Ultratovush va uning klinik diagnostikadagi roli

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Kirish: Klinik diagnostikaning zamonaviy yutuqlari asosan tadqiqot usullarini takomillashtirish bilan belgilanadi. Tibbiy tasvirlarni olishning tubdan yangi usullarini, shu jumladan ultratovush usulini ishlab chiqish va joriy etish tufayli bu borada sezilarli sakrash amalga oshirildi. Exografiyaning parenximali organlarning ichki tuzilishini ko'rish qobiliyati juda qimmatli bo'lib, an'anaviy rentgen tekshiruvida mavjud emas edi. Ultratovush usulining yuqori axborot mazmuni va ishonchliligi tufayli ko'plab kasalliklar va shikastlanishlar diagnostikasi sifat jihatidan yangi bosqichga ko'tarildi. Hozirgi vaqtda kompyuter tomografiyasi va boshqa zamonaviy usullar bilan bir qatorda, klinik tibbiyotning ko'plab sohalarida yetakchi diagnostika usullaridan biri bo'lgan ultratovush diagnostikasi hamma joyda qo'llaniladi. So'nggi yillarda ultratovush uskunasining juda keng qo'llanilishi tufayli u har qanday, hatto juda kichik tibbiy muassasalar uchun ham mavjud bo'ldi. Shu munosabat bilan ultratovush tekshiruvi (ultratovush) metodologiyasi va texnikasini mukammal biladigan mutaxassislarga ehtiyoj ortib bormoqda.

Kalit so'zlar: sonografiya, ultratovush diagnostikasi, ekografiya, 3D, 4D.

Ultratovush - keng tarqalgan diagnostika usuli; bemorni radiatsiya ta'siriga duchor qilmaydi va zararsiz hisoblanadi . Biroq, ultratovush bir qator cheklovlarga ega. Usul standartlashtirilmagan va tadqiqot sifati tadqiqot olib boriladigan asbob-uskunalar va shifokorning malakasiga bog'liq. Ultratovush uchun qo'shimcha cheklovlar - sub'ektning haddan tashqari og'irligi va yoki meteorizm - ultratovush to'lqinlarining o'tkazilishiga xalaqit beradi. Ultratovush diagnostika apparati (ultratovushli skaner) organlar va to'qimalarning joylashishi, shakli va tuzilishi to'g'risida ma'lumot olish va biologik ob'ektlarning chiziqli o'lchamlarini ultratovush joylashuvi usuli bilan o'lchash uchun mo'ljallangan qurilma.

Funktsional maqsadlariga ko'ra asboblar quyidagi asosiy turlarga bo'linadi: ETS - echotomoskoplar (asosan homilani, qorin bo'shlig'i a'zolarini va kichik tosni tekshirish uchun mo'ljallangan asboblar); EKS - ekokardiyoskoplar (yurakni tekshirish uchun asboblar); EES - echoenceloscopes (miyani tekshirish uchun asboblar); EOS - echo-oftalmoskoplar (ko'zni tekshirish uchun asboblar).

Ultratovush tekshiruvi uchun standart diagnostika usuli hisoblanadi. Bunday holatlarda, bemorda hali kasallik va shikoyatlar bo'lmasa, erta klinik tashxis qo'yish uchun ultratovush tekshiruvidan foydalanish kerak. Agar allaqachon ma'lum bo'lgan patologiya mavjud bo'lsa, tashxisni aniqlashtirish usullari sifatida KT yoki MRIni tanlash yaxshidir.

Tibbiyotda ultratovushni qo'llash sohalari juda keng. Diagnostik maqsadlarda akusherlik va pediatriya amaliyotida qorin bo'shlig'i va buyraklar, tos a'zolari, qalqonsimon bez, sut bezlari, yurak, qon tomirlari kasalliklarini aniqlash uchun ishlatiladi. Shuningdek, ultratovush tekshiruvi jarrohlik aralashuvni talab qiladigan o'tkir xoletsistit, o'tkir pankreatit, qon tomir trombozi va boshqalar kabi shoshilinch sharoitlarni tashxislash usuli sifatida ishlatiladi yangi Acuson S-sinf ultratovush tizimlari ultratovush tasvirini diagnostika qiymatining yangi darajasiga ko'tarish uchun mo'ljallangan. Yangi ekspert sinfining ultratovush diagnostika tizimi joriy etilmoqda, unda noyob tasvirlash texnologiyalari taqdim etilgan. Ushbu ultratovush tizimlari ultratovush texnologiyasida yangi bosqichni ifodalaydi, estetik va ergonomik platformada birlashtirilgan yuqori 2D, rang, quvvat, spektral Doppler, M-rejimi, 3D va 4D tasvirlash, eng yangi texnologiyalar va yuqori aloqa imkoniyatlarini taklif etadi.

Texnologiya sut bezlari, limfa tugunlari, qalqonsimon bez shakllanishini o'rganish uchun mo'ljallangan, bu patologik tuzilmalarning malignligi to'g'risida erta ma'lumot olish va ingichka igna aspiratsion biopsiya (TAB) o'tkazishning ob'ektiv imkoniyatlarini shakllantirish.

Homiladorlik davrida ultratovush tekshiruvi homiladorlikni boshqarish uchun majburiy dasturga kiritilgan rejalashtirilgan hodisadir. Xomilaning ultratovush tekshiruvi chaqaloq bilan tanishishning bir turidir. Homiladorlik davrida ultratovush tekshiruvi 2-3 marta amalga oshiriladi: 10-14, 16-21 va 32-37 haftalarda.

Hozirgi vaqtda 3D va 4D ultratovush usullari keng qo'llanila boshlandi, bu 3Ddan farq qiladi, bu vaqt rasmning uzunligi, balandligi va chuqurligiga to'rtinchi o'lchov sifatida qo'shiladi. Uch o'lchovli tasvir statik bo'lsa-da, to'rt o'lchovli tasvir ob'ektni real vaqtda harakatda ko'rsatadi va bu turli xil vositalarda yozib olish imkonini beradi. 4D ultratovush yordamida rasm butunlay boshqacha: birinchidan, tasvir uch o'lchamli va rangli, ikkinchidan, chaqaloqning ko'rinishi barcha tafsilotlarda ko'rinadi. Volumetrik tasvirlar odatiy ikki o'lchovli rejimda o'rganish qiyin bo'lgan ba'zi tuzilmalarni yaxshiroq ko'rish imkonini beradi, kelajakdagi ota-onalar va boshqa mutaxassisliklar shifokorlari uchun tasvirni tushunishni osonlashtiradi.

3D ultratovush yordamida shifokorlar bir vaqtning o'zida uchta proektsiyada homilaning turli qismlarini baholashlari mumkin, bu homila anomaliyalarini aniqlash uchun juda muhimdir. Uch o'lchovli tadqiqot ma'lumotlari malformatsiyalarni tashxislash uchun qo'shimcha ma'lumot beradi: oyoq-qo'llari, yuzi, orqa miya.

4D ultratovushda bolaning jinsi aniqroq ko'rinadi. Homiladorlik paytida 4D tasvir bilan siz chaqaloqning yuz ifodalarini ko'rishingiz mumkin. Bu sizga u boshdan kechirayotgan his-tuyg'ularni - tabassum, xafa, befarqlikni aniqlashga imkon beradi. Shunday qilib, uning his-tuyg'ularini tushunish oson. Yomon his-tuyg'ular yanada

jiddiy muammolardan kelib chiqishi mumkin. Masalan, letargiya va depressiya asfiksiyaning sababi bo'lishi mumkin - kislorod bilan ta'minlanmaslik, bu bir qator muammolarni keltirib chiqaradi.

Zamonaviy ultratovush apparatlari avtomatlashtirilgan organ skaneri rejimida ishlaydi, bu esa turli o'smalarni tashxislash ishonchliligini oshiradi. Ko'krak hajmining skaneri ko'krak bezi saratonining diagnostika imkoniyatlarini kengaytiradi. Bunday tizimlar ko'krakning 3D ultratovush tasvirini olish uchun mo'ljallangan. Ko'krak hajmini avtomatlashtirilgan skanerlash ko'krakning uch o'lchovli tasvirini beradi, bu sizga ko'krakni nafaqat old va orqa tomondan, balki yuqoridan pastgacha va har qanday tomondan tekshirish imkonini beradi. Bu ko'krak bezi saratonini tashxislash uchun juda ishonchli skrining usuli.

Doppler ultratovush tekshiruvi asosiy arteriyalar va tomirlardagi qon oqimini tekshiradi. Boshning katta arteriyalarining Doppler ultratovush tekshiruvi (USG MAG) yoki brakiyosefalik arteriyalarning ultratovushli dopplerografiyasi (USG BCA) - bu tomirlardagi qon oqimining holatini o'rganish va mavjud bo'lgan o'tkazuvchanlik buzilishlarini baholash imkonini beruvchi apparat usuli. boshning tomirlaridan. Ko'proq ma'lumot olish uchun USG MAG intrakranial tomirlarni o'rganish - transkranial dopplerografiya (TCD) bilan birgalikda amalga oshiriladi. USG MAG va TKD kombinatsiyasi Qozog'iston Respublikasi Sog'liqni saqlash vazirligining ustuvor yo'nalishi bo'lgan serebrovaskulyar kasalliklarni (miya insultlari) tashxislash uchun eng maqbul skrining usuli hisoblanadi. Boshning asosiy arteriyalarini dupleks skanerlash usuli (DS MAG) yoki brakiyosefalik arteriyalarni dupleks skanerlash (DS BCA) Doppler effekti yordamida qon oqimini o'rganishni qon tomirlari va uning atrofidagi to'qimalarni bir vaqtning o'zida vizualizatsiya qilish bilan birlashtiradi. Bunda qabul qilingan signallarni kompyuterda qayta ishlash natijasida monitorda oqimning Doppler spektri ham, rangli kartogrammasi ham aks ettirilishi mumkin. Miya tomirlarini uch tomonlama skanerlash yanada katta vizualizatsiyaga ega. Miya qon oqimini o'rganish uchun yuqoridagi barcha usullar butunlay og'riqsiz va kontrendikatsiyaga ega emas.

Bosh og'rig'i, bosh aylanishi, muvofiqlashtirishning buzilishi, qisqa muddatli ongni yo'qotish epizodlari va boshqa nevrologik alomatlar (qo'l va oyoqlarda uyqusizlik va zaiflik, nutq) bilan og'rigan bemorlarda bo'yin va miya tomirlarining dupleks skanerlashi va ultratovushli Doppler sonografiyasi o'tkaziladi. buzilishlar), shuningdek vaqtinchalik ishemik xurujlar yoki insultlarni boshdan kechirgan bemorlarda. Bo'yin tomirlarini dupleks skanerlash aterosklerozni erta tashxislash uchun skriningdir va

barcha o'rta yoshdagi odamlar uchun ko'rsatilgan. Bo'yin va buyrak arteriyalarining tomirlarini dupleks skanerlash qon bosimi yuqori bo'lgan odamlar uchun ko'rsatiladi. Pastki ekstremitalarning arteriyalarini dupleks skanerlash yurish paytida oyoq

mushaklaridagi og'riqlar, oyoqlarda uyqusizlik, oyoq terisida trofik kasalliklar shikoyati bo'lgan odamlar uchun zarur. Tadqiqot sizga oyoq tomirlarining shikastlanishining lokalizatsiyasi va tabiatini aniqlashga va natijada to'g'ri davolanishni tanlashga imkon beradi. Pastki ekstremitalarning venalarini dupleks skanerlash oyoqlarda aniq venoz tarmog'i va oyoq shishishi bo'lgan bemorlarda amalga oshirilishi kerak. Pastki ekstremitalarning tomirlarini tekshirganda, varikoz tomirlarini, pastki ekstremitalarning chuqur va yuzaki tomirlarining trombozini tashxislash mumkin.

Shuni ta'kidlash kerakki, ultratovush tamoyillari ekokardiyografiyada qo'llaniladi (EchoCG). Usul yurakning tuzilishi va faoliyatini batafsil o'rganish uchun ultratovushli tasvirni tomirlardagi qon oqimini o'rganish uchun rangli Doppler xaritalashdan bir vaqtning o'zida foydalanish bilan birlashtiradi.

Yuqori va pastki ekstremitalarning tomirlarining ultratovush tekshiruvi tomirlarning holatini tekshirishning eng xavfsiz va samarali usullaridan biridir. Zamonaviy asbob-uskunalar uni tekshirishga imkon beradi real vaqtda monitor ekrani nazorati ostida. Bunday holda, tomirning lümeni qayd etiladi, qon oqimining parametrlari o'lchanadi va tomirlarning klapanlari etishmovchiligi aniqlanadi. Trombus mavjudligida ultratovush diagnostikasi uning hajmini aniqlash va davolanish vaqtida uning o'zgarishlarini kuzatish imkonini beradi.

Shuni ta'kidlash kerakki, so'nggi paytlarda qon tomir kasalliklari o'rta va keksa yoshdagi odamlarga xos bo'lgan barcha kasalliklar orasida etakchi o'rinlardan birini egallaydi. Bunga noqulay muhit omillari, noto'g'ri ovqatlanish va, albatta, chekish bilan birga harakatsiz turmush tarzi yordam beradi.

Qon tomirlarini ultratovush tekshiruvi ish doimiy ravishda oyoqlarda turish bilan bog'liq bo'lgan hollarda, agar bemor qo'llari va oyoqlarida og'irlik, uyqusizlik, kramplar, ekstremitalarda og'riq his qilsa, terida yoki o'rgimchak tomirlari paydo bo'lsa, tavsiya etiladi. tomirlar kengaygan. Ta'riflangan usul butunlay og'riqsizdir va qon tomir kasalliklarini dastlabki bosqichlarda aniqlash va qo'llaniladigan davolash samaradorligini kuzatish imkonini beradi.

Shunday qilib, ultratovush tekshiruvi turli patologiyalarni tashxislashda zamonaviy yangi texnologiyalar orasida yuqori diagnostika qobiliyatiga va prognostik ahamiyatga ega. Klinikada yuqori aniqlikdagi texnologiyalardan foydalangan holda ultratovush tekshiruvi patologik jarayonning og'irligini farqlash, uning dinamikasini aniqlash va davolash samaradorligini ishonchli kuzatish imkonini beradi.

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