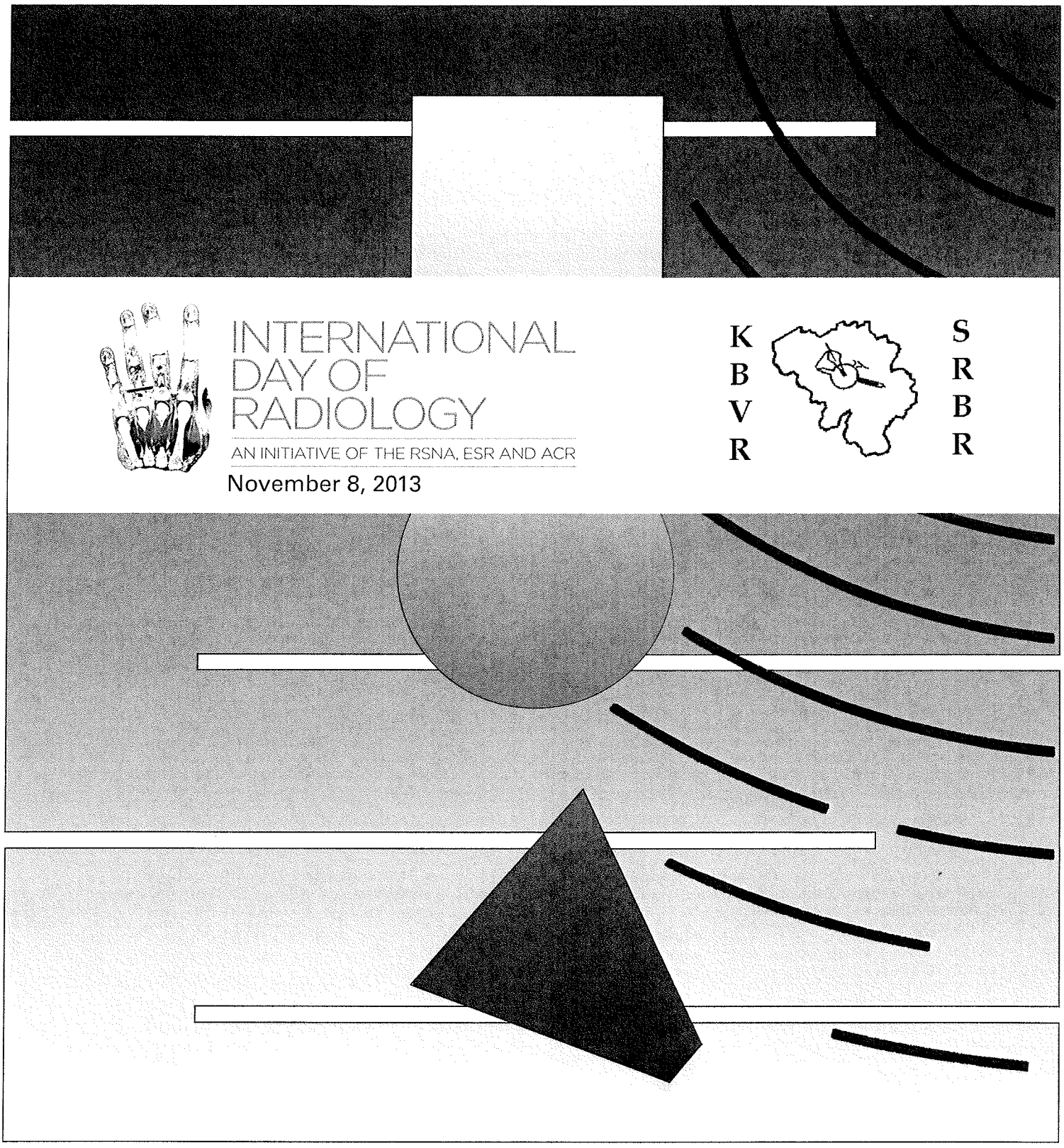
WETTEREN 1
P 702083

JBR-BTR

5 Volume 96
Page 273-332
September-October
Bimonthly – 2013

DIAGNOSTIC AND INTERVENTIONAL IMAGING, RELATED IMAGING SCIENCES, AND CONTINUING EDUCATION



ORGANE DE LA SOCIETE ROYALE BELGE DE RADIOLOGIE (SRBR)
ORGAAN VAN DE KONINKLIJKE BELGISCHE VERENIGING VOOR RADIOLOGIE (KBVR)

Digital mammography for breast cancer screening in Wallonia

A. Vandenbroucke, M. Candeur, L. Gordower[1]

A breast cancer screening programme with screen film started in Wallonia in June 2002. The second reading was performed in 5 coordinating centers at the provincial level.

Since the year 2006, some accredited mammography units have left the programme because they had moved to digital mammography.

A survey made in June 2007 showed that, at the end of 2008, 63% of them are going to be digitalized.

Therefore, the Ministry of Health decided to introduce digital mammography into the Programme and to set up a single Center for second reading. A decree of Government was published in July 2008. It describes, among other, the approval requirements for the second reading center and for the mammography units.

The second reading Center is equipped by a PACS allowing archiving of images into the original format DICOM and by a diagnosis console able to read mammograms from various types of equipment. A computer system ensures the link of medical records to the images produced by the accredited mammography units. The database called "Mammorias" (Mammography Radiology Information and Administrative System) is accessible, via a secured web interface, to all users (administrators, technologists, radiologists) with private and confidential usernames and passwords, allowing differential access to information.

The results of the readings are encoded by the radiologists into the database. The pictures are transferred to the second reading Center via a secured internet connection, by sFTP or VPN procedures.

The sFTP procedure (Secure File Transfer Protocol) is manageable through simple and free software that can be set up rapidly.

The VPN procedure (Virtual Private Network) allows bidirectional transfer of images in an automated way from PACS to PACS, and enables the first mammography units downloading dynamic archives stored at the second reading Center.

Both procedures require an internet connection of an ascending flow (upload) at least 512 Kbit/s.

The second/third reader calls a worklist of readings thru the RIS which loads the images stored in the PACS on the console.

Result letters, generated by Mammorias are sent to referring physicians within maximum

6 working days after the Mammotest was performed. If the Mammotest requires further investigation, a CD-ROM copy of the mammogram is attached to the letter.

The results can also be transmitted electronically by a secured procedure.

The digital breast cancer screening programme is running since September 2009.

In June 2012 there were 44 DR and 37 CR mammography equipments.

Some indicators have been analysed to compare the performance of CR (n = 13.442) and DR (n=18.790). The more evident discrepancies are a higher image quality in DR (93% versus 88,2% for desirable level), and a higher rate of DCIS in DR (15,7% versus 6,9%).

The centralization of the double reading and the archiving of the images are of a major interest for reanalysis of images in case of interval cancer, and for evaluation and training of radiologists both 1st and 2nd readers.

We are building a data base for teaching them according different topics: radiological anomalies and BI-RADS classification.

1. Centre Communautaire de Référence pour le dépistage des cancers (CCR) asbl, Mont-Saint-Guibert, Belgique.

Breast cancer during pregnancy: the obstetrician/paediatric perspective

F. Amant[1]

Although there are no guidelines for obstetricians to monitor pregnant patients treated for breast cancer, some recommendations have been suggested (Amant et al., 2012a). It is advisable to perform the prenatal care of women with breast cancer during pregnancy (BCP) in a high-risk obstetric unit. Before starting staging examinations or oncological treatment, a prenatal screening ultrasound should be performed to ensure that the foetus has undergone normal development and growth to date. Before every chemotherapy cycle, an evaluation of foetal morphology, growth and well-being must be carried out by a perinatologist. In case of abnormal findings a more intense foetal monitoring or even (preterm) delivery may be required. It is important to consider foetal wellbeing and counsel patients to be alert when contractions occur, since an increased incidence in preterm contractions was reported after cytotoxic treatment during pregnancy.

The timing of delivery should be balanced according to the oncological treatment schedule and the maturation of the foetus. As in non cancer patients, term delivery (> 37 weeks) should be aimed for (Van Calsteren et al., 2010). Early labour induction results in prematurity and low birth weight that have been identified as contributing factors in the cognitive and emotional development of children (Lohaugen et al, 2010; Tamaru et al., 2011). In the event that preterm delivery is inevitable, foetal lung maturation should be performed according to local policy. The mode of delivery should be determined based on obstetrical indications. To allow the bone marrow to recover and to minimize the risk of maternal and foetal sepsis and haemorrhage, delivery should be planned at least 3 weeks after the last cycle of 3 weekly chemotherapy, and chemotherapy should not be administered after 35 weeks since spontaneous labor becomes more likely (Amant et al, 2012a). Furthermore, neonates, especially preterm babies, have limited capacity to metabolize and eliminate drugs due to liver and renal immaturity. The delay of delivery after chemotherapy will allow foetal drug excretion via the placenta (Sorosky et al, 1997). Chemotherapy can be restarted immediately after vaginal delivery, but an interval of one week after an uncomplicated caesarean section is needed.

Until recently, little data on the long term outcome of children after antenatal exposure to chemotherapy have been available, despite the fact that oncologic treatment of maternal cancer during pregnancy has become more acceptable in the last decade. Therefore we did set up a study to document general health, cardiac function and neurodevelopmental outcome in children who were prenatally exposed to chemotherapy (Amant et al., 2012b). We reported on exposure of 236 cycles of chemotherapy that were administered in 68 pregnancies. Seventy children, born at a median gestational age of 35·7 weeks (range, 28·3-41·0; 47/70 < 37 weeks), were included with a median follow-up period of 22·3 months (range, 16·8-211·6). Although neurocognitive outcomes were within normal ranges, the high incidence of preterm birth had a negative influence on cognitive development. Children's behaviour, general health, hearing and growth were reported as in a general population. A severe neurodevelopmental delay was seen in both members of a twin (3%). Cardiac dimensions and functions were within normal ranges. Based on these data we did conclude that fetal exposure to chemotherapy was not associated with increased morbidity at the level of the central nervous system, cardiac, and auditory functions, as well as general health and growth. We noted more subtle changes in cardiac and neurocognitive measurements that underscore the importance of longer follow up. Importantly, prematurity was frequently encountered, and was associated with impairment in cognitive development. Therefore, we believe that perinatologists should be part of the interdisciplinary discussion and that iatrogenic preterm delivery should be avoided as much as possible.

References

1. Amant F., Loibl S., Neven P., Van Calsteren K.: Breast cancer in pregnancy. *Lancet*, 2012a, 379 (9815): 570-579.
2. Amant F., Van Calsteren K., Halaska M., et al.: Observational study on the long term cognitive and cardiac outcome after prenatal exposure to chemotherapy in children 18 months or older. *Lancet Oncol*, 2012b, 13: 256-264.
3. Lohaugen G.C., Gramstad A., Evensen K.A., et al.: Cognitive profile in young adults born preterm at very low birthweight. *Dev Med Child Neurol*, 2010, 52: 1133-1138.