II diabetes and MI had night hypoglycemia.
4. The majority of patients with type II diabetes had MI developed against the background of night hypoglycemia (52%).
5. The patients with type II diabetes should more widely use byguanids as a sugar- reducing therapy.

P 14. Insulin glargin use in overweight type 2 diabetic patients. «Treat to a New Target: HbA1c < 6.0%». Seven simple rules to achieve ideal glucose control

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Objective: The aim of the study was to compare 3 different approaches to diabetes treatment (insulin glargin + 1 to 3 boluses of ultra short acting insulin; premixed insulin; intensified oral triple therapy with sulfonylurea and PPR□γ-agonists) in type 2 diabetic overweight patients with ineffective oral therapy.
Methods: In this retrospective study, we compared glycaemia level, based on HbA1c value, safety of treatment (frequency and severity of hypoglycaemia), weight gain and therapy cost using different approaches to treatment in 361 overweight type 2 diabetes mellitus (BMI $\geq$ 30 kg/m^2) patients with median age of 56 years. These parameters were assessed every third month for 3 years (from 2005 till 2007) in 2 different groups of overweight type 2 diabetic patients: group 1 with ineffective therapy with metformin (145 patients), group 2 with ineffective combined therapy with metformin + sulfonylurea (216 patients). Approximately 47% patients were treated with insulin glargin + 1 to 3 daily boluses of ultra short acting insulin, 38% - with premixed insulin and 15% - with intensified oral triple therapy with sulfonylurea and PPR□ γ - agonists.
Results: The most effective (median HbA1c value of 5.6 % in the end of study), safe (frequency of hypoglycaemia < 0.001 hypo/month per patient) and economical (median cost 28 euro/month per patient) without weight gain due to low insulin dose (median 8 IU) was the combined therapy with insulin glargin + metformin in patients with ineffective previous therapy with metformin per se (group 1).
Conclusions: 1. Start the treatment of overweight diabetes mellitus type 2 patients at «prediabet» stage with maximum tolerated dose of metformin, half of which taken in the evening. **2.** If the fasting blood glucose value exceeds 6.1 mmol/l, start insulin glargin in 10 IU daily dose. **3.** Use only glargin injections in evening time before sleep. **4.** Actively titrate glargin dose to achieve fasting blood glucose target value **5.** If glargin dose exceeds 20 IU then assess postprandial daily blood glucose profile. **6.** If postprandial blood glucose exceeds 7.5 mmol/l, then add short-acting insulin glulisine or insulin aspart before meal associated with maximal postprandial blood glucose value. **7.** If HbA1c value exceeds 6.1%, add prandial insulin glulisine or insulin aspart before each meal.

P 15. Cases of diabets of different types in the young

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Case 1. of diabetes 2 in the young.

Patient P., male, 24 years old, complained on thirst, feeling of dryness the mouth. Whole capillary blood tests on glucose before eating were done in the different days during 6 month. The results are 5.9-6.8 mmol//. Patient's mother suffers from diabetes type 2. Patient's status praesens: height 184 cm, weight: 78 kg, WHI=0.9, weight is stable. Blood pressure is from 130/80 to 120/90. Heart tones are rhythmical. The patient has not got oedemata. Breath sounds are vesicular. Data of status praesens and general clinical tests are not special. Tests were done on C-peptide: 5.1 (normal 1.0-5.0). Antigenenses to cells of Langerhans have not been found. Diabetes type 2 have been diagnosed.

The patient received metphormine 500 1 pill per night. The patient feels better. His tests results have improved.

Case 2. of first revealed diabetes of patient K, female, 19 years old with accompanying polycystic ovary syndrome.

The Patient was treated for psoriasis in dermatological ward where high level of glucose in blood (13.9 mmol//) was first found. Patient had no complains considered herself healthy enough, however, she mentioned that she had problems with menstruate cycle: rare menstruations combined with menorrhagia. As a result of anamnesis it is known that patient's mother suffered from diabetes type 2 and received injections of insuline.

Status praesens: height 164 cm, weight 130, stable, WHI – more than 1. Hypertrichosis. Oedemata of feet. Blood pressure is from 150/100 to 130/90 (on the background of therapy of iACF and β-blockators.

Clynical blood tests showed that hemoglobin is low (93)., glucose is from 13.4 to 18.7, ketonuria test is negative, C-peptide: 5.2 (normal – 1-5). Formula of blood is not special. As a result of echography of genitalia polycystic ovary syndrome was found.

On the background of treatment with metphormine there still was high level of glucose in blood up to 14.7-18.0 mmol//. Therapy with metphormine was abolished. The patient received insuline in regime of intensive therapy.

Complications.

P 16. Influencing Factors on Ulcers' Healing in Patients with Diabetes Mellitus

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Background: to reveal influencing factors on ulcers' healing in diabetic foot syndrome.
Materials and methods: 3 months we observed rates of ulcers' healing in 40 patients with diabetes mellitus type 1 and 2 who received standard therapy: antibiotic therapy, hyperkeratosis removing, local therapy. We determined compensation of carbohydrate metabolism, biochemical examination, investigated humeral-malleolar index, foot rontgenography and bacteriological investigation.
Results: 58% ulcers healed. Wound size (Score=13.13,p=0.00), lower humeral- malleolar index (Score=6.91,p=0.01); anemia (Score=4.66, p=0.03) are the predictors of absence of ulcers' healing by logistic regression. Ulcers in obese patients healed more slowly (Score= 5.74, p=0.02) with bigger wound surfaces (Score=4,90, p=0.03), combined influence of these factors was significantly (Score=6,67, p=0.04). Ulcers on fingers did not healed with lower humeral- malleolar index (Score= 4,98, p=0.026), rontgenography features of distal osteoporosis (Score= 6,71, p=0.01), combined influence of this factors was certainly (Score=7,76,p=0.02). The rate of ulcers' healing located on low part of shank depends on wound size (Score= 5,67,p=0.02). Correlation analysis showed that wound size and degree on Wagner score had return mean force relation with hemoglobin (r = - 0.400, p = 0.035), and right relation with duration of diabetes mellitus (r = 0.348, p = 0.045) and creatinine level (r = 0.345, p = 0.048).
Conclusion: the rate of ulcers' healing depends on wound size, anemia, obesity, distal osteoporosis, lower humeral- malleolar index, duration of diabetes mellitus, creatinine level, varicose.

P 17. The efficacy of foot high pressure point unloading using from patients with neuropathy trophic foot ulcers

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Background and aims: valuation of combined treatment clinical efficacy neuropathic ulcers from patients with Diabetic foot syndrome (DFS).
Material and methods: We observed 48 patients (64% Type 2 diabetes mellitus) had neuropathic form of DFS (group1) which had the neuropathic ulcers of the foot and fingers. All of these patients were treated using various methods of the foot high pressure point unloading (silicone protectors between toes (15 (31.3%)), orthopedic foot insoles (29 (60.4%)) and removable contact cast (4 (8.3%)). We also observed 32 patients which gave up their foot unloading (group 2). The patients of both groups were involved in podiatric examination, surgical treatment (debridment), antibiotic therapy, blood glucose and plantographic examination (Harris & Beath mat). Besides, patients of gr.1 were involved in foot and insoles checking and correction once a week directly on the podiatric examination. All patients were observed during 2 years. We appreciated a number of healed wounds during 6 months, duration of healing, rate of diameter ulcers reducing, recurring ulcers appearing during a year after healing primary ulcers.
Results: The averages of HbA1c, neuropathy disability score (NDS), diameter and depth of primary ulcers had no statistic difference and it were: 9.2 ± 0.04, 19.1 ± 0.28 (NDS), 22 ± 1.70 mm, 3.5 ± 0.28 mm in group 1 and 9.3 ± 0.06, 19.9 ± 0.31 (NDS), 23 ± 2.25 mm, 3.4 ± 0.27 mm in group 2 respectively. From patients of group1 92 % ulcers were healed during 6 month, whereas only 34% in the group 2 were. The averages of the healing time was 86,90±2,90 and 152,60±4,80 respectively (Kolmogorov-Smirnov= 0.9479). The rate of ulcers healing in the group 1 was more high then in another group. The averages were: 0,25 ± 0,01 mm\24 hours. and 0,15 ± 0,01 mm\24 hours respectively (Kolmogorov-Smirnov= 0.4688). Only four patients (8.3%) of group 1 and 17 (53.1%) patients in group 2 had recurring ulcers appearing during a year after healing primary ulcers. At the same time all group 1 patients were continuing unloading of their foot during all time after healing ulcers.
Conclusions:
1. The high pressure point unloading of the foot is the imperative part of neuropathic ulcers treatment.
2. The choice of the foot unloading method depends on osteoarthropathy intensity, localization and size of the trophic ulcers.
3. Using of the foot unloading routinely, during long time period prevents recurring ulcers appearing on the foot in the future.

P 18. Diabetic peripheral neuropathy in patients with type 2 diabetes and in cohort with IGT.

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The prevalence of diabetic peripheral neuropathy in patients with newly diagnosed type 2 diabetes and in cohort with IGT remains unknown. Therefore we performed study to investigate this problem in Dniester region of Republic of Moldova. We examined 120 patients with newly diagnosed type 2 diabetes and 80 patients with IGT aged 40-65 years.

Neurological Disability Score (NDS) permitted us to detect peripheral neuropathy stages.

Besides that we studied HbA1c level, plasma lipids, BMI, presence of microalbuminuria.

Statistical analysis was performed using Fisher test.

Results: We found that DPN was present in 82 (68,3%) patients with newly diagnosed type 2 diabetes and in 23 (28,8%) patients with IGT. HbA1c level in the first group 10,57±0, 56% and in the second group 7,34±0,23%. Microalbuminuria was present in 28 (23,3%) patients with newly diagnosed diabetes mellitus and in 16 (20%) subjects with IGT. Then we compared stages of peripheral neuropathy in two cohorts – in patients with newly diagnosed type 2 diabetes and with IGT. In the first group (120 patients) we have found following: 38 (31,7%) patients – without sings of DPN, 24 (20%)had mild neuropathy, 40 (33,3%) patients – moderate neuropathy and 18 (15%) patients – severe stage. In the second group (80 patients): 57 (71,3%) without sings of DPN, 14 (17,5%) had mild neuropathy and 9 (11,2%) patients – moderate stage. There was no statistical significant difference between BMI in two cohorts of patients.

Conclusion: This study shows that early diagnostic of type 2 diabetes and IGT is an instrument which might prevent the development of peripheral diabetic neuropathy. Unsatisfactory HbA1c level in patients with newly diagnosed type 2 diabetes is a risk factor for the development of moderate and severe stages of DPN.

P 19. Prevalence and Pronunciation of Diabetic Nephropathy in the Archangelsk Region.

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Background. Prevalence of diabetes is increasing in Russia, as in whole world, mainly owing to type 2 diabetes. The number of complications due to diabetes also rises. The goal of this work was evaluation of prevalence and pronunciation of diabetic nephropathy (DN) in Archangelsk and Archangelsk region (AR).

Methods. The data were used from the Register of Diabetes of AR. Also the case histories of patients with DN at the stage of chronic renal insufficiency (CRI) treated in FMCH were analyzed.

Results. The prevalence of nephropathy in patients with diabetes in AR was 15,35% (what is significantly lower than the European data – 40-60%). It can be supposed that in the AR as in other regions, hypodiagnosis of DN takes place, especially in patients with type 2 diabetes.
It attracts attention that DN in patients with type 1 diabetes develops earlier in 5-10 years than in Europe.
CRI at the stage1 B and more was registered in 1,04 %of patients with diabetes. The overwhelming majority of them receive conservative therapy. Treatment with use of dialysis is rendered only to 5% of patients with CRI; kidney transplantation was done in 1 % of patients with CRI.
CRI is registered as direct death cause in 21,43 % cases of type 1 diabetes and 2,53 % cases of type 2 diabetes.

Conclusions. Development of CRI in AR in patients with type 1 diabetes in earlier data from manifestation confirms necessity of more strict observance of standards diagnosis and increasing of preventing and treatment efficiency.

P 20. Diabetes and depressive disorders: analysis of associations

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Background and Aims: The fact of the high prevalence of depressions in diabetic out-patients is well-known. However, associations between different types of depressions and the main clinical features of diabetes remain unclear. The aim of the study was to investigate possible associations in this comorbidity.
Patients and Methods: We examined 150 diabetic out-patients (38 males), the median of age was 54,0 yrs (quartiles 43,0-61,5), the median of disease duration was 7,2 yrs (quartiles 2,0-15,0), the median of HbA1c level was 8,6% (quartiles 7,4-9,7). In 102 of the patients, Type 2 diabetes was diagnosed (54 insulin-treated).
Results: After clinical-based diagnostic evaluation (ICD-10) depressive disorders were revealed in 45 patients (30%). Depression without division to clinical types did not demonstrate any association with main clinical features of diabetes (Type1/Type 2 diabetes ratio, disease duration, acute and chronic complication prevalence, insulin-treated patients number). Brief depressive reaction was diagnosed in 21 patients (14% of all 150 patients), the cyclothymia in 15 (10%) patients and the dysthymia in 9 (6%) patients. Significant associations were revealed: between Type 1 diabetes and the cyclothymia and between Type 2 diabetes and brief depressive reaction and the dysthymia (p=0,01).
The cyclothymia and the dysthymia do not demonstrate any associations with main clinical features of diabetes (type, duration of the disease, prevalence of acute and chronic complications, insulin therapy). The prevalence of brief depressive reaction was significantly (χ^2, Kruskal-Whalles ANOVA) higher among patients with diabetic retinopathy 2-3 (p=0,02), arterial hypertension (p=0,001), proteinuria (p=0,02), myocardial infarction (p=0,04) and foot ulcers (p=0,04).
Conclusions: Study results demonstrate that brief depressive reaction is the kind of adjustment disorder, and represent direct psychological response to diabetes micro- and macrovascular complications burden. Associations between cyclothymia, dysthymia and diabetes types require further investigation. Presumably, common genetic predisposition or comorbidity due to disease “age peaks” coincidence may explain the association.

P 21. Determinants of quality of life in diabetes patients.

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Background: Quality of life deteriorates in diabetes and it's improvement is one of principal aims of medical care. Causes of deterioration are multiple and include comorbidities, conditions directly related to diabetes and therapeutic interventions. Investigation of factors influencing quality of life opens potential targets to therapy.
Methods: Diabetic patients with BMI ranging from normal to severe obesity were studied. SF-36 questionnaire was used to determine health related quality of life (HRQL). Potential determinants of HRQL studied were BMI, waist and hip circumference; duration of diabetes and arterial hypertension; vibration sensation; distance of 6-minute walk test; echocardiographic and spirographic measures..
Results: 96 patients with diabetes were studied. Physical components score of SF-36 (PCS) was positively correlated with 6-MWT distance and vibration sensation, inversely – with duration of hypertension, BMI, waist and hip circumference, left atrium size. Combined this factors explained 33% of variability of PCS in multiple linear regression model. Most potent factor was left atrium size followed by 6-MWT distance and vibration sensation – this three factors explained 30% of variability.
Mental components score of SF-36 (MCS) was positively associated with ejection fraction and negatively – with end-diastolic, end-systolic size of left ventricle and with left ventricle myocardial mass.
Conclusion: Main factors influencing HRQL in diabetic patients are diabetes complications, namely diabetic neuropathy, tolerance to physical exercise and cardiac remodeling. Additional role plays obesity. Therapeutic interventions targeted to this factors may improve quality of life.

Diabetes and other conditions

P 22. Secondary immunodeficiency in the patients with diabetes 2 type

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It is known that diabetes causes changes in the immune system. In this turn the endocrine like action of immune system's mediators can influence on the metabolism.

The purpose of this work is to study cytokine influence on the insulin production in the patients with diabetes 2 type (DM2) and secondary immunodeficiency (SID).

Methods: 40 patients with duration of DM2 till 5 years (I group); 35 patients with diabetes duration more than 5 years (II group) were studied. 30 healthy persons are in the control group. 32,5 % of patients with SID are revealed in the I group and 34 % of patients with SID are marked in the II group. We investigated levels of insulin, TNF-α.

Results: In the I group with SID TNF-α was higher than in the patients without SID by 2,9 times ($p<0,05$) and by 8 times is higher than in the control group ($p<0,01$); the insulin level has increased by 2,5 times in comparison with the patients without the SID as well as in the control group ($p<0,01$). It is considered that the increase of TNF-α is less than by 10 times in comparison with the control group can cause the proliferative effect on β-cells by means of growth factors activation.

In the II group with SID TNF-α is higher than in the patients without SID by 2,3 times ($p<0,05$) and by 16 times is higher than in the control group ($p<0,0001$); the level of insulin has decreased by 30,7 % in comparison with this index in the patients without SID ($p<0,001$). Intensive TNF-α production contributes the damaging effect on the insulin secretion.

Conclusions: the SID in the patients with duration of DM2 till 5 years can promote to the formation of the complications connected with hyperinsulinism. In the group with duration of diabetes more than 5 years SID can be a predictor of β-cells apoptosis.

P23. Metformin Treatment and Atherogenic Factors in Women of Reproductive Age with Polycystic Ovaries Syndrome with and without Diabetes Mellitus in Anamnesis

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Background: To reveal the influence of metformin on atherosclerosis risk and lipid levels in women with PCO.

Methods: 43 reproductive age women with PCO received metformin 2g/day during 3 months.Gr.1:with diabetes mellitus(DM) in anamnesis, n=11; Gr.2 without DM, n=32.Cholesterol, HDL-C, TG were studied on empty stomach and on 120-minute of oral glucose tolerance test (OGTT) before and after metformin therapy; we estimated LDL-C, atherogenic coefficients.

Results: Before therapy there were no differences in groups. After 3 months in Gr.1cholesterol decreased (4.1±0.3 mmol/l and 3.7±0.3 mmol/l, p=0.018) in 75% thanks to decreasing of LDL-C (3.8±0.2 mmol/l and3.2±0.1 mmol/l, p=0.08). HDL-C was low (0.5±0.06 mmol/l and0.5±0.05mmol/l) and metformin didn't change it. Normal TG values were both in basal (1.16±0.3 mmol/l and1.2±0.2 mmol/l) and postprandial condition (1.0±0.3 mmol/l and1.0±0.3 mmol/l), they didn't change during treatment. Atherogenic coefficients decreased during treatment (Climov's coefficient 7.4±0.9 mmol/l and6.1±0.7mmol/l; Thompson coefficient 0.2±0.05and0.18±0.04, p=0.04). Gr.2 after treatment had changes: decreasing of postprandial TG (1.09±0.16 mmol/l and0.7±0.14 mmol/l, p=0.008) without dynamic of basal values.

Conclusion: Metformin treatment decreases atherogenic lipid profile in women with DM in anamnesis and is recommended as long therapy. In women without DM this therapy is also indicated as it lowers postprandial lipidemia increasing of which is one of the components of metabolic syndrome.

Finding: We revealed difference between biguanid effects in lipid profile in women with PCO and insulin resistance included post membrane defect of insulin signal passing in combination with insulin resistance peculiar to DM and PCO.

P24. A cycle "glucose - fat acids" at women with risk factors of a diabetes mellitus type 2

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Functional hyperandrogenism (FH) associated with insulin resistance and compensatory hyperinsulinaemia. Aim of the present study was to study influence of free fat acids (FFA) on recycling of glucose of blood at women with FH during oral glucose tolerance test (OGTT).
Methods: Four groups were studied: Gr. 1 (control, n=19); Gr. 2 (control obese women, n=11); Gr. 3 (non obese women with FH, n=37); Gr. 4 (obese women with FH, n=24). Venous plasma insulin, glucose, pyruvate, lactate and FFA were studied at 0, 30, 60 and 120 minutes during oral glucose tolerance test (OGTT).
Results. The basal pyruvate level was significantly higher in gr. 3 (0.114±0.01) vs gr. 1 (0.09±0.01), $p<0.042$, as well as 1 hour later (0.13±0.01 vs 0.094±0.02, $p<0.042$). 30-min and 120-min pyruvate was maximal in gr. 4 vs gr. 3 (0.19±0.02 vs 0.14±0.02, $p<0.017$ and 0.14±0.02 vs 0.10±0.01, $p<0.024$). In course OGTT falling level FFA in all groups was observed, but the maximal speed of falling of concentration FFA in all points of the test was in groups of the control, in spite of lower basal parameters.
Conclusion. Decrease antilipolitic actions of insulin owing to presence insulin resistance is accompanied by increase in a level pyruvate and low speed of decrease FFA during an OGTT at women with FH that can be atherogenic predictors of changes plasma lipids.

P 25. Chemicophysical and rheologic meaning of pulmonary surfactant in Type 2 Diabetic Patients

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Background and aims: Inactivation of surfactant system the lungs, changes of qualitative composition of surfactant and it's components give rise to pulmonary pathology. The aim of the investigation is to study chemicophysical and rheologic parameters of pulmonary surfactant in patients diabetes mellitus type 2.

Methods: Examinatied 52 (mean age 51,6±2,3 years) life-long nonsmoking patients with type 2 diabetes and not having chronic disease of lungs in the past. Substrate for study surfactant system the lungs was exhaled breath condensate (EBC). The research EBC was made with the help of tensiometer "ADSA".

Results: In 33 patients been investigated high value surface tension (σ_4) at 1,1 times, decrease slope of curve (λ_2) at 1,2 times. The change of rheologic properties developed in decrease modul of viscosielasticity (ε) in 1,7 times. As a result of correlation analysis negative interrelation revealed between λ_2 and σ_4 ($r=-0,34$, $P<0,05$), but increase combined with decrease ε ($r=-0,69$, $P<0,05$). In 19 patients was developed a decrease σ_4 in 1,3 times, an increase λ_2 in 1,6 times. In keeping with the was marked a low time relaxation of monolayer (τ) in 1,05 times. Negative interrelation revealed between ε and τ ($r=-0,51$, $P<0,05$), λ_2 and σ_4 ($r=-0,67$, $P>0,05$), σ_4 and τ ($r=-0,40$, $P<0,05$), at σ_4 and ε ($r=0,65$, $P<0,05$).

Conclusions: Change of pulmonary surfactant characterized by substitution of σ_4 and also incapability for monolayer to reduce the primary structure, which was followed substitutions of rheologic dilatation of characterized.

P 26. Rehabilitation of patients after pancreatic resection

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Background. In patients who underwent surgery for cancer of pancreatoduodenal region one of the life-threatening complication is diabetes. Adequate therapy should be prescribed to improve surgical outcome. Purpose. Diagnosis and treatment of carbohydrates metabolism's disorders in patients after pancreatic resection.
Methods. In 21 patients there were performed surgeries for pancreatic and gastric cancer: in 9 of them – pancreatoduodenal resection, in other 12 – caudal hemipancreatectomy. In three patients preoperative diabetes was treated with oral medication. We monitored serum glucose level, pancreatic amylase level in all patients during the perioperative period, and glycohemoglobin HbA1c level in 3 months after surgery.
Results. All patients received glucose solution with rapid insulin IV during the surgery (dosage of insulin was 0,6-0,7 IU/kg, 2-4 IU/hr) with following glycemic control. The study revealed significant hyperglycemia in patients with caudal hemipancreatectomy after beginning of enteral feeding up to 8,2±2,5 mmol/L. This required correction of rapid insulin dosage to 1 IU/kg (20-22 IU/day) under glycemic control. For antioxidative effect and better glucose utilization Thioctacid 600 HR was administrated to all patients after beginning of enteral feeding. In 3 months after the surgery serum level of glycohemoglobin HbA1c was 6,5±0,9% (normal values less then 6,1%), that pointed to adequate correction in majority of patients. No acute complications of diabetes were seen in patients during the follow-up period (up to 3 months).
Conclusions. Suggested rehabilitation complex for patients who underwent pancreatic resection is adequate and effective for prevention of hyperglycemic complication.

P 27. Noopept pharmacotherapy of chronic encephalitic ishemia for patients with diabetes

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Goal: to evaluate the possibility of correcting cognitive disorders of patients with chronic encephalitic ischemia and type 2 diabetes by use of noopept therapy.
Methods: we examined 18 patients with type 2 diabetes and moderate cognitive disorders (5-6 points) resulting from chronic encephalitic ishemia**.** The cognitive disorders were diagnosed as a result of observing clinical symptoms and performing specialized tests. The noopept therapy lasted for 4 weeks. The drug was prescribed as 20 mg pills to be taken twice a day.
Results: conditions (such as arterial hypertension, atherosclerosis) did not have a proven effect on the results of the treatment. Patient's age, level of diabetes development and duration of its presence had significant importance. After the therapy all patients reported overall improvement of well-being, increased reaction rate, decreased fatigability. Specialized testing recorded firm decrease (up to 7-8 points with 66,7% of patients) of cognitive disorders.
Conclusion: it is reasonable to include noopept into pharmacotherapy of cognitive disorders related to chronic encephalitic ishemia on patients with type 2 diabetes.

P 28. Pharmaco-epidimiological research of nomenclature of nootropic medications applied in treatment of diabetes patients

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Goal: to research the nomenclature of nootropic medications in the system of additional pharmacological support for diabetes patients with encephalopathy in Irkutsk region.
Methods: pharmaco-epidimiological analysis of 267 medical files of type 1 and 2 diabetes patients.
Results: our analysis of nootropic medication prescriptions showed that the share of medications produced in Russia - pyracetam, nootobril comprised to 82%, in valued terms these medications comprised to 58% of financial expenditures. Clinical research proved that the difference in the degree of intensity reduction of neurovegetative and cognitive disorders among diabetes patients with encephalopathy receiving different medications based upon the “pyracetam” substance was insignificant.
Conclusions: using the system of additional pharmacological support as an example, it becomes obvious that governmental regulation of prescribing of nootropic medications for diabetes patients with encephalopathy allows for significant minimization of financial expenditures.

P 29. Dinamic research of spirographic indices of diabetes patients with endocrine encephalopathy affected by COPD

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Goal: to research the effect of mexidol on intensity of hypoxia of type 2 diabetes patients with endocrine encephalopathy affected by COPD.
Methods: we examined 23 patients with type 2 diabetes and endocrine encephalopathy affected by COPD. 10 patients receiving a standard basic therapy composed a control set and 13 other patients additionally received a 4-week treatment with mexidol (7 days of intravenous injections of 200 mg in 100 mg of physiological salt solution and two weeks of 0,125 mg 3 times a day). The effectiveness of the treatment was evaluated upon observing dynamics of the clinical features, laboratory indices, changes in spirographic indices.
Results: level of respiratory deficit depended on severity of COPD and degree of diabetic decompensation. Originally patients with diabetes affected by COPD were noted to experience decrease in spirographic indices and peak expiratory flow. We also recorded a correlation between degree of hypoxic syndrome and intensity of diabetic encephalopathy. Positive dynamics was observed upon conducting the treatment. In the group of patients undergoing basic therapy and taking mexidol, three patients could proceed with a decreased doze of systemic glucocorticoids and one patient – without inhalant medication.
Conclusions: the data received allows us to recommend mexidol for complex therapy of patients with type 2 diabetes with endocrine encephalopathy affected by COPD.