Questa nota è destinata a chi possiede un'apparecchiatura per CT volumetrica a cone beam, **ma anche a chi fosse intenzionato ad acquistarla.**

E' bene infatti che chi intenda acquistare una tale apparecchiatura sia informato di quanto segue, che spesso non viene spiegato da chi vende.

Il Ministero della Salute ha emanato le **Raccomandazioni per l'impiego corretto delle apparecchiature TC volumetriche «Cone beam»** (G.U. n. 124/2010, http://www.ffontana.it/Moduli/Raccomandazioni_CBCT.pdf)

La CEE nel 2012 ha emanato il Report *Radiation Protection* N. 172, **Cone beam CT for dental and maxillofacial radiology. Evidence-based guidelines** (http://www.ffontana.it/Moduli/Raccomand_CB_127CE.pdf)

Nell'insieme le norme sono in linea con quanto già previsto dall'esistente DLgs 187/2000, ma prevedono in modo esplicito alcuni obblighi specifici, come:

- la necessità della **piena giustificazione individuale** dell'esame
- l'obbligo della preventiva acquisizione del **consenso informato** scritto
- l'obbligo di **registrazione delle scansioni fatte**, che a questo punto non può essere soddisfatto dal semplice elenco della cartella del PC con le immagini, ma deve essere fatto con un elenco cronologico previsto dal software o, in mancanza, con un semplice file di qualsiasi tipo oppure, infine, con un quadernetto.
- l'**obbligo di conservazione del consenso scritto per 5 anni**
- il **divieto di cancellare immagini dalla memoria** del software, comprese quelle di prova e dei controlli di qualità annuali
- l'obbligo di **rilasciare al paziente tutte le immagini** e **copia del consenso**
- l'obbligo della **formazione quinquennale in radioprotezione** per il medico odontoiatra che esegue esami 3D (obbligo che esiste anche per la radiologia odontoiatrica convenzionale)
- l'obbligo di **eseguire l'esame in prima persona**, non demandabile a un assistente (che non sia tecnico di radiologia)
- l'obbligo di effettuare tutti gli **interventi di manutenzione e calibrazione** nelle frequenze previste dal costruttore (per cui è opportuno attivare un **contratto periodico con la ditta installatrice**).

Al di là degli obblighi, una nota degna di rilievo è la seguente:

La dose da TAC odontoiatrica a cone beam è più alta di quella di un'ortopantomografia e dunque **deve essere particolarmente giustificato il ricorso all'esame: non si deve sostituire *tout court* l'ortopantomografia con l'esame 3D**, in particolare con quegli apparecchi con dosi più elevate.

All'indirizzo Internet http://www.ffontana.it/RP/CBCT.htm trova del materiale sulla CBCT.

Cose da fare per ogni esame CBCT

Su apposito registro dedicato alla CBCT, cartaceo o informatico, da conservare per 5 anni:

☑ Registrare esame con parametri impostati: kV, mA, sec, FOV (=campo, cm x cm), voxel (risoluzione, mm), e il **DAP (Dose Area Product, solitamente espresso in mGy·cm^2) indicato dall'apparecchio**

Sul consenso:

☑ breve relazione clinica a motivazione della effettuazione dell'esame e altre informazioni riguardanti la giustificazione della pratica nel caso specifico

☑ firme di medico e paziente

☑ dichiarazione specifica per paziente femminile in età fertile

Da dare al paziente:

☑ consenso firmato

☑ iconografia **completa** dell'esame

Da conservare in studio per 5 anni:

☑ copia del consenso firmato

☑ immagini digitali dell'esame

Giustificazione di esami CT cone beam

da: CEE Report RP 172

http://www.ffontana.it/Moduli/Raccomand_CB_127CE.pdf

All CBCT examinations must be justified on an individual basis by demonstrating that the potential benefits to the patients outweigh the potential risks. CBCT examinations should potentially add new information to aid the patient's management. A record of the Justification process must be maintained for each patient
ED BP

CBCT should not be selected unless a history and clinical examination have been performed. "Routine" or "screening" imaging is unacceptable practice
ED BP

When referring a patient for a CBCT examination, the referring dentist must supply sufficient clinical information (patient history and results of examination) to allow the CBCT Practitioner to perform the Justification process
ED BP

For the localised assessment of an impacted tooth (including consideration of resorption of an adjacent tooth) where the current imaging method of choice is MSCT (CT Multi-Slice), CBCT may be preferred because of reduced radiation dose
GP

CBCT may be indicated for the localised assessment of an impacted tooth (including consideration of resorption of an adjacent tooth) where the current
imaging method of choice is conventional dental radiography and when the information cannot be obtained adequately by lower dose conventional (traditional) radiography
C

For the localised assessment of an impacted tooth (including consideration of resorption of an adjacent tooth), the smallest volume size compatible with the
situation should be selected because of reduced radiation dose. The use of CBCT units offering only large volumes (craniofacial CBCT) requires very careful justification and is generally discouraged
GP BP

Where the current imaging method of choice for the assessment of cleft palate is MSCT, CBCT may be preferred if radiation dose is lower. The smallest volume size compatible with the situation should be selected because of reduced radiation dose
GP

CBCT is not normally indicated for planning the placement of temporary anchorage devices in orthodontics
GP

Large volume CBCT should not be used routinely for orthodontic diagnosis
D

For complex cases of skeletal abnormality, particularly those requiring combined orthodontic/surgical management, large volume CBCT may be justified in planning the definitive procedure, particularly where MSCT is the current imaging method of choice
GP

Research is needed to define robust guidance on clinical selection for large volume CBCT in orthodontics, based upon quantification of benefit to patient outcome
GP

CBCT is not indicated as a method of caries detection and diagnosis
B

CBCT is not indicated as a routine method of imaging periodontal bone support
C

Limited volume, high resolution CBCT may be indicated in selected cases of infra-bony defects and furcation lesions, where clinical and conventional radiographic examinations do not provide the information needed for management
C

Where CBCT images include the teeth, care should be taken to check for periodontal bone levels when performing a clinical evaluation (report)
GP

CBCT is not indicated as a standard method for identification of periapical pathosis
GP

Limited volume, high resolution CBCT may be indicated for periapical assessment, in selected cases, when conventional radiographs give a negative finding when there are contradictory positive clinical signs and symptoms
GP

Where CBCT images include the teeth, care should be taken to check for periapical disease when performing a clinical evaluation (report)
GP

CBCT is not indicated as a standard method for demonstration of root canal anatomy
GP

Limited volume, high resolution CBCT may be indicated, for selected cases where conventional intraoral radiographs provide information on root canal anatomy which is equivocal or inadequate for planning treatment, most probably in multi-rooted teeth
GP

Limited volume, high resolution CBCT may be indicated for selected cases when planning surgical endodontic procedures. The decision should be based upon potential complicating factors, such as the proximity of important anatomical structures
GP

Limited volume, high resolution CBCT may be indicated in selected cases of suspected, or established, inflammatory root resorption or internal resorption, where three-dimensional information is likely to alter the management or prognosis of the tooth
D

Limited volume, high resolution CBCT may be justifiable for selected cases, where endodontic treatment is complicated by concurrent factors, such as resorption lesions, combined periodontal/endodontic lesions, perforations and atypical pulp anatomy
C

Limited volume, high resolution CBCT is indicated in the assessment of dental trauma (suspected root fracture) in selected cases, where conventional intraoral radiographs provide inadequate information for treatment planning
B

Where conventional radiographs suggest a direct inter-relationship between a mandibular third molar and the mandibular canal, and when a decision to perform surgical removal has been made, CBCT may be indicated
C

CBCT may be indicated for pre-surgical assessment of an unerupted tooth in selected cases where conventional radiographs fail to provide the information required
GP

CBCT is indicated for cross-sectional imaging prior to implant placement as an alternative to existing crosssectional techniques where the radiation dose of CBCT is shown to be lower
D

For cross-sectional imaging prior to implant placement, the advantage of CBCT with adjustable fields of view, compared with MSCT, becomes greater where the region of interest is a localised part of the jaws, as a similar sized field of view can be used
GP

Where it is likely that evaluation of soft tissues will be required as part of the patient's radiological assessment, the appropriate initial imaging should be MSCT or MR, rather than CBCT
BP

Limited volume, high resolution, CBCT may be indicated for evaluation of bony invasion of the jaws by oral carcinoma when the initial imaging modality used for diagnosis and staging (MR or MSCT) does not provide satisfactory information
D

For maxillofacial fracture assessment, where cross-sectional imaging is judged to be necessary, CBCT may be indicated as an alternative imaging modality to MSCT where radiation dose is shown to be lower and soft tissue detail is not required
D

CBCT is indicated where bone information is required, in orthognathic surgery planning, for obtaining three-dimensional datasets of the craniofacial skeleton
C

Where the existing imaging modality for examination of the TMJ is MSCT, CBCT is indicated as an alternative where radiation dose is shown to be lower
B

Legenda:
A – B – C – D: da studi pubblicati, in ordine decrescente di frequenza/applicabilità
GP: Buona pratica - **ED**: Direttiva europea - **BP**: Principio basilare