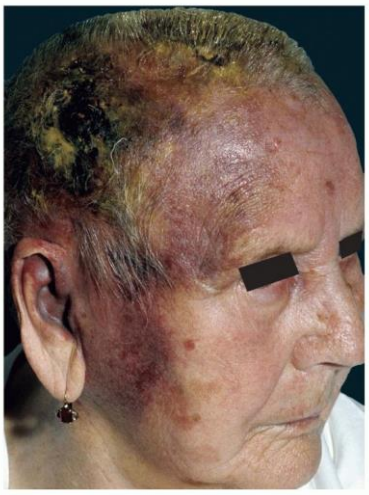
Cancer Association of South Africa (CANSA)

Research • Educate • Support

Fact Sheet on Angiosarcoma

Introduction

Cancerous (malignant) tumours of the connective tissues are called “sarcomas”. The term sarcoma comes from a Greek word meaning fleshy growth. Sarcoma arises in the connective tissue of the body. Normal connective tissue include, fat, blood vessels, nerves, bones, muscles, deep skin tissues, and cartilage. Sarcomas are divided into two main groups, bone sarcomas and soft tissue sarcomas. They are further sub-classified based on the type of presumed cell of origin found in the tumour. They all share certain microscopic characteristics and have similar symptoms. Sarcomas can develop in children and adults. For children under 20 approximately 15 percent of cancer diagnoses are sarcomas.



[Picture Credit: Angiosarcoma]

Soft Tissue Sarcoma - is a rare form of cancer. It comprises approximately one percent of all cancers diagnosed. Slightly more men than women develop soft tissue. Due to its rarity, it is crucial for patients to seek a cancer specialist in the treatment of their disease.

Soft tissue sarcoma can occur in the muscles, fat, blood vessels, tendons, fibrous tissues and synovial tissues (tissues around joints). About 40 percent occur in the legs usually at or above the knee. Fifteen percent develop in the hands and arms, another 15 percent in the head and neck and 30 percent in the shoulders, chest, abdomen, or hips. Soft tissue sarcomas can invade surrounding tissue and can metastasise (spread) to other organs of the body. forming a secondary tumour.

Secondary tumours are referred to as metastatic soft tissue sarcoma because they are part of the original cancer and are not a new disease. Some tumours of the soft tissue are benign (non-cancerous) and are rarely life threatening.

It is not clear why some people develop sarcoma; however, researchers have been able to identify some common characteristics in groups with high rates of soft tissue sarcoma. Some studies have shown that people exposed to phenoxyacetic acid in herbicides and clorphenols in wood preservative have increased risk of soft tissue sarcoma. Researchers also know that people exposed to high doses of radiation are at a greater risk for developing soft tissue sarcoma.

Researched and Authored by Prof Michael C Herbst
[D Litt et Phil (Health Studies); D N Ed; M Art et Scien; B A Cur; Dip Occupational Health]
Approved by Ms Elize Joubert, Chief Executive Officer [BA Social Work (cum laude); MA Social Work]

Researchers are also studying genetic abnormalities and chromosome mutations as possible causes for soft tissue sarcoma. People with certain inherited diseases such as neurofibromatosis or familial syndromes associated with p53 mutations have been shown to have higher risks of soft tissue sarcoma.

Early on, soft tissue sarcoma rarely causes any symptoms. Because soft tissue is very elastic, the tumours can grow quite large before they are felt. The first symptom is usually a painless lump. As the tumour grows and begins to press against nearby nerves and muscles, pain or soreness can occur.

Soft tissue sarcomas can only be diagnosed by a surgical biopsy. A biopsy is a procedure which removes tissue from the tumour and is analysed under a microscope.

Bone Sarcoma - the second group of sarcoma is bone sarcomas or bone cancer. There are three types of bone sarcoma: osteosarcoma; Ewing's sarcoma; and chondrosarcoma. Bone sarcomas are very rare. The incidence is slightly higher in males than females and no race has a higher incidence than another, although, Ewing's sarcoma is more among individuals of European descent.

Bone sarcomas are very likely to be diagnosed in children; and due to the rarity and severity of bone cancer, a bone cancer specialist such as a paediatric oncologist or an orthopaedic oncologist should be consulted in the treatment of the disease.

Bones consist of three types of tissue: compact tissue (the hard outer portion of the bone), cancellous tissue (spongy tissue inside the bone containing the bone marrow), and subchondral tissue (the smooth bone tissue of the joints). Cartilage surrounds the subchondral tissue to form a cushion around the joints.

Bone tumours can be benign (non-cancerous) or malignant (cancerous). Benign bone tumours are rarely life threatening and do not spread within the body; however, they can grow and compress healthy bone tissue.

Cancer that develops in the bone is called primary bone cancer. It is differentiated by secondary bone cancer which spreads to the bone from another part of the body. Primary bone cancer is.

The most common type of primary bone cancer is osteosarcoma. Because it occurs in growing bones, it is most often found in children.

Another type of primary bone cancer is chondrosarcoma which is found in the cartilage. This cancer occurs more often in adults. Ewing's sarcoma can occur as either a bone sarcoma or a soft tissue sarcoma depending upon the original location in the tumour.

Scientists are uncertain what causes bone cancer, however, they have been able to identify some factors which may put a person at risk. Children and young adults who have had or undergone radiation therapy or chemotherapy for other diseases are at increased risk for bone cancer. Additionally, adults with Paget's disease which is a disease characterised by abnormal growth of new bone cells have an increased risk of osteosarcoma. There are also some hereditary conditions which can increase the risk of bone cancer.

Symptoms of bone cancer can vary depending on the size and location of the tumour. Pain is the most common symptom. Tumours arising in or around the joints often cause swelling

and tenderness. Tumours can also weaken the bones thus causing fractures. Some other symptoms can be weight loss, fatigue and or anaemia.

The first step in diagnosing primary bone cancer is a complete medical history and physical examination performed by a physician. The doctor may order a blood test to determine the level of an enzyme called alkaline phosphatase. Approximately 55% of patients with primary bone cancer will have elevated levels of alkaline phosphatase. However, it is not a completely reliable indicator for bone cancer since growing bones in children will cause the enzyme to be elevated.

X-rays are also used to locate a tumour. If an X-ray suggests a tumour is present then a doctor may require further testing such as a CT scan, Magnetic Resonance Imaging (MRI), or an angiogram.

Finally, a biopsy must be performed to determine if cancer is present. A biopsy is a procedure used to remove sample tissue from the tumour. A surgeon, usually an orthopaedic oncologist, performs the procedure using a needle or making an incision. During a needle biopsy the surgeon makes a small hole in the bone and removes sample tissue with a small instrument. During an incisional biopsy, the surgeon cuts into the tumour and removes sample tissue. A Pathologist (a doctor specialising in identifying disease) then studies the cells and tissues under a microscope to determine whether the tumour is cancerous.
(Sarcoma Alliance).

Angiosarcoma

Angiosarcoma is a cancer of the inner lining of blood vessels, and it can occur in any area of the body. The disease most commonly occurs in the skin, breast, liver, spleen, and deep tissue. Angiosarcoma of the skin, or cutaneous Angiosarcoma, makes up the majority of Angiosarcoma cases, and it is usually found on the scalp and face. Angiosarcoma that appears underneath the surface of the skin is called Subcutaneous Angiosarcoma. Approximately 25% of Angiosarcomas are found in deep tissue, and around 8% are found in breast tissue.

Angiosarcomas occur in men and women of all races, and are rare in children. Patients with Angiosarcoma are best treated at a cancer centre where an expert sarcoma team and resources are available to provide specialised and responsive care.
(The Liddy Shriver Sarcoma Initiative).

Incidence of Angiosarcoma in South Africa

The National Cancer Registry (2012) does not make mention of Angiosarcoma.

Causes of Angiosarcoma

The most widely known cause of Angiosarcoma is lymphoedema, the swelling of an area of the body due to the collection of lymphatic fluid. Angiosarcoma can also occur due to radiation exposure or treatment, and angiosarcoma has been associated with carcinogens such as vinyl chloride, arsenic and thorium dioxide.

Differential Diagnosis of Angiosarcoma
Other problems to be considered in the differential diagnosis of Angiosarcoma include the following:

- Amelanotic melanoma
- Spindle-cell malignant melanoma
- Pyogenic granuloma
- Leiomyosarcoma
- Fibrosarcoma
- Liposarcoma

Differential Diagnoses:

- Phyllodes Tumour (Cystosarcoma Phyllodes)
- Haemangioblastoma
- Hepatic Hemangioma
- Kaposi Sarcoma
- Metastatic Cancer with Unknown Primary Site

(Medscape).

Signs and Symptoms of Angiosarcoma
The signs and symptoms of Angiosarcoma differ according to the location of the tumour. Often symptoms of the disease are not apparent until the tumour is well advanced.

Affected Organ	Features
Soft Tissue	• Rapidly growing tumour in the extremities or abdomen • Abdominal tumours may grow to large sizes before being detected as the abdomen can accommodate tumours • Haemorrhage, anaemia, haematoma, gastrointestinal bleeding • Adjacent lymph nodes enlarged
Skin	• Enlarging bruise, a blue-black nodule, or unhealed ulceration • Lesions may bleed and be painful • Angiosarcomas occurring on the head and neck in elderly people are one of the most common forms of cutaneous Angiosarcoma
Bone	• Tumours may grow on multiple bones of the same extremity • Pain and tenderness of the affected area is common • Swelling and increased size of the affected limb may be present
Breast	• Rapidly enlarging palpable mass without tenderness • Often there is no pain • Tumours often grow deep within breast tissue and cause diffuse breast enlargement with associated bluish skin discolouration
Other Organs	• Hepatic – non-specific symptoms such as fatigue, weight loss, right upper quadrant pain • Lung – chest pain, bloody sputum, weight loss, cough, difficulty breathing

(DermNet New Zealand).

Diagnosis of Angiosarcoma
The list of signs and symptoms mentioned in various sources for Angiosarcoma includes the 17 symptoms listed below:

- Asymptomatic (absence of symptoms) in early stages

- Skin lesions
- Fatigue (experiencing a sensation of tiredness, weariness, exhaustion, weakness, or low energy)
- Bone pain
- Anaemia
- Skin swelling
- General pain (e.g. abdominal pain; back pain, eye pain; headache; leg pain; jaw pain; side pain)
- Abnormal bleeding Gastrointestinal bleeding
- Enlarged lymph nodes
- Skin bruising
- Palpable breast lump
- Unexplained weight loss
- Chest pain - lung tumour
- Bloody sputum - lung tumour
- Dyspnoea (difficulty breathing) - lung tumour
- Cough - lung tumour

The symptoms of Angiosarcoma appears if the tumour is already mature. In this case, one does not have much time to intervene with the condition that is why Angiosarcoma, in any part of one's body, is very dangerous.

Symptoms can be seen at the terminal stage of the tumour where one does not have much time left. The following are the tests and examinations that are performed to rule out this condition:

- X-ray – This is an initial diagnostic test to see the basic structure of the tumour.
- Bone Scan – This procedure is only done when the affected part of Angiosarcoma is in the bones. This is like an X-ray, but this procedure will provide one with more details than X-ray because it can reveal the abnormal portion of the bone.
- Advanced Imaging Tests – This includes MRI and CT Scan of the tumour, they are both specialised imaging tests that are used to scan the tumour deeper with cross sectional view. Also, it can produce a detailed result on the status of the tumour. It can be used after the treatment to check if the treatment provided against the tumour is successful.
- Biopsy – Doctors will be extracting a sample specimen from the tumour and it will be used to diagnose the condition of the patient. Fine-needle biopsy is the most commonly used type of biopsy because of its accuracy and it does not leave a large wound on the patient.

(Right Diagnosis; Cancer Wall).

Staging of Angiosarcoma

Angiosarcoma is staged as follows:

- Stage I: Localised and resectable tumour is found in 1 location and could be treated surgically.

- Stage II: Localised and possibly resectable primary tumour is found in more locations in the organ and may be treated surgically. The decision to treat the disease surgically depends on the experience of the physician.

- Stage III: Advanced cancer has spread to more than 1 location in the organ and/or to other parts of the body. Frequently these tumours require multiple treatment modalities for maximum benefit. Often, surgical resection does not provide benefit to the patient.

- Stage IV: Disseminated cancer involves multiple sites throughout the body. Frequently, surgery is not indicated, and chemotherapy is the best option.

For bone and soft tissue sarcomas in adults, the two most commonly used staging systems are those developed by the AJCC and by Enneking. In children, the Intergroup Rhabdomyosarcoma Study and the International Union Against Cancer describe the systems used most commonly.

The stages are as follows:
- Ia - Low grade, intracompartmental G1/T1/M0
- Ib - Low grade, extracompartmental G1/T2/M0
- IIa - High grade, intracompartmental G2/T1/M0
- IIb - High grade, extracompartmental G2/T2/M0
- IIIa - Low or high grade, intracompartmental G1-G2/T1/M1 with metastases
- IIIb - Low or high grade, extracompartmental G1-2/T2/M1 with metastases

(Cancer Wall).

Treatment of Angiosarcoma

Treatment of Angiosarcoma is dependent on the location of the Angiosarcoma and the extent of the tumour. Treatment includes chemotherapy, surgery, radiotherapy, or a combination of these treatment modalities.

Treatment and Follow-up for Localised Disease - Angiosarcomas have a particular ability to recur near the site tumours, surgery is most often employed, and radiation is often added to try to control the tumour locally. There is no evidence giving chemotherapy after surgical removal of the tumour increases one's chance for survival. Treatment is also often made more difficult in the breast when the tumour follows a course of radiation; it is often possible to surgically remove the remaining tumour, but it becomes too dangerous to give radiation to the same area twice, the risk being the permanent damage of normal tissue after such radiation. In these situations surgical resection alone is usually recommended.

Treatment and Follow-up for Metastatic Disease - in the situation where the tumour is recurrent or metastatic, in some cases radiation or another surgical resection can be offered, but usually treatment consists of intravenous chemotherapy directed against the tumour. The best commercially available chemotherapy drugs for Angiosarcomas have been treatments that contain doxorubicin (including Doxil/Caelyx) or taxanes (docetaxel or paclitaxel). It is possible with careful dose adjustment to be able to treat people with metastatic disease for a year or more with a single type of treatment.

Targeted Therapies - Angiosarcomas are an obvious target for anti-angiogenic therapy. Older drugs such as interferon or thalidomide have been examined anecdotally in Angiosarcomas, and have not been very effective. In contrast, for very large haemangiomas

(benign collections of blood vessels that sometimes cause symptoms), dramatic improvement can be seen with the use of interferon-alfa.

Newer drugs that target blood vessels in principle should target Angiosarcomas, but they have not been studied well so far. In 2005-2006, several drugs were tested that might cause shrinking of Angiosarcomas based on targeting the blood vessels growth stimulator VEGF. These drugs include bevacizumab (Avastin®, from Genentech), SU11248 (Pfizer), and BAY43-9006 (Bayer), and AMG706 (Amgen).
(Sarcoma Foundation of America).

About Clinical Trials
Clinical trials are research studies that involve people. These studies test new ways to prevent, detect, diagnose, or treat diseases. People who take part in cancer clinical trials have an opportunity to contribute to scientists' knowledge about cancer and to help in the development of improved cancer treatments. They also receive state-of-the-art care from cancer experts.

Types of Clinical Trials
Cancer clinical trials differ according to their primary purpose. They include the following types:

Treatment - these trials test the effectiveness of new treatments or new ways of using current treatments in people who have cancer. The treatments tested may include new drugs or new combinations of currently used drugs, new surgery or radiation therapy techniques, and vaccines or other treatments that stimulate a person's immune system to fight cancer. Combinations of different treatment types may also be tested in these trials.

Prevention - these trials test new interventions that may lower the risk of developing certain types of cancer. Most cancer prevention trials involve healthy people who have not had cancer; however, they often only include people who have a higher than average risk of developing a specific type of cancer. Some cancer prevention trials involve people who have had cancer in the past; these trials test interventions that may help prevent the return (recurrence) of the original cancer or reduce the chance of developing a new type of cancer.

Screening - these trials test new ways of finding cancer early. When cancer is found early, it may be easier to treat and there may be a better chance of long-term survival. Cancer screening trials usually involve people who do not have any signs or symptoms of cancer. However, participation in these trials is often limited to people who have a higher than average risk of developing a certain type of cancer because they have a family history of that type of cancer or they have a history of exposure to cancer-causing substances (e.g., cigarette smoke).

Diagnostic - these trials study new tests or procedures that may help identify, or diagnose, cancer more accurately. Diagnostic trials usually involve people who have some signs or symptoms of cancer.

Quality of life or supportive care - these trials focus on the comfort and quality of life of cancer patients and cancer survivors. New ways to decrease the number or severity of side effects of cancer or its treatment are often studied in these trials. How a specific type of cancer or its treatment affects a person's everyday life may also be studied.

Where Clinical Trials are Conducted

Cancer clinical trials take place in cities and towns in doctors' offices, cancer centres and other medical centres, community hospitals and clinics. A single trial may take place at one or two specialised medical centres only or at hundreds of offices, hospitals, and centres.

Each clinical trial is managed by a research team that can include doctors, nurses, research assistants, data analysts, and other specialists. The research team works closely with other health professionals, including other doctors and nurses, laboratory technicians, pharmacists, dieticians, and social workers, to provide medical and supportive care to people who take part in a clinical trial.

Research Team

The research team closely monitors the health of people taking part in the clinical trial and gives them specific instructions when necessary. To ensure the reliability of the trial's results, it is important for the participants to follow the research team's instructions. The instructions may include keeping logs or answering questionnaires. The research team may also seek to contact the participants regularly after the trial ends to get updates on their health.

Clinical Trial Protocol

Every clinical trial has a protocol, or action plan, that describes what will be done in the trial, how the trial will be conducted, and why each part of the trial is necessary. The protocol also includes guidelines for who can and cannot participate in the trial. These guidelines, called eligibility criteria, describe the characteristics that all interested people must have before they can take part in the trial. Eligibility criteria can include age, sex, medical history, and current health status. Eligibility criteria for cancer treatment trials often include the type and stage of cancer, as well as the type(s) of cancer treatment already received.

Enrolling people who have similar characteristics helps ensure that the outcome of a trial is due to the intervention being tested and not to other factors. In this way, eligibility criteria help researchers obtain the most accurate and meaningful results possible.

National and International Regulations

National and international regulations and policies have been developed to help ensure that research involving people is conducted according to strict scientific and ethical principles. In these regulations and policies, people who participate in research are usually referred to as "human subjects."

Informed Consent

Informed consent is a process through which people learn the important facts about a clinical trial to help them decide whether or not to take part in it, and continue to learn new information about the trial that helps them decide whether or not to continue participating in it.

During the first part of the informed consent process, people are given detailed information about a trial, including information about the purpose of the trial, the tests and other procedures that will be required, and the possible benefits and harms of taking part in the trial. Besides talking with a doctor or nurse, potential trial participants are given a form, called an informed consent form, that provides information about the trial in writing. People

who agree to take part in the trial are asked to sign the form. However, signing this form does not mean that a person must remain in the trial. Anyone can choose to leave a trial at any time—either before it starts or at any time during the trial or during the follow-up period. It is important for people who decide to leave a trial to get information from the research team about how to leave the trial safely.

The informed consent process continues throughout a trial. If new benefits, risks, or side effects are discovered during the course of a trial, the researchers must inform the participants so they can decide whether or not they want to continue to take part in the trial. In some cases, participants who want to continue to take part in a trial may be asked to sign a new informed consent form.

New interventions are often studied in a stepwise fashion, with each step representing a different "phase" in the clinical research process. The following phases are used for cancer treatment trials:

Phases of a Clinical Trial

Phase 0. These trials represent the earliest step in testing new treatments in humans. In a phase 0 trial, a very small dose of a chemical or biologic agent is given to a small number of people (approximately 10-15) to gather preliminary information about how the agent is processed by the body (pharmacokinetics) and how the agent affects the body (pharmacodynamics). Because the agents are given in such small amounts, no information is obtained about their safety or effectiveness in treating cancer. Phase 0 trials are also called micro-dosing studies, exploratory Investigational New Drug (IND) trials, or early phase I trials. The people who take part in these trials usually have advanced disease, and no known, effective treatment options are available to them.

Phase I (also called phase 1). These trials are conducted mainly to evaluate the safety of chemical or biologic agents or other types of interventions (e.g., a new radiation therapy technique). They help determine the maximum dose that can be given safely (also known as the maximum tolerated dose) and whether an intervention causes harmful side effects. Phase I trials enrol small numbers of people (20 or more) who have advanced cancer that cannot be treated effectively with standard (usual) treatments or for which no standard treatment exists. Although evaluating the effectiveness of interventions is not a primary goal of these trials, doctors do look for evidence that the interventions might be useful as treatments.

Phase II (also called phase 2). These trials test the effectiveness of interventions in people who have a specific type of cancer or related cancers. They also continue to look at the safety of interventions. Phase II trials usually enrol fewer than 100 people but may include as many as 300. The people who participate in phase II trials may or may not have been treated previously with standard therapy for their type of cancer. If a person has been treated previously, their eligibility to participate in a specific trial may depend on the type and amount of prior treatment they received. Although phase II trials can give some indication of whether or not an intervention works, they are almost never designed to show whether an intervention is better than standard therapy.

Phase III (also called phase 3). These trials compare the effectiveness of a new intervention, or new use of an existing intervention, with the current standard of care (usual treatment) for

a particular type of cancer. Phase III trials also examine how the side effects of the new intervention compare with those of the usual treatment. If the new intervention is more effective than the usual treatment and/or is easier to tolerate, it may become the new standard of care.

Phase III trials usually involve large groups of people (100 to several thousand), who are randomly assigned to one of two treatment groups, or "trial arms": (1) a control group, in which everyone in the group receives usual treatment for their type of cancer, or 2) an investigational or experimental group, in which everyone in the group receives the new intervention or new use of an existing intervention. The trial participants are assigned to their individual groups by random assignment, or randomisation. Randomisation helps ensure that the groups have similar characteristics. This balance is necessary so the researchers can have confidence that any differences they observe in how the two groups respond to the treatments they receive are due to the treatments and not to other differences between the groups.

Randomisation is usually done by a computer program to ensure that human choices do not influence the assignment to groups. The trial participants cannot request to be in a particular group, and the researchers cannot influence how people are assigned to the groups. Usually, neither the participants nor their doctors know what treatment the participants are receiving.

People who participate in phase III trials may or may not have been treated previously. If they have been treated previously, their eligibility to participate in a specific trial may depend on the type and the amount of prior treatment they received.

In most cases, an intervention will move into phase III testing only after it has shown promise in phase I and phase II trials.

Phase IV (also called phase 4). These trials further evaluate the effectiveness and long-term safety of drugs or other interventions. They usually take place after a drug or intervention has been approved by the medicine regulatory office for standard use. Several hundred to several thousand people may take part in a phase IV trial. These trials are also known as post-marketing surveillance trials. They are generally sponsored by drug companies.

Sometimes clinical trial phases may be combined (e.g., phase I/II or phase II/III trials) to minimize the risks to participants and/or to allow faster development of a new intervention.

Although treatment trials are always assigned a phase, other clinical trials (e.g., screening, prevention, diagnostic, and quality-of-life trials) may not be labelled this way.

<u>Use of Placebos</u>

The use of placebos as comparison or "control" interventions in cancer treatment trials is rare. If a placebo is used by itself, it is because no standard treatment exists. In this case, a trial would compare the effects of a new treatment with the effects of a placebo. More often, however, placebos are given along with a standard treatment. For example, a trial might compare the effects of a standard treatment plus a new treatment with the effects of the same standard treatment plus a placebo.

Possible benefits of taking part in a clinical trial

The benefits of participating in a clinical trial include the following:

- Trial participants have access to promising new interventions that are generally not available outside of a clinical trial.
- The intervention being studied may be more effective than standard therapy. If it is more effective, trial participants may be the first to benefit from it.
- Trial participants receive regular and careful medical attention from a research team that includes doctors, nurses, and other health professionals.
- The results of the trial may help other people who need cancer treatment in the future.
- Trial participants are helping scientists learn more about cancer (e.g., how it grows, how it acts, and what influences its growth and spread).

Potential harms associated with taking part in a clinical trial

The potential harms of participating in a clinical trial include the following:

- The new intervention being studied may not be better than standard therapy, or it may have harmful side effects that doctors do not expect or that are worse than those associated with standard therapy.
- Trial participants may be required to make more visits to the doctor than they would if they were not in a clinical trial and/or may need to travel farther for those visits.

Correlative research studies, and how they are related to clinical trials

In addition to answering questions about the effectiveness of new interventions, clinical trials provide the opportunity for additional research. These additional research studies, called correlative or ancillary studies, may use blood, tumour, or other tissue specimens (also known as 'biospecimens') obtained from trial participants before, during, or after treatment. For example, the molecular characteristics of tumour specimens collected during a trial might be analysed to see if there is a relationship between the presence of a certain gene mutation or the amount of a specific protein and how trial participants responded to the treatment they received. Information obtained from these types of studies could lead to more accurate predictions about how individual patients will respond to certain cancer treatments, improved ways of finding cancer earlier, new methods of identifying people who have an increased risk of cancer, and new approaches to try to prevent cancer.

Clinical trial participants must give their permission before biospecimens obtained from them can be used for research purposes.

When a clinical trial is over

After a clinical trial is completed, the researchers look carefully at the data collected during the trial to understand the meaning of the findings and to plan further research. After a phase I or phase II trial, the researchers decide whether or not to move on to the next phase or stop testing the intervention because it was not safe or effective. When a phase III trial is completed, the researchers analyse the data to determine whether the results have medical importance and, if so, whether the tested intervention could become the new standard of care.

The results of clinical trials are often published in peer-reviewed scientific journals. Peer review is a process by which cancer research experts not associated with a trial review the

study report before it is published to make sure that the data are sound, the data analysis was performed correctly, and the conclusions are appropriate. If the results are particularly important, they may be reported by the media and discussed at a scientific meeting and by patient advocacy groups before they are published in a journal. Once a new intervention has proven safe and effective in a clinical trial, it may become a new standard of care.
(National Cancer Institute).

Medical Disclaimer

This Fact Sheet is intended to provide general information only and, as such, should not be considered as a substitute for advice, medically or otherwise, covering any specific situation. Users should seek appropriate advice before taking or refraining from taking any action in reliance on any information contained in this Fact Sheet. So far as permissible by law, the Cancer Association of South Africa (CANSA) does not accept any liability to any person (or his/her dependants/estate/heirs) relating to the use of any information contained in this Fact Sheet.

Whilst CANSA has taken every precaution in compiling this Fact Sheet, neither it, nor any contributor(s) to this Fact Sheet can be held responsible for any action (or the lack thereof) taken by any person or organisation wherever they shall be based, as a result, direct or otherwise, of information contained in, or accessed through, this Fact Sheet.

Sources and References

Angiosarcoma
http://www.dermaamin.com/site/atlas-of-dermatology/1-a/105-angiosarcoma-

Cancer Wall
https://cancerwall.com/angiosarcoma-prognosis-symptoms-treatment-pictures-causes/

DermNet New Zealand
https://www.dermnetnz.org/topics/angiosarcoma/

Medscape
http://emedicine.medscape.com/article/276512-differential

National Cancer Institute
http://www.cancer.gov/about-cancer/treatment/clinical-trials/what-are-trials

Right Diagnosis
http://www.rightdiagnosis.com/a/angiosarcoma/symptoms.htm

Sarcoma Alliance
http://sarcomaalliance.org/what-you-need-to-know/bone-sarcoma/

Sarcoma Foundation of America
http://www.curesarcoma.org/patient-resources/sarcoma-subtypes/angiosarcoma/

The Liddy Shriver Sarcoma Initiative
http://sarcomahelp.org/angiosarcoma.html